

2025-26

# UNDERGRADUATE/GRADUATE CATALOG

WORLDWIDE CAMPUS

catalog.erau.edu/worldwide

EMBRY-RIDDLE
Aeronautical University

# Table of Contents


Worldwide Campus Catalog ..... 5
The Worldwide Campus ..... 6
Chancellor's Welcome ..... 6
Institutional & Specialized Accreditations, Affiliations, and State Authorizations ..... 6
Contact the Worldwide Campus ..... 10
About the University ..... 11
Message from the President ..... 12
Mission of the University ..... 12
Embry-Riddle's History ..... 12
Worldwide Campus Admissions ..... 14
Current High School Students ..... 14
High School Graduates ..... 14
Transfer Students ..... 15
Former Embry-Riddle Students ..... 15
Non-Degree Seeking and Transient Students ..... 16
Certificate Seeking Students (UG) ..... 16
Certificate Seeking Students (GR) ..... 16
Undergraduate Conditional Admission ..... 16
Graduate Conditional Admission ..... 16
Readmission of Service Members: Higher Education Opportunity Act of 2008 ..... 16
First Time and Transfer Students ..... 17
International Admissions ..... 17
F-1 Student Visas ..... 18
International Student Services ..... 19
Computer Requirements and Email ..... 19
Financial Aid and Services ..... 20
Eligibility and Application ..... 20
Financial Assistance: Grants, Loans, Scholarships ..... 21
Payments ..... 22
Tuition and Fees ..... 23
Course Drop, Course Withdrawal, and Refund Schedule ..... 23
Student Services and Academic Affairs ..... 28
Academic Advisement ..... 28
Books, Library and Supplies ..... 28
Embry-Riddle Asia Students ..... 29
Student Responsibilities ..... 29
Registration ..... 29
VECTOR ..... 29
Articulations & Educational Academic Agreements ..... 29
Credit: Transfer, Military, Time Limits, and Advanced Standing ..... 29
Courses: Add/Drop, Load, Classification, Withdrawal, GPA ..... 32
Dean's List, Honor Roll, Warning, Probation, Suspension, and Dismissal ..... 34
Academic Integrity ..... 35
Transfer or Change in Degree Program ..... 36
Earning Multiple Degrees and Minors ..... 36
Matriculation, Continuous Student Status, Catalog Applicability ..... 37
Transcript Requests ..... 37
Skills Assessments ..... 38
Privacy of Student Records (FERPA) ..... 38
Grades ..... 39
Graduation ..... 40
Classroom Rules and Regulations ..... 41
Title IX ..... 41
Center for Career and Professional Development ..... 42
Dean of Students ..... 43
Orientation ..... 43
Social Networking and Study Abroad ..... 43
Student Accessibility Services ..... 43
Student Grievance ..... 43
Student Ombudsman ..... 44
Student Conduct ..... 44
California Student Information ..... 46
California Campus Locations ..... 46
Facility and Equipment Information ..... 47
Housing Information ..... 48
Estimated Cost of Attendance ..... 49
Student Tuition Recovery Fund Disclosures ..... 52
Nevada Student Information ..... 52
Criminal Convictions and Violations ..... 52
Alumni Engagement ..... 53
Surveys ..... 53
Veteran Student Services ..... 53
Specialized Academic Opportunities ..... 56
Degrees & Programs ..... 58
Minor Courses of Study ..... 59
College of Aviation ..... 60
A.S. in Aeronautics ..... 60
A.S. in Aviation Maintenance ..... 61
A.S. in Uncrewed and Autonomous Systems ..... 62
B.S. in Aeronautics ..... 62
B.S. in Aviation Maintenance ..... 65
B.S. in Aviation Safety ..... 70
B.S. in Pilot Operations ..... 72
B.S. in Uncrewed and Autonomous Systems ..... 74
Combined Program Pathways College of Aviation ..... 76
M.S. in Aeronautics ..... 76

M.S. in Aviation and Aerospace Sustainability ... 77
Master of Aviation Cybersecurity ... 78
Master of Aviation Maintenance ... 78
M.S. in Aviation Safety ... 79
Master of Space Operations ... 79
M.S. in Space Systems ... 80
M.S. in Uncrewed and Autonomous Systems ... 80
Minor in Air Traffic Management ... 81
Minor in Applied Meteorology ... 81
Minor in Aviation Maintenance Operations ... 81
Minor in Aviation Safety ... 82
Minor in Cybersecurity Application and Management ... 82
Minor in Helicopter Operations and Safety ... 82
Minor in Small Uncrewed Aircraft Systems (sUAS) Operation ... 82
Minor in Space Studies ... 82
Minor in Uncrewed and Autonomous Systems ... 83
Undergraduate Certificate in Aviation Maintenance Technology Part 65 ... 83
Undergraduate Certificate in Uncrewed Systems Technology ... 83
Graduate Certificate in Aviation and Aerospace Sustainability ... 83
Graduate Certificate in Aviation Safety ... 84
School of Engineering ... 85
A.S. in Engineering Fundamentals ... 85
B.S. in Engineering ... 86
B.S. in Engineering Technology ... 89
B.S. in Software Engineering ... 91
M.S. in Aerospace Engineering ... 94
M.S. in Airworthiness Engineering ... 95
M.S. in Systems Engineering ... 96
Minor in Engineering Sciences ... 98
Undergraduate Certificate in Engineering Fundamentals ... 98
Graduate Certificate in Airworthiness Engineering ... 99
Graduate Certificate in Systems Engineering ... 99
College of Arts & Sciences ... 100
A.S. in Emergency Management ... 100
B.S. in Communication ... 102
B.S. in Data Science ... 106
B.S. in Emergency Services ... 108
B.S. in Homeland Security ... 111
B.S. in Human Factors Psychology ... 113
B.S. in Interdisciplinary Studies ... 116
B.S. in Safety Management ... 118
Combined Program Pathways College of Arts & Sciences ... 120
M.S. in Emergency Services ... 120
M.S. in Human Factors ... 121
M.S. in Human Security and Resilience ... 123
M.S. in Occupational Safety Management ... 124
Minor in Airport Baggage Handling Systems Implementation ... 126
Minor in Applied Data Science ... 127
Minor in Artificial Intelligence, Ethics, and Creativity ... 127
Minor in Aviation, Technology, and Society ... 127
Minor in Communication ... 128
Minor in Crisis, Risk and Resilience Communication ... 128
Minor in Economics ... 128
Minor in Emergency Services ... 129
Minor in Environmental Science ... 129
Minor in Homeland Security ... 129
Minor in Human Factors ... 130
Minor in Humanistic STEM ... 130
Minor in Industrial/Organizational Psychology ... 131
Minor in International Relations ... 131
Minor in Mathematics ... 131
Minor in Military Science ... 132
Minor in Military Studies ... 132
Minor in Occupational Safety and Health ... 132
Minor in Psychology ... 133
Minor in Research Foundations ... 133
Minor in Science Literacy ... 133
Minor in Security and Intelligence ... 134
Minor in Space Policy, History, and Culture ... 134
Undergraduate Certificate in Airport Baggage Handling Systems Implementation ... 134
Undergraduate Certificate in Artificial Intelligence, Ethics, and Creativity ... 135
Undergraduate Certificate in Crisis, Risk and Resilience Communication ... 135
Undergraduate Certificate in Emergency Management Leadership ... 136
Undergraduate Certificate in Occupational Safety and Health ... 136
Graduate Certificate in Human Factors ... 137
Graduate Certificate in Human Security and Resilience ... 137
Graduate Certificate in Occupational Safety Management ... 137
College of Business ... 139
A.S. in Aviation Business Administration ... 139
A.S. in Technical Management ... 140
B.S. in Aviation Business Administration ... 141
B.S. in Business Analytics ... 143
B.S. in Logistics and Supply Chain Management ... 144
B.S. in Project Management ... 145
B.S. in Technical Management ... 147
M.B.A. in Aviation ... 149
M.S. in Airline Management ... 151
M.S. in Airport and Air Mobility Management ... 151

M.S. in Engineering Management ..... 152
M.S. in Leadership ..... 153
M.S. in Logistics and Supply Chain Management ..... 154
M.S. in Management ..... 156
M.S. in Management Information Systems ..... 157
M.S. in Project Management ..... 158
Minor in Air Cargo Management ..... 160
Minor in Airport Management ..... 160
Minor in Aviation Management ..... 160
Minor in Human Resources ..... 161
Minor in Leadership ..... 161
Minor in Logistics Management ..... 161
Minor in Management ..... 161
Minor in Management Information Systems ..... 161
Minor in Marketing ..... 162
Minor in Project Management ..... 162
Minor in Technical Management ..... 162
Graduate Certificate in Business Intelligence and Analytics ..... 162
Graduate Certificate in Finance ..... 162
Graduate Certificate in Human Resources ..... 163
Graduate Certificate in International Business ..... 163
Graduate Certificate in Leadership ..... 163
Graduate Certificate in Marketing ..... 164
Graduate Certificate in Project Management ..... 164
Graduate Certificate in Airline Management (IATA) ..... 164
Graduate Certificate in International Society of Transport Aircraft Trading (ISTAT) ..... 165
General Education ..... 166
Undergraduate Courses ..... 168
Accounting - UG (ACCT) ..... 168
Aeronautical Engineering (AERO) ..... 168
Aeronautical Science - UG (ASCI) ..... 168
Air Force Aerospace Studies (USAF) ..... 170
Aviation Maintenance - UG (AMNT) ..... 171
Aviation Safety - UG (BSAS) ..... 172
Baggage Handling Systems Implementation (BHSI) ..... 172
Biology, Life Science (BIOL) ..... 172
Business - UG (BUSW) ..... 172
Business Analytics - UG (BUAN) ..... 173
Chemistry (CHEM) ..... 173
Co-Operative Education & Internship - UG (COIN) ..... 173
Communication (COMD) ..... 173
Computer Engineering (CESC) ..... 175
Computer Science (CSCI) ..... 175
Computer Science Engineering (CPSC) ..... 175
Cybersecurity (CYBR) ..... 176
Data Science (DSCI) ..... 176
Economics (ECON) ..... 176
Electrical Engineering (ELEC) ..... 177
Emergency Management (EMGY) ..... 177
Emergency Services - UG (ESVS) ..... 178
Engineering (ENGR) ..... 179
Engineering Science (ESCI) ..... 179
Engineering Technology (ETEC) ..... 180
English (ENGL) ..... 180
Finance - UG (FINE) ..... 181
Government (GOVT) ..... 181
History (HIST) ..... 181
Homeland Security (HLSD) ..... 181
Honors Seminar (HONR) ..... 182
Human Factors Psychology (BSHF) ..... 183
Human Resources Management/Development - UG (HRMD) ..... 183
Humanities (HUMN) ..... 183
Information Security and Assurance (MISA) ..... 185
Interdisciplinary Studies (BSIS) ..... 185
Logistics and Supply Chain Management - UG (LGMT) ..... 185
Management - UG (MGMT) ..... 186
Management Information Systems - UG (MMIS) ..... 187
Marketing - UG (MKTG) ..... 187
Mathematics - UG (MATH) ..... 187
Mechanical Engineering (MECH) ..... 188
Meteorology - UG (WEAX) ..... 188
Organizational Behavior and Leadership - UG (OBLD) ..... 189
Physical Science (PHYS) ..... 189
Project Management - UG (PMGT) ..... 190
Psychology (PSYC) ..... 191
Public Health Science (PHSC) ..... 192
Research - UG (RSCH) ..... 192
Safety - UG (SFTY) ..... 192
Security and Emergency Services (SSES) ..... 193
Security Science (SCTY) ..... 194
Sociology (SOCI) ..... 194
Software Engineering (SWEN) ..... 194
Space Studies - UG (SPAC) ..... 195
Speech (SPCH) ..... 195
Statistics (STAT) ..... 195
Uncrewed Systems - UG (UNSY) ..... 195
US Military Service (USMS) ..... 197
Graduate Courses ..... 199
Accounting - GR (ACCT) ..... 199
Aeronautical Science - GR (ASCI) ..... 199
Aerospace Engineering (AENG) ..... 199

Airline Management (AIRM) ..... 200
Airworthiness Engineering (AWEN) ..... 200
Aviation & Aerospace Sustainability (AASI) ..... 201
Aviation Cybersecurity (MACY) ..... 201
Aviation Finance (FIND) ..... 202
Aviation Maintenance - GR (MAVM) ..... 202
Aviation Management (AVMG) ..... 203
Aviation Safety - GR (MSAS) ..... 203
Business - GR (BUSW) ..... 204
Business Analytics - GR (BUAN) ..... 204
Co-Operative Education & Internship - GR (COIN) ..... 205
Emergency Services - GR (MSES) ..... 205
Engineering Management (EMGT) ..... 206
Finance - GR (FINE) ..... 206
High Reliability Organization (HROM) ..... 206
Human Factors (MSHF) ..... 207
Human Resources Management/Development - GR (HRMD) ..... 208
Human Security and Resilience (MHSR) ..... 208
Logistics and Supply Chain Management - GR (LGMT) ..... 209
Management - GR (MGMT) ..... 210
Management Information Systems - GR (MMIS) ..... 210
Marketing - GR (MKTG) ..... 211
Mathematics - GR (MATH) ..... 211
Meteorology - GR (WEAX) ..... 211
Organizational Behavior and Leadership - GR (OBLD) ..... 212
Project Management - GR (PMGT) ..... 212
Research - GR (RSCH) ..... 214
Safety - GR (SFTY) ..... 214
Space Studies - GR (SPAC) ..... 215
Space Systems (MSSS) ..... 215
System Engineering (SYSE) ..... 216
Uncrewed and Autonomous Systems (UASE) ..... 217
Uncrewed Systems - GR (UNSY) ..... 217
Office of Professional Education ..... 219
Professional Education Course Descriptions ..... 219
Faculty and Administration ..... 220
Officials of the University and Senior Leadership ..... 220
Enrollment Management ..... 220
Worldwide Academic Administration ..... 220
Worldwide Administration ..... 220
Faculty ..... 220
Faculty - College of Aviation ..... 220
Faculty - School of Engineering ..... 223
Faculty - College of Arts & Sciences ..... 223
Faculty - College of Business ..... 225
Board of Trustees ..... 226
Emeriti ..... 227
Catalog Compliance and Supplements ..... 228
Index ..... 229

# Worldwide Campus Catalog

*Your guide to planning your academic future.*

As you explore programs of study at Embry-Riddle Aeronautical University – Worldwide, you can use this online catalog to view degree requirements, program and course descriptions, transfer credit information, grading policies, and much more. Though you are bound to the catalog requirements of your program entry year, you still may want to refer to the catalog to track your progress.

The Embry-Riddle catalog is published annually. The online catalog is the official and most current version of the catalog. The printed or published PDF full/entire version of the catalog is not updated after the start of the academic year.

As updates to the catalog are made, it is important for you to remain aware of any changes that may affect you. Supplements to this catalog are listed in the Compliance and Supplements section of the catalog.

The **2025-2026** catalog is effective July 1, 2025 to July 31, 2026.

For access to previous catalogs, view the Catalog Archive.

# The Worldwide Campus

Embry-Riddle Worldwide is known for more than just our highly regarded aviation and aerospace programs. We offer a range of associate, bachelor's and master's degrees, as well as Ph.D. and certificate programs in multiple sectors—from business to engineering to emergency services. Rigorous courses are taught by industry-leading experts who understand the demands of full-time work and military life because they have been there. Embry-Riddle Worldwide also offers flexible modes of learning that enable access to Embry-Riddle courses anytime, anywhere.

Led by a faculty comprised of industry professionals—many of whom come from military backgrounds—Embry-Riddle Worldwide's programs are designed specifically to suit demanding schedules. That is why we offer the ultimate experience in flexibility. Embry-Riddle Worldwide offers more than 110 campuses across the globe - more than 70 of which are located on military bases, 10 enrollment dates per year, five modes of learning and course work that can be completed as it fits into your busy life.

### Chancellor's Welcome: A Message from Dr. John Watret

### Worldwide Campus Mission Statement

The mission of Embry-Riddle Aeronautical University – Worldwide is to provide the highest quality education, training, and student services to aviation and aerospace professionals worldwide.

### Accreditation, Associations, and State Authorizations

Embry-Riddle Aeronautical University, including the Daytona Beach Campus, the Prescott Campus, and the Worldwide Campus, is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award degrees at the associate, baccalaureate, master, and doctorate levels. Learn more about our Accreditation, Associations, and State Authorizations.

### Visit Worldwide.erau.edu to learn more about the Worldwide Campus

- Find the latest news about the Worldwide Campus
- Find or learn more about a Worldwide Location near you
- Learn more about the technology and learning modalities used by the Worldwide Campus

### Contact the Worldwide Campus

Visit us in person at one of our more than **110 locations**, call us at 800-522-6787, or **email** us.

- Visit our contact page for additional listings

## Chancellor's Welcome

### A Message from Dr. John Watret

To our students,

Please allow me to congratulate you on being part of Embry-Riddle Aeronautical University. Your decision to become a student here reflects your commitment and dedication to achieving success both academically and professionally.

Our Worldwide Campus is comprised of more than 110 locations in the United States, Canada, Asia, South America, and Europe, and as a student, you will have the opportunity to interact with and learn from faculty, staff and students from across the globe. Our commitment to you is to support, encourage and assist you as you work to reach your goals.

I believe our strengths are many, but the following stand out:

- **Our commitment to student service and success.** Embry-Riddle Worldwide continues to be a place where anyone interested in aviation/aerospace — regardless of age, geography, family responsibilities or other circumstances — can attend and thrive at a first-class university.
- **Our commitment to academic quality.** Embry-Riddle Worldwide is dedicated to academic quality, to providing an exemplary teaching and learning experience, and to preparing our students for professional careers in the aviation industry.
- **Our commitment to innovation.** As a leader in distance education, Embry-Riddle Worldwide continues to develop and deliver online courses, EagleVision courses, and online/classroom blended courses, making quality higher education available to anyone — anywhere.
- **Our commitment to the military community.** Embry-Riddle Worldwide has a long-standing commitment to our servicemen and servicewomen, both active-duty and veteran, and we take pride in our ability to offer high quality education that is flexible to meet their specific requirements.

Thanks to the work and support of our faculty and staff, our alumni and students, and so many people in the communities we serve, Embry-Riddle Worldwide stands ready to help you achieve your educational and career goals. We welcome you to share in the great Embry-Riddle tradition and be part of our promising future. And whether you are a new student, a continuing student, or one of our many alumni, let me offer you a warm welcome to Embry-Riddle Worldwide.

John R. Watret, Ph.D., FRAeS
*Chancellor*
*Worldwide Campus*

## Institutional & Specialized Accreditations, Affiliations, and State Authorizations

### Institutional Accreditations:

Embry-Riddle Aeronautical University is accredited by the **Southern Association of Colleges and Schools Commission on Colleges** (SACSCOC) to award degrees at the associate, baccalaureate, masters, and doctorate levels. Embry-Riddle Aeronautical University also may offer credentials such as certificates and diplomas at approved degree levels. Questions about the accreditation of Embry-Riddle Aeronautical University may be directed in writing to the Southern Association of Colleges and Schools Commission on Colleges at 1866 Southern Lane, Decatur, GA 30033-4097, by calling (404) 679-4500, or by using information available on SACSCOC's website (www.sacscoc.org).

**2022 SACSCOC Reaffirmation Letter**

Please note that the SACSCOC institutional accreditation extends to all Embry-Riddle Aeronautical University off-campus instructional sites, including Prescott and Worldwide, with its affiliated locations.

### Daytona Beach Campus Specialized Accreditations:

#### Aviation

The Ph.D. degree program in Aviation, the master's degree program in Aviation, the bachelor's degree programs in Aeronautical Science (Professional Pilot), Aeronautics, Air Traffic Management, Uncrewed Aircraft Systems, and the bachelor and associate degree programs in Aviation Maintenance Science are accredited by the Aviation Accreditation Board International (AABI), 115 S. 8th Street, Suite 102 Opelika, AL 36801 Telephone: 334-748-9359; https://www.aabi.aero/accreditation/accredited-programs/.

The Bachelor of Science in Aerospace and Occupational Safety is accredited by the Applied and Natural Science Accreditation

Commission of ABET, under the commission's General Criteria and Program Criteria for Safety and Similarly Named Programs.

**Aviation Maintenance:**

The certificate programs in Aviation Maintenance Technology (airframe, power plant, and airframe and power plant) are certified by the Federal Aviation Administration (FAA).

**Aviation Flight:**

Certificate programs in Flight (private, commercial, instrument, multi-engine, flight instructor, and instrument flight instructor ratings) and Flight Dispatch are approved by the Federal Aviation Administration (FAA).

### Business

The Master of Business Administration program, the Master of Business Administration in Aviation Management, the Master of Science in Aviation Finance, the bachelor degree program in Business Administration, majors in Management, Marketing, and Accounting and Finance, and the bachelor degree program in Aviation Business Administration, majors in Air Transportation and Supply Chain Management in Aviation and Aerospace, are accredited by the Accreditation Council for Business Schools and Programs (ACBSP), 11520 West 119th Street, Overland Park, KS, 66213; Telephone: 913-339-9356; https://www.acbsp.org/.

The BS in Aviation Business Administration program has dual accreditation by the Aviation Accreditation Board International (AABI), 115 S. 8th Street, Suite 102 Opelika, AL 36801 Telephone: 334-748-9359; https://www.aabi.aero/accreditation/accredited-programs/.

### Engineering

The Bachelor of Science in Aerospace Engineering is accredited by the Engineering Accreditation Commission of ABET, under the commission's General Criteria and Program Criteria for Aerospace and Similarly Named Engineering Programs.

The Bachelor of Science in Civil Engineering is accredited by the Engineering Accreditation Commission of ABET, under the commission's General Criteria and Program Criteria for Civil and Similarly Named Engineering Programs.

The Bachelor of Science in Computer Engineering is accredited by the Engineering Accreditation Commission of ABET, under the commission's General Criteria and Program Criteria for Electrical, Computer, Communication, Telecommunication(s), and Similarly Named Engineering Programs.

The Bachelor of Science in Computer Science is accredited by the Computing Accreditation Commission of ABET, under the commission's General Criteria and Program Criteria for Computer Science, and Similarly Named Computing Programs.

The Bachelor of Science in Electrical Engineering is accredited by the Engineering Accreditation Commission of ABET, under the commission's General Criteria and Program Criteria for Electrical, Computer, Communication, Telecommunication(s), and Similarly Named Engineering Programs.

The Bachelor of Science in Engineering Physics program is accredited by the Engineering Accreditation Commission of ABET, under the commission's General Criteria and Program Criteria for Engineering, General Engineering, Engineering Physics, Engineering Science, and Similarly Named Engineering Programs.

The Bachelor of Science in Mechanical Engineering is accredited by the Engineering Accreditation Commission of ABET, under the commission's General Criteria and Program Criteria for Mechanical and Similarly Named Engineering Programs.

The Bachelor of Science in Software Engineering is accredited by the Engineering Accreditation Commission of ABET, under the commission's General Criteria and Program Criteria for Software and Similarly Named Engineering Programs.

***For a full ABET declaration statement, please see specific programs.

### English Language Institute

The Embry-Riddle Aeronautical University Embry-Riddle Language Institute (ERLI) is accredited by the Commission on English Language Program Accreditation for the period August 2021 through August 2031 and agrees to uphold the CEA Standards for English Language Programs and Institutions. CEA is recognized by the U.S. Secretary of Education as a nationally recognized accrediting agency for English language programs and institutions in the U.S. For further information about this accreditation, please contact CEA, 1001 N. Fairfax Street, Suite 630, Alexandria, VA 22314, (703) 665-3400, www.cea-accredit.org.

### Homeland Security

The bachelor's degree program in Homeland Security and Intelligence is accredited by the Council for the Accreditation of Emergency Management & Homeland Security Education (CAEMHSE), 1589 Skeet Club Road, Suite 102-109, High Point, NC 27265; www.caemhse.education.

### Human Factors Psychology

The master's degree in Human Factors and the Ph.D. degree in Human Factors are accredited by the Human Factors and Ergonomic Society. https://www.hfes.org/home; 2001 K Street NW, 3rd Floor North, Washington, DC 20006. P: (202) 367-1114.

## Prescott Campus Specialized Accreditations:

### Aviation

The bachelor's degree programs in Aeronautical Science/Fixed Wing and Aviation Business Administration and the master's degree in Safety Science are accredited by the Aviation Accreditation Board International (AABI), 115 S. 8th Street, Suite 102 Opelika, AL 36801 Telephone: 334-748-9359; https://www.aabi.aero/accreditation/accredited-programs/.

**Aviation Flight:**

Certificate programs in Flight (private, commercial, instrument, multi-engine, flight instructor, and instrument flight instructor ratings) and Flight Dispatch are approved by the Federal Aviation Administration (FAA).

### Business

The bachelor's degree programs in Global Business and Supply Chain Management, Forensic Accounting and Fraud Examination, Aviation Business Administration with four concentrations (Airport and Airline Management, Management, Flight Operations, and Supply Chain Management in Aviation and Aerospace) and Business Administration with a concentration in Management are accredited by the Accreditation Council for Business Schools and Programs (ACBSP), 11520 West 119th Street, Overland Park, KS, 66213; Telephone: 913-339-9356; https://www.acbsp.org/.

### Engineering

The Bachelor of Science in Aerospace Engineering is accredited by the Engineering Accreditation Commission of ABET, under the commission's General Criteria and Program Criteria for Aerospace and Similarly Named Engineering Programs.

The Bachelor of Science in Computer Engineering is accredited by the Engineering Accreditation Commission of ABET, under the commission's General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s) and Similarly Named Engineering Programs.

The Bachelor of Science in Electrical Engineering is accredited by the Engineering Accreditation Commission of ABET, under the General Criteria and Program Criteria for Electrical, Computer, Communications, Telecommunication(s) and Similarly Named Engineering Programs.

The Bachelor of Science in Mechanical Engineering is accredited by the Engineering Accreditation Commission of ABET, under the commission's General Criteria and Program Criteria for Mechanical and Similarly Named Engineering Programs.

The Bachelor of Science in Software Engineering is accredited by the Engineering Accreditation Commission of ABET, under the commission's General Criteria and Program Criteria for Software and Similarly Named Engineering Programs.

***For a full ABET declaration statement, please see the specific program.

### Security and Intelligence

The Bachelor of Science in Cyber Intelligence and Security is accredited by the Computing Accreditation Commission of ABET, under the commission's General Criteria and Program Criteria for Cybersecurity and Similarly Named Computing Programs.

***For a full ABET declaration statement, please see the specific program.

The National Security Agency (NSA) and the Department of Homeland Security (DHS) jointly sponsor the National Centers of Academic Excellence in Cyber Defense (CAE-CD) program and have designated Embry-Riddle Aeronautical University, Prescott Campus as an NSA/DHS CAE-CD institution with its degree programs in Cyber Intelligence and Security meeting their stringent criteria. See more detailed information at: https://www.nsa.gov/resources/students-educators/centers-academic-excellence/.

## Worldwide Campus Specialized Accreditations:

### Aeronautics

The bachelor's degree program in Aeronautics is accredited by the Aviation Accreditation Board International (AABI), 115 S. 8th Street, Suite 102 Opelika, AL 36801 Telephone: 334-748-9359; https://www.aabi.aero/accreditation/accredited-programs/.

The Bachelors of Science in Aeronautics, Aviation Maintenance, Pilot Operations, and Space Operations, the Masters of Aeronautics, Aviation Cybersecurity, and Aviation Maintenance, and the Masters of Science in Aviation and Aerospace Sustainability and Aviation Safety are recognized by the Royal Aeronautical Society (RAeS), No.4 Hamilton Place, London W1J 7BQ, United Kingdom T: +44 (0)20 7670 4300; https://www.aerosociety.com/.

### Business

The associate's degree programs in Aviation Business Administration and in Technical Management, the bachelor's degree programs in Aviation Business Administration and in Technical Management, and the master's degree programs in Business Administration in Aviation, and in Management are accredited by the Accreditation Council for Business Schools and Programs (ACBSP), 11520 West 119th Street, Overland Park, KS, 66213; Telephone: 913-339-9356; https://www.acbsp.org.

The Bachelors of Science in Aviation Business Administration and the Master of Business Administration in Aviation are recognized by the Royal Aeronautical Society (RAeS), No.4 Hamilton Place, London W1J 7BQ, United Kingdom T: +44 (0)20 7670 4300; https://www.aerosociety.com/.

### Emergency Services

The bachelor's degree program in Emergency Services is accredited by the International Fire Service Accreditation Congress (IFSAC), 1812 West Tyler Avenue, Stillwater, OK, 74078; Telephone: 405-744-8303; E-mail: admin@ifsac.org, Web: https://ifsac.org/about.

It is also recognized by the National Fire Academy in accordance with the standards established by the Fire and Emergency Services Higher Education model core curriculum under the U.S. Fire Administration, 16825 S. Seton Ave., Emmitsburg, MD, 21727; Telephone: 800-238-3358, 301-447-1000; www.usfa.fema.gov.

### Engineering

The Bachelor of Science in Engineering Technology is accredited by the Engineering Technology Accreditation Commission of ABET, under the General Criteria with no applicable program criteria.

The Associate of Science in Engineering Fundamentals is accredited by the Applied and Natural Science Accreditation Commission of ABET, under the General Criteria with no applicable program criteria.

The Bachelor of Science in Engineering is accredited by the Engineering Accreditation Commission of ABET, under the General Criteria with no applicable program criteria.

***For a full ABET declaration statement, please see the specific program.

### Homeland Security

The bachelor's degree program in Homeland Security is accredited by the Council for the Accreditation of Emergency Management & Homeland Security Education (CAEMHSE), 1589 Skeet Club Road, Suite 102-109, High Point, NC 27265; www.caemhse.education.

### Human Factors

The Master of Science in Human Factors is recognized by the Royal Aeronautical Society (RAeS), No.4 Hamilton Place, London W1J 7BQ, United Kingdom T: +44 (0)20 7670 4300; www.aerosociety.com.

### Interdisciplinary Studies

The Bachelor of Science in Interdisciplinary Studies is recognized by the Royal Aeronautical Society (RAeS), No.4 Hamilton Place, London W1J 7BQ, United Kingdom T: +44 (0)20 7670 4300; www.aerosociety.com.

### Occupational Safety

The Master's in Occupational Safety Management is accredited by the Applied and Natural Science Accreditation Commission of ABET, under the General Criteria and Program Criteria for Safety and Similarly Named Programs.

***For a full ABET declaration statement, please see the specific program.

### Project Management

The Bachelor of Science in Project Management, the Master of Science in Project Management, and the Master of Science in Engineering Management, with the Project Management Certificate, are accredited by the Project Management Institute Global Accreditation Center for Project Management Education Programs (GAC), 14 Campus Boulevard, Newtown Square, PA, 19073; Telephone: 610-355-1601; https://www.pmi.org/global-accreditation-center/directory/embry-riddle-aeronautical-university.

### Uncrewed and Autonomous Systems

The Bachelor of Science and Master of Science in Uncrewed and Autonomous Systems are recognized by the Royal Aeronautical Society (RAeS), No.4 Hamilton Place, London W1J 7BQ, United Kingdom T: +44 (0)20 7670 4300; www.aerosociety.com.

## Singapore Accreditation:

To review Singapore's accreditation, please visit https://asia.erau.edu/about-asia/registration-and-accreditation.

## ERAU Affiliations:

- Developed by the Association of Uncrewed Vehicle Systems International (AUVSI), the Trusted Operator Program* (TOP) provides an industry certification that demonstrates your knowledge, skills, and abilities as a professional uncrewed aerial vehicle (UAV) pilot. Embry-Riddle Aeronautical University - Worldwide is certified to deliver all AUVSI TOP levels of certifications as an approved training provider. The TOP program at ERAU Worldwide combines longstanding educational excellence with cutting-edge industry knowledge to provide uncrewed aircraft systems (UAS) operators with unparalleled education and training.

- Embry-Riddle Aeronautical University is an approved Professional Development Provider (PDP) for the National Business Aviation Association (NBAA).
- Embry-Riddle Aeronautical University – Worldwide has joined forces with the International Air Transport Association (IATA) to offer an online certificate in Supply Chain Management that leads to the Air Cargo Professional (ACP) designation from IATA and a Certificate in Aviation Management that leads to the Aviation Management Professional (AvMP) designation.
- The B.S. in Safety Management (BSSM) is designated as a Graduate Safety Practitioner (GSP) program. A GSP is a designation available to safety degree graduates from degree programs that meet BCSP QAP standards. The GSP program is an alternate path to the Certified Safety Professional (CSP) and does not replace other paths. The GSP is not a certification.
- The B.S. in Safety Management degree (BSSM) program is also an Institute of Hazardous Materials Management (IHMM) approved Associate Safety and Health Manager (ASHM) Program. The ASHM designation is an important stepping stone to the accredited Certified Safety and Health Manager (CSHM) certification. Students achieving a degree from an approved ASHM institution only have to demonstrate two years of experience instead of four, to sit for the CSHM exam. In addition to the Board of Certified Safety Professional's Graduate Safety Professional (GSP) designation, students can add the ASHM designation behind their name, signifying to employers their level of preparation for the safety and health profession they are on the path for full certification. Graduates from the BSSM program apply for the ASHM credential upon graduation.

## Contact Information for Accreditation Complaints/ Inquiries:

Constituent complaints related to potential accreditation violations can be directed to the respective accreditors using the contact information provided. However, normal inquiries or complaints about the institution, including admission requirements, financial aid, and educational programs, should be addressed directly to the campus's offices. Contact information for accreditation inquiries:

- Accreditation Inquiry (386) 226-7612
- Daytona Beach (386) 226-6000
- Prescott (928) 777-3728
- Worldwide (386) 226-6910
- Online (800) 522-6787

## State Authorizations:

It is the policy of Embry-Riddle Aeronautical University to administer its educational programs both on and off campus in a manner that is fair, equitable, academically sound, and in accordance with the regulations and criteria of its governing board, accrediting association, and federal and state laws and regulations.

Information on Individual State-Specific Authorizations

ERAU Authorized Sites

Search for an ERAU Authorized Site

The University has no pending petition in bankruptcy, is not operating as a debtor in possession, has not filed a petition within the preceding five years, and has not had a petition in bankruptcy filed against it within the preceding five years that resulted in reorganization under Chapter 11 of the United States Bankruptcy Code (11 U.S.C. Sec. 1101 et seq.).

The following information is presented here as part of specific state-mandated disclosures. Information regarding all authorized locations can be found on the links above.

### Arizona State Board for Private Postsecondary Education

- 1740 W. Adams, Suite 3008, Phoenix, AZ 85007
- http://ppse.az.gov

### The institution is certified to operate by the State Council of High Education for Virginia (SCHEV).

- Fort Eustis Center: 1500 Madison Avenue, Fort Eustis, Virginia 23604-3910
- Langley Air Force Base: 450 Weyland Road, Suite 120, Hampton, Virginia 23665-2607
- Norfolk: 1680 Gilbert Street, Building IE, Room 11, Norfolk, Virginia 23511-2941
- Naval Air Station Oceana: 902 E Avenue, Building 531, Suite 103, Virginia Beach, Virginia 23460-2134

### Washington Student Achievement Council

Embry-Riddle Aeronautical University is authorized by the Washington Student Achievement Council and meets the requirements and minimum educational standards established for degree-granting institutions under the Degree-Granting Institutions Act. This authorization is subject to periodic review and authorizes Embry-Riddle Aeronautical University to offer specific degree programs. The Council may be contacted for a list of currently authorized programs. Authorization by the Council does not carry with it an endorsement by the Council of the institution or its programs. Any person desiring information about the requirements of the act or the applicability of those requirements to the institution may contact the Council at P.O. Box 43430, Olympia, WA 98504-3430 or by email at degreeauthorization@wsac.wa.gov.

# Contact the Worldwide Campus

**General Information**
Phone: (800) 522-6787 –OR– (800) 359-3728
Email: worldwide@erau.edu
Contact us at one of our 125 locations

**Worldwide Campus**
Embry-Riddle Aeronautical University
1 Aerospace Boulevard
Daytona Beach, FL 32114-3900

**Admissions**
Phone: (800) 522-6787
Email: wwadmissions@erau.edu

**Financial Aid**
Phone: (866) 567-7202
Email: wwfinaid@erau.edu

**Office of Registrar**
(Log in to ERNIE)
Phone: (866) 393-9046
Email: worldwide.registrar@erau.edu / Transcript Team: wwtransc@erau.edu / Graduation Team: wwgrad@erau.edu

**Student Accessibility Services**
Phone: 386-226-6092 or 1-888-292-5727
Email: wwsas@erau.edu

**Office of Professional Education**
Phone: (386) 481-9070, Toll free: (866) 574-9125
Email: training@erau.edu
Website: Proed.erau.edu/enrole

**Worldwide Academic Advising**
Phone: (800) 359-3728
Email: wwadvise@erau.edu

**Student Account Services**
(Log in to ERNIE)
Phone: (386) 226-6280

**Dean of Students**
(Log in to ERNIE)
Phone: (386) 323-8775
Email: wwdos@erau.edu

**Worldwide Career Services**
(Log in to ERNIE)
Phone: (386) 226-6092 or (386) 226-6191
Email: wwcarser@erau.edu Website: http://worldwide.erau.edu/career-services/index.html

**US Military International Campus Operations**
**Europe**
Embry-Riddle Aeronautical University
UNIT 23121
APO, AE 09227-3121
**(U.S. Mailing Address)**
Schumannstr.1
67655 Kaiserslautern, Germany
Phone: +49 631-969-83919
Email: INTLHQ@erau.edu

**PACOM**
Embry-Riddle Aeronautical University
Attn: Hayley Yamanaka
PSC 477 BOX 63
FPO, AP 96306
**(U.S. Mailing Address)**
ERAU - NAF Atsugi Education Center
Building 987, Room 206
Ayase-shi, Kanagawa-ken 252-1105 Japan
Email: WWPACOM1@erau.edu

**Military and Veteran Student Services**
Embry-Riddle Aeronautical University, Worldwide
1 Aerospace Boulevard
Daytona Beach, FL 32114-3900
Phone: 1-855-785-0001 / Fax: (386) 323-8816 / Email: wwva@erau.edu

# About the University

Embry-Riddle Aeronautical University, established in 1926, is the world's largest, fully accredited university specializing in aviation and aerospace. A truly international institution, we educate more than 31,300+ undergraduate and graduate students at residential campuses in Daytona Beach, Florida, and Prescott, Arizona, at 110 Worldwide Campus locations, including campuses in Singapore and Brazil, and through online learning.

The university offers more than 100 associate, bachelor's, master's and doctoral degree programs through its colleges of Arts & Sciences; Aviation; Business; Engineering; and Business, Security and Intelligence. Faculty members focus on research and consulting related to safety and security, uncrewed and autonomous systems, air traffic and airport management, aviation business, human factors, maintenance, spaceflight operations and urban air mobility, and much more.

Committed to propelling the industry forward, Embry-Riddle offers doctoral degree programs in Aviation, Aerospace Engineering, Aviation Business Administration, Electrical Engineering and Computer Science, Engineering Physics, Human Factors, and Mechanical Engineering. These doctoral programs expand the applied research opportunities for our students and faculty to collaborate with industry, government agencies and other universities to deliver real-world solutions. Our research partners have included the U.S. military, NASA and the FAA, in additional to federally funded laboratories and industry research and development facilities.

Across the university, Embry-Riddle holds nine Top 5 rankings. In 2024, *U.S. News & World Report* ranked both residential campuses Number 1 as the most innovative schools in their regions, and Prescott was Number 1 for best overall quality. The university's online bachelor's degree programs were rated the highest among private institutions and in the top 15 across the United States. Programs at all Embry-Riddle campuses have been ranked in Best for Veterans.

Among private colleges, Embry-Riddle has been listed in several "best" categories, including best value, best starting salary and best return on investment by the U.S. Department of Education, Affordable Colleges Online, College Choice, PayScale, Smart Asset and Value Colleges.

Student teams regularly take top honors in competitions hosted by NASA, the Society of Automotive Engineers and the Association for Uncrewed Vehicle Systems International. Aeronautical Science students excel in annual flight competitions such as the National Intercollegiate Flying Association's SAFECON regional. Students have been commissioned to serve in the U.S. Space Force, landed in "*Aviation Week's* 20 Twenties" leaders of tomorrow ranking, and earned prestigious awards including the Brooke Owens Fellowship, Patti Grace Smith Fellowship and the Goldwater Scholarship.

A dedicated faculty, administrators, alumni, trustees and advisory board members inspire and support our students and share their love of aviation and commitment to maintaining Embry-Riddle's preeminence in global aerospace education.

**Daytona Beach**

The university's 185-acre campus in Daytona Beach, Florida, is located next to Daytona Beach International Airport and Daytona International Speedway, only minutes from the Atlantic Ocean and only an hour's drive from Kennedy Space Center and Orlando.

The 177,000-square-foot Mori Hosseini Student Union is at the heart of the campus. Another striking campus building is the observatory at the College of Arts & Sciences, which operates the largest university-owned research telescope in the Southeast.

Bachelor's degrees of note at the Daytona Beach Campus include Aerospace & Occupational Safety, Aerospace Physiology, Global Conflict Studies, Space Operations and Uncrewed Aircraft Systems. Master's degrees include Aviation Finance, Data Science, Cybersecurity Engineering, Human Factors, and Uncrewed & Autonomous Systems Engineering.

The John Mica Engineering & Aerospace Innovation Complex, located in Embry-Riddle's Daytona Beach Research Park, is a hybrid research center and business incubator that attracts scientists, entrepreneurs and venture capitalists. With direct access to the airport, the Applied Aviation and Engineering Research Hangar offers specialized resources to corporate and research partners.

**Prescott Campus**

The university's mile-high, 539-acre campus is located in Prescott, Arizona. The College of Aviation offers degrees for professional fixed-wing pilots and the campus is home to the Robertson Aircraft Accident Investigation Lab, North America's only fully scenario-based training facility.

The nation's first College of Business, Security & Intelligence is also on this campus. This college offers undergraduate degrees in Aviation Business Administration, Business Administration, Cyber Intelligence and Security, Forensic Accounting and Fraud Examination, Global Business and Supply Chain Management, and Global Security and Intelligence Studies. Graduate degrees are awarded in Cyber Intelligence & Security and Security and Intelligence.

The STEM (Science, Technology, Engineering, and Math) Education Center houses 20 state-of-the-art labs dedicated to robotic systems, satellites, uncrewed aerial systems, commercial aircraft, military aircraft, physics, chemistry, biology and more. The building also contains classrooms, a multimedia center, a supercomputer system and the Jim and Linda Lee Planetarium.

Additional noteworthy degree programs at the Prescott Campus include Forensic Biology, Industrial/Organizational Psychology, Simulation Science, Games and Animation.

Engineering students at Prescott have worked with industry partners to develop patentable technology and contributed to Nobel Prize-winning research. Student flight teams have won numerous national championships in NIFA SAFECON competitions and consistently earn high rankings in the Women's Air Race Classic.

**Worldwide Campus**

Embry-Riddle Worldwide has pioneered the delivery of outstanding educational opportunities for working professionals and students who choose online learning. Embry-Riddle Worldwide works collaboratively with industry to develop new talent and help reskill the workforce, with a focus on aerospace, business, science and engineering. Worldwide graduates become leaders and innovators in their fields and you will find them at the highest levels – from the U.S. military to C-suites around the globe.

From 2016-2023, *U.S. News & World Report* ranked Embry-Riddle Worldwide as the No. 1 or No. 2 provider of online bachelor's degree programs every year. Across the university, at the Worldwide and residential campuses combined, Embry-Riddle holds nine Top 10 rankings. Programs at all Embry-Riddle campuses have been ranked among the best Best for Veterans.

Embry-Riddle's Worldwide Campus, which includes fully online programs as well as approximately 110 locations in the United States, Europe and Asia, offers bachelor's, master's and doctoral degree programs for some 20,000 students. The most popular undergraduate majors include aeronautics, aviation business administration and communication. Alumni surveys have shown that four years post-graduation, 97.6% of Embry-Riddle Worldwide graduates are employed (96.8%) or continuing their education (0.8%), while the full-time mean annual salary for those graduates is $98,400.

# Message from the President

Welcome, and congratulations on joining Embry-Riddle. Our graduates – nearly 170,000 strong – have established our reputation as the premier university in aviation and aerospace. With centers of excellence in aerospace cyber resilience and aviation safety, we continue to collaborate across government, industry and academia.

Embry-Riddle is synonymous with innovation and excellence, and our industry partners highly value our students' talent and inspiration. Here, you'll have opportunities to work on meaningful projects and internships even before graduation; nearly 90% of our students engage in important real-world research, impactful industry partnerships and inspiring exploration into the future of our skies and interplanetary development. Our Eagles turn ideas into solutions throughout their time as students and across a wide range of careers.

We welcome students and faculty from over 100 countries and take pride in the fact that the expansive global perspectives offered by our students and colleagues help to drive our core value of innovation.

Our 100-plus degree programs will prepare you for emerging opportunities, and many of these are first-of-their-kind programs serving the industry. Each of our engineering courses integrates business skillsets such as data analytics throughout our colleges to make our graduates the preferred, top-earning candidates in today's job market.

Whether you're in a classroom, lab, simulator or on the flight line, you'll benefit from a discovery-driven education that challenges you to apply your skills.

We're here to support your success, and I encourage you to attend my open office hours, either in person or virtually, to chat with me throughout the year.

As an Embry-Riddle Eagle, we expect great things from you. May you make lifelong friends, master your talents, and advance technology for the benefit of humankind.

P. Barry Butler, Ph.D.

President

# Mission of the University

## Our Mission: Who Is Embry-Riddle Aeronautical University?

Embry-Riddle Aeronautical University is the world leader in aviation and aerospace higher education. Our mission is to teach the science, practice and business necessary to prepare students for productive careers and leadership roles in business, government agencies and the military. Embry-Riddle's reputation as a leader in aviation and aerospace higher education is grounded in its aviation roots dating back to 1926.

## Our Vision: What Is Our Future?

Embry-Riddle will be the source for innovation and excellence in aerospace education and research. We will be the unquestioned global leader in aviation and aerospace higher education, with a reputation for personal attention to the success of all students. Our Prescott Campus will focus on undergraduate education that emphasizes problem-based discovery and become a top-ranked destination for its undergraduate STEM programs. Our Worldwide Campus will be recognized as the best in online and distance education. And our Daytona Beach Campus will be recognized for leadership in select areas of research, aerospace innovation and attention to student success.

## Our Values: What Do We Value?

Embry-Riddle provides a transformative educational experience through fostering collaboration and teamwork, ethical and responsible behavior, and a culture of research and discovery that mirrors the professions we serve. We focus on the development of the professional skills needed for success in global business. Embry-Riddle is committed to providing a climate that facilitates the highest standards of academic achievement, innovation and entrepreneurship in a culturally diverse community that supports the unique needs of each individual.

# Embry-Riddle's History

## Aviation and Embry-Riddle: Always Pioneering

Twenty-two years to the day of the historic flight of the Wright Flyer, barnstormer John Paul Riddle and entrepreneur T. Higbee Embry founded the Embry-Riddle Company at Lunken Airport in Cincinnati, Ohio on December 17, 1925. Just months later, they opened the Embry-Riddle School of Aviation, supporting the Air Commerce Act of 1926, which introduced certification and medical examination of pilots.

The school quickly gained a national reputation for excellence. The safety record of its pilots allowed Riddle and Embry to earn one of the first air mail routes in 1927.

Within three years, the school had become a subsidiary of AVCO, the parent of American Airlines. By the end of the decade, World War II created a demand for skilled aviators and mechanics intensified. Embry-Riddle's second life began.

In South Florida, Embry-Riddle opened flight-training centers and quickly became the world's largest aviation school. Allied nations sent thousands of fledgling airmen to the Embry-Riddle centers at Carlstrom, Dorr, and Chapman airfields to become pilots, mechanics and aviation technicians. Embry-Riddle trained more than 25,000 aviation professionals during the war years.

After the war, under the leadership of John and Isabel McKay, Embry-Riddle expanded its international outreach, establishing a school in Brazil, and strengthening its academic programs.

With Jack R. Hunt as president, Embry-Riddle moved its flight program, ground school and technical training programs in Daytona Beach, Florida in 1965. This relocation and consolidation, supported by Daytona Beach civic leaders, signaled the rebirth of Embry-Riddle. With accreditation, we became Embry-Riddle Aeronautical University in 1970. That year, the university also established centers at U.S. aviation bases to serve active-duty military personnel, planting the seeds for Embry-Riddle Worldwide.

In 1978, under President Hunt's leadership, Embry-Riddle opened a western campus in Prescott, Arizona, on the 511-acre site of a former college. With superb flying weather and expansive grounds, the Prescott Campus has earned prominence in aviation education and research.

After Hunt's presidency, Lt. Gen. Kenneth L. Tallman led the university for five years, drawing on his 35-year military career and service as superintendent of the U.S. Air Force Academy. Under Tallman's leadership, we added a school of graduate studies and degree programs in Electrical Engineering and Engineering Physics.

Dr. Steven M. Sliwa led the university from 1991 through 1998, focusing on strengthening the ties with industry. He developed a joint venture with FlightSafety International; a partnership with Cessna Aircraft Company; a technology alliance with IBM; and an exclusive educational partnership with the Aircraft Owners and Pilots Association. He also spearheaded a $100+ million capital expansion program and an $11.5 million congressional line-item appropriation.

Dr. George H. Ebbs, led the university from 1998 through 2005. During his tenure, Embry-Riddle continued to expand its campuses and gain national prominence, earning the No. 1 Aerospace Engineering undergraduate program ranking from *U.S. News & World Report*. The Aerospace Engineering program also became the largest in the country. New programs in this era included Computer Science, Mechanical Engineering, Software Engineering, Space Physics, Safety Science, and Global

contracts to provide aviation degrees to U.S. military in Europe and provide training to the Air National Guard, international flight safety officers from the U.S. Air Force and support pilot training at the U.S. Air Force Academy.

Dr. John P. Johnson came to Embry-Riddle from Texas A&M University, where he was provost and vice president. He was also Dean at the Medical University of South Carolina and at Northern Kentucky University. Dr. Johnson expanded international and research initiatives and launched doctoral programs in Aerospace Engineering, Aviation, Aviation Business Administration, Electrical Engineering and Computer Science, Engineering Physics, Human Factors, and Mechanical Engineering. Working with the FAA and industry leaders, Dr. Johnson positioned the university to lead the development of next-generation air traffic management technology.

In 2017, P. Barry Butler came to Embry-Riddle Aeronautical University from the University of Iowa, where he served as executive vice president and provost. An aeronautical, astronautical and mechanical engineer and former dean of engineering, Dr. Butler now oversees a university that has become a collaborative workforce developer and a respected center for aviation research and development, including emerging areas such as cyber resilience.

Under his presidency, Embry-Riddle continues to expand discovery-driven degree programs and its research park is home to new aerospace patents, technology transfer and startups. Dr. Butler has prioritized collaboration with industry, resulting in new scholarships, mentorship programs and expedited hiring initiatives. He is expanding the university's research, development and education in the areas of aviation cybersecurity, aviation data analytics and autonomous vehicles.

# Worldwide Campus Admissions

Embry-Riddle considers all aspects of a student's qualifications and offers admission to the most competitive applicants, building a talented and diverse population of students motivated toward careers in aviation and aerospace. Applications for admission are valid for one year from date received. Admitted students must enroll and maintain enrollment beyond the add/drop period within one year of admission or must reapply. For the purpose of admission, transcripts are deemed official when issued directly from the issuing institution to Embry-Riddle. Upon acceptance, academic evaluators issue an official advising report to newly admitted degree and certificate seeking students, reflecting any transfer and/or advanced standing credit awarded.

To apply for admissions, go to https://worldwide.erau.edu/admissions/apply.

### Undergraduate Admissions

- Current High School Students
- High School Graduates
- Transfer Students
- Former Embry-Riddle Students
- Non-Degree Seeking and Transient Students
- Certificate Seeking Students
- Conditional Admission
- Readmission of Service Members: Higher Education Opportunity Act of 2008

### Graduate Admissions

- First Time and Transfer Students
- Former Embry-Riddle Students
- Non-Degree Seeking and Transient Students
- Certificate Seeking Students
- Conditional Admission
- Readmission of Service Members: Higher Education Opportunity Act of 2008

### International Admissions

- F-1 Student Visas
- International Student Services

### Computer Requirements and Email

## Current High School Students

The University defines a first-year applicant as one who is applying for degree status directly from high school. The University offers admission to applicants who present an academic record that demonstrates their ability to graduate. The following documentation is required for consideration of admission for all applicants currently enrolled in high school:

- Official high school transcript or equivalent (GED®, HiSET®, or TASC®)
  - Rigor of high school academic program and academic performance will be assessed at a 2.5 unweighted GPA or higher on a 4.0 scale
- Official transcripts from all postsecondary, accredited degree-granting institutions reflecting dual enrollment credit, if applicable
- Advanced Placement (AP) or International Baccalaureate (IB) scores, if applicable

The university expects all applicants to have completed by high school graduation the following course work, at a minimum:

- Four years of English
- Three years of mathematics, including Algebra I or Applied Math I & II, Formal Logic or Geometry
- Three years of history or social science
- Two years of science in at least two different areas, with at least one lab experience

ACT and/or SAT scores are optional, but strongly encouraged. While an essay, resume, and two letters of recommendation are not required for admission, they may help us to assess your qualifications. If submitting an essay, you're encouraged to submit 300-500 words outlining your career goals and how Embry-Riddle will assist in attaining those goals. Resumes can include your academic and extra-curricular activities, awards, honors, employment, etc. Letters of recommendation should be from a school counselor, teacher, or employer.

Admitted students will be permitted to enroll in Embry-Riddle Worldwide coursework no sooner than the July term of their graduation year. An official, final high school transcript with all grades posted demonstrating continued academic progress and graduation must be submitted to Embry-Riddle within the first term of enrollment. Students located in the state of California are required to submit an official, final high school transcript prior to enrolling in coursework.

*For both undergraduate and graduate applicants, additional documentation may be required for admission and consideration of credit from military, licensure, or other documented experiential learning. Applicants using Veteran's Administration benefits will be required to submit transcripts from all prior institutions attended (to include non-accredited and non-degree granting institutions) and all National Exam scores prior to admission. Admission into some degree programs may require an applicant to have a higher GPA, meet other special requirements, and/or submit additional documentation. Academic, judicial, and disciplinary notations on transcripts will be reviewed on a case by case basis and may impact admission.*

*All applicants who have educational experience outside the United States are required to provide an official course-by-course evaluation in English, to include the cumulative grade-point average, unless specifically exempted through a qualifying ERAU program. Refer to the* International Admissions *section of the catalog for details on foreign credential evaluations.*

## High School Graduates

### Applicants Under the Age of 20

The following documentation is required for consideration of admission for all applicants under the age of 20, who have not served in the United States military and are not a transfer student:

- Official high school transcript or equivalent (GED®, HiSET® or TASC®);
  - Rigor of high school academic program and academic performance will be assessed at a 2.5 unweighted GPA or higher on a 4.0 scale
- Official transcripts from all postsecondary, accredited degree-granting institutions, if applicable
- Advanced Placement (AP) or International Baccalaureate (IB) scores, if applicable

The university expects all applicants to have completed by high school graduation the following course work, at a minimum:

- Four years of English
- Three years of mathematics, including Algebra I or Applied Math I & II, Formal Logic or Geometry
- Three years of history or social science

- Two years of science in at least two different areas, with at least one lab experience

ACT and/or SAT scores are optional, but strongly encouraged. While an essay, resume, and two letters of recommendation are not required for admission, they may help us to assess your qualifications. If submitting an essay, you're encouraged to submit 300-500 words outlining your career goals and how Embry-Riddle will assist in attaining those goals. Resumes can include your academic and extra-curricular activities, awards, honors, employment, etc. Letters of recommendation should be from a school counselor, teacher, or employer.

### Applicants Age 20 and Older

Applicants age 20 and older who are not classified as a transfer student or have not served in the US military must provide the following documentation:

- Official high school transcript or equivalent (GED®, HiSET® or TASC®) with a 2.5 unweighted GPA or higher assessed on a 4.0 scale
- Official transcripts from all postsecondary, accredited degree-granting institutions attended, if applicable, with a minimum of a 2.0 CGPA on a 4.0 scale

### Applicants with Military Experience

Applicants with United States military experience, but no college transfer credit must provide the following documentation:

- Official military transcripts showing documentation of service
- Additional documentation may be requested for advanced standing credit

*For both undergraduate and graduate applicants, additional documentation may be required for admission and consideration of credit from military, licensure, or other documented experiential learning. Applicants using Veteran's Administration benefits will be required to submit transcripts from all prior institutions attended (to include non-accredited and non-degree granting institutions) and all National Exam scores prior to admission. Admission into some degree programs may require an applicant to have a higher GPA, meet other special requirements, and/or submit additional documentation. Academic, judicial, and disciplinary notations on transcripts will be reviewed on a case by case basis and may impact admission.*

*All applicants who have educational experience outside the United States are required to provide an official course-by-course evaluation in English, to include the cumulative grade-point average, unless specifically exempted through a qualifying ERAU program. Refer to the* International Admissions *section of the catalog for details on foreign credential evaluations.*

*Embry-Riddle does not offer Career Pathway Programs therefore there are no Ability-to-Benefit testing options for students who do not currently have a high school diploma or GED.*

## Transfer Students

For the purposes of admission, a transfer student is defined as any student who has earned college-level credit from an accredited degree-granting institution after graduating from high school. Embry-Riddle considers each application for transfer admission individually, reviewing the student's academic record, grades received in all college-level courses and the rigor of the student's academic program. College courses completed as dual enrollment while concurrently enrolled in high school do not qualify applicants as transfer students.

To be considered for admission, a transfer applicant must have a minimum of a 2.0 cumulative grade point average (CGPA) on a 4.0 scale from an accredited degree-granting institution. When an applicant has attended more than one institution, a cumulative average for all previous college work attempted will be calculated to determine the overall CGPA.

Transfer students must submit the following documentation:

- Official transcripts from all accredited degree-granting colleges and universities (postsecondary institutions) attended
- Military transcripts and documents, if applicable
- Official high school transcript, or equivalent (GED®, HiSET®, or TASC®) with a 2.5 unweighted GPA or higher assessed on a 4.0 scale will be required of applicants who have not served in the United States military, if fewer than 12 semester hours of college level credit have been earned

*For both undergraduate and graduate applicants, additional documentation may be required for admission and consideration of credit from military, licensure, or other documented experiential learning. Applicants using Veteran's Administration benefits will be required to submit transcripts from all prior institutions attended (to include non-accredited and non-degree granting institutions) and all National Exam scores prior to admission. Admission into some degree programs may require an applicant to have a higher GPA, meet other special requirements, and/or submit additional documentation. Academic, judicial, and disciplinary notations on transcripts will be reviewed on a case by case basis and may impact admission.*

*All applicants who have educational experience outside the United States are required to provide an official course-by-course evaluation in English, to include the cumulative grade-point average, unless specifically exempted through a qualifying ERAU program. Refer to the* International Admissions *section of the catalog for details on foreign credential evaluations.*

Prior to application or admission, undergraduate students may utilize the transfer portal to obtain a free, unofficial estimate of credit of prior education and/or training to determine the amount of credit they are likely to be awarded. Graduate students may work directly with the office of admissions to request an unofficial estimate of prior credit. An official evaluation will be available to applicants following admission to the university and will be based on dates of attendance, grades earned, and catalog requirements in effect at the time of application submission.

## Former Embry-Riddle Students

**For Undergraduate Students:** A new application will be required for students whose attendance at the University is interrupted for any of the following reasons:

- Enrollment at another institution without advanced, written approval
- A matriculated student fails to enroll within one year from the ending date of their last course
- A student fails to matriculate within one year of admission
- Academic suspension from the University

Prior students with an Embry-Riddle undergraduate cumulative grade point average (CGPA) below a 2.0 may be considered for readmission. Previously suspended students must satisfy the conditions for readmission as indicated in the letter of suspension before being considered for readmission. Files will be reviewed by the Admissions Office and/or Academic Standards and Admissions Committee (ASAC). A written petition for readmission, current resume, application fee, and other supporting documentation, if applicable, must accompany the application for consideration of readmission.

**For Graduate Students:** A new application will be required for students whose attendance at the University is interrupted for any of the following reasons:

- Enrollment at another institution
- A matriculated student fails to enroll within one year from the ending date of their last course
- A student fails to matriculate within one year of admission
- Academic dismissal from the University

- Student does not complete the degree requirements of a graduate program within seven years from the date of initial enrollment in the graduate program

Prior students with an Embry-Riddle graduate cumulative grade point average (CGPA) below a 3.0 may be considered for readmission. Students must reapply and files will be reviewed by the Admissions Office and/or Academic Standards and Admissions Committee (ASAC). A written petition for readmission, current resume, application fee, and other supporting documentation, if applicable, must accompany the application for consideration of readmission.

# Non-Degree Seeking and Transient Students

## Undergraduate

Embry-Riddle recognizes that working adults may be interested in furthering their education for professional or self-enhancement purposes without pursuing a degree program. We also recognize that transient students and those pursuing a degree with another institution may wish to take a course or courses with Embry-Riddle. For these reasons, Embry-Riddle allows students who meet full admission requirements to take up to 24 semester hours as a non-degree seeking or transient student. Official or unofficial transcripts must be submitted to the University before the student is allowed to enroll in courses. Non-degree seeking and transient students must meet full admissions criteria. Note: Engineering coursework is generally restricted to students admitted to engineering programs; however, a waiver may be requested for non-degree applicants. Non-degree seeking students are not subject to course prerequisites. For students who subsequently apply for entry into a degree program, additional documentation may be required.

## Graduate

Embry-Riddle recognizes that working adults may be interested in furthering their education for professional or self-enhancement purposes without pursuing a degree program. We also recognize that transient students and those pursuing a degree with another institution may wish to take a course or courses with Embry-Riddle. For these reasons, Embry-Riddle allows students who meet full admission requirements to take up to 12 semester hours as a non-degree seeking or transient student. Official or unofficial transcripts must be submitted to the University before the student is allowed to enroll in courses. Note: Engineering coursework is generally restricted to students admitted to engineering programs; however, a waiver may be requested for non-degree applicants. Non-degree seeking and transient students must meet full admissions criteria. Non-degree seeking students are not subject to course prerequisites. For students who subsequently apply for entry into a degree program, additional documentation may be required.

# Certificate Seeking Students (UG)

## Undergraduate

Embry-Riddle recognizes that working adults may be interested in furthering their education for professional or self-enhancement purposes without pursuing a degree with Embry-Riddle. For these reasons, Embry-Riddle allows students who meet full admission requirements to be admitted to an undergraduate certificate program. Undergraduate certificate program students may only enroll in those courses outlined in the certificate program. The $50 application fee and official transcripts must be submitted to the University before the student is allowed to enroll in certificate courses. Certificate seeking students must meet the same academic standards as degree-seeking students. For students who subsequently apply for entry into a degree program, additional documentation may be required. Applicants who fail to meet full admission criteria may be considered for possible conditional admission on a case by case basis.

# Certificate Seeking Students (GR)

## Graduate

Embry-Riddle recognizes that working adults may be interested in furthering their education for professional or self-enhancement purposes without pursuing a degree with Embry-Riddle. For these reasons, Embry-Riddle allows students who meet full admission requirements to be admitted to a graduate certificate program. Graduate certificate program students may only enroll in those courses outlined in the certificate program. The $50 application fee and official transcripts must be submitted to the University before the student is allowed to enroll in certificate courses. Certificate seeking students must meet the same academic standards as degree-seeking students. For students who subsequently apply for entry into a degree program, additional documentation may be required. Applicants who fail to meet full admission criteria may be considered for possible conditional admission on a case by case basis.

# Undergraduate Conditional Admission

- Students who fail to satisfy the guidelines for full admission may be granted conditional admission under circumstances determined by the Admissions Office or Academic Standards and Admissions Committee (ASAC). A written petition for admission, current resume and other supporting documentation may be requested for consideration of admission.
- Students granted standard conditional admission due to academic deficiency should maintain a minimum of a 2.0 CGPA while in this status or risk being placed on warning, put on probation, or suspended, in compliance with university policy.
- Students granted custom conditional admission may have individual terms outlined in their letter of admission. Students will remain on conditional status until they have satisfied the terms of their conditional admission.
- Students with conditional admission questions should contact their academic advisor.

# Graduate Conditional Admission

- Students who fail to satisfy the guidelines for full admission may be granted conditional admission under circumstances determined by the Admissions Office or Academic Standards and Admissions Committee (ASAC). A written petition for admission, current resume and other supporting documentation may be requested for consideration of admission.
- Students granted standard conditional admission due to academic deficiency will remain on conditional status until they have completed nine hours of graduate coursework. Any course(s) taken in this initial nine hours may not be repeated while on conditional status. During the conditional period, students must maintain a 3.0 CGPA, earning a grade of B or better in each course. Students who fail to achieve this minimum record will be dismissed in compliance with University policy. Exceptions will be reviewed on a case-by-case basis.
- Students granted custom conditional admission may have individual terms outlined in their letter of admission. Students will remain on conditional status until they have satisfied the terms of their conditional admission.
- Students with conditional admission questions should contact their academic advisor.

# Readmission of Service Members: Higher Education Opportunity Act of 2008

In accordance with the HEO Act of 2008, service members will be readmitted to the institution, without penalty for having left because of military service, in order to minimize disruption to the lives of those serving in the uniformed services.

In reference to the Department of Education: Statute and regulations require institutions of higher education that participate in Federal student financial aid programs to promptly readmit with the same academic status a qualifying service member who did not continue to attend because of service in the uniformed services. The readmission requirements apply to service members who perform service in the uniformed services, whether voluntary or involuntary, in the Armed Forces, including service as a member of the National Guard or Reserve, on active duty, active duty for training, or full-time National Guard duty under Federal authority (but not State authority).

# First Time and Transfer Students

All graduate applicants must have earned a baccalaureate degree from an accredited degree-granting institution, with a cumulative grade point average (CGPA) of 2.5 or higher on a 4.0 scale from their degree-granting institution. Graduate applicants who already possess a master's degree or have completed graduate coursework from an accredited degree-granting institution must also have a 3.0 CGPA or higher at the graduate level.

Applicants with an undergraduate degree and no graduate course work are required to submit the following:

- Official transcript(s) from the accredited degree-conferring institution(s)
- Official or unofficial transcripts from other institutions attended may be requested to verify prerequisite knowledge for certain academic programs

Applicants with an undergraduate degree and graduate-level course work are required to submit the following:

- Official transcript(s) from the accredited degree-conferring institution(s)
- Official transcripts from all accredited degree-granting institutions showing graduate-level course work
- Official or unofficial transcripts from other institutions attended may be requested to verify prerequisite knowledge for certain academic programs

Applicants with a master's degree are required to submit the following:

- Official transcripts from all accredited degree-granting institutions showing graduate-level course work
- Official or unofficial transcript(s) from the undergraduate degree-conferring institution(s). Additional transcripts from other institutions attended may be requested to verify prerequisite knowledge for certain academic programs

*For both undergraduate and graduate applicants, additional documentation may be required for admission and consideration of credit from military, licensure, or other documented experiential learning. Applicants using Veteran's Administration benefits will be required to submit transcripts from all prior institutions attended (to include non-accredited and non-degree granting institutions) and all National Exam scores prior to admission. Admission into some degree programs may require an applicant to have a higher GPA, meet other special requirements, and/or submit additional documentation. Academic, judicial, and disciplinary notations on transcripts will be reviewed on a case by case basis and may impact admission.*

*All applicants who have educational experience outside the United States are required to provide an official course-by-course evaluation in English, to include the cumulative grade-point average, unless specifically exempted through a qualifying ERAU program. Refer to the* International Admissions *section of the catalog for details on foreign credential evaluations.*

# International Admissions

An international student is defined as any non-United States citizen intending to study at sites located outside the United States, students who live outside of the United States and are enrolled through Embry-Riddle Worldwide Online, as well as non-residents and non-immigrants planning to study in the United States. This school is authorized under federal law to enroll non-immigrant students.

International applicants must submit the application for admission 90 days prior to their intended term start date. The following items are also required.

## Foreign Credential Evaluation

All undergraduate and graduate applicants who have educational experience outside the United States are required to provide an official course-by-course evaluation in English, that includes the cumulative grade-point average, unless specifically exempted through a qualifying ERAU program. A copy of the foreign transcript must accompany the official credit evaluation. The evaluation must be certified by one of the Foreign Credential Evaluation Services (FCE) approved by Embry-Riddle. A fee is charged for the translation service and must be paid by the applicant directly to the FCE.

If a student has graduate-level work (either transfer or advanced standing) that is indicated on the foreign credential evaluation as meeting the requirements for an undergraduate degree, it will not be reviewed for applicability toward an ERAU graduate degree.

Educational systems differ country by country. The following services are versed in providing a comparison of a country's education system to the system in the United States. This comparison includes education levels, credits, and grades.

The report is considered official only if mailed from the agency directly to ERAU. We prefer all applicants use the foreign credential evaluation services provided by **IEE (International Education Evaluation)**. We will also accept evaluations from the following agencies: ACEI, ECE, IERF, Josef Silny & Associates, TEC The Evaluation Company, World Education Services.

Admissions also reserves the right to accept foreign credential evaluations from current members of the National Association of Credential Evaluation Services (NACES), or Association of International Credential Evaluators (AICE)

## English Language Requirements

1. Applicants for whom English is not the primary language must:
   a. Attain a minimum score on the Test of English as a Foreign Language (TOEFL) of 550 (paper based), 79 (Internet based), or 8.5 (TOFEL Essentials) **-OR-**
   b. Attain a minimum score on the International English Language Testing System (IELTS) of 6.0 **–OR–**
   c. Attain a minimum score on the Duolingo English Test of 105 **–OR–**
   d. Attain a minimum score on the Cambridge English Language Assessment of 170 **–OR–**
   e. Attain a minimum score on the Pearson Test of English (PTE) Academic of 59 **–OR–**
   f. Attain a minimum score on the EIKEN Test in Practical English Proficiency of Pre-1 **–OR–**
   g. Successfully complete a college-level English Composition course (equivalent to ENGL 123) with a grade of "C" or better from an accredited degree-granting institution**.**
2. TOEFL, Duolingo, IELTS, Cambridge, Pearson PTE Academic, and EIKEN Exam scores must be sent directly to Embry-Riddle by the testing agency.

For testing dates and locations, please use the contact information below:

**TOEFL Services**
School Code: 2860 (Worldwide Campus)
Educational Testing Service
P.O. Box 6151
Princeton, NJ 08541-6151
1-609-771-7100 (worldwide)
1-877-0863-3546
www.toefl.org

**IELTS International Services**
Account Name: Embry-Riddle Aeronautical University - Worldwide Campus
825 Colorado Boulevard, Suite 201
Los Angeles, CA 90041 USA
Telephone: 323-255-2771
Email: ielts@ieltsintl.org
www.ielts.org

**Duolingo English Test**
Email: englishtest-support@duolingo.com
https://englishtest.duolingo.com/

**Cambridge English Language Assessment**
1 Hills Road
Cambridge
CB1 2EU
United Kingdom
Tel: +44 1223 553997
**Email:** helpdesk@cambridgeenglish.org
www.cambridgeenglish.org/helpdesk

**Pearson PTE Academic**
Website: https://www.pearsonpte.com/who-accepts-pte

**EIKEN Test in Practical English Proficiency**
**Email:** international@eiken.or.jp
http://www.eiken.or.jp/eiken/en/

Instruction of Embry-Riddle Aeronautical University Worldwide courses takes place in English. Applicants who successfully complete Embry-Riddle's Language Institute (ERLI) and receive a *Recommendation for Academic Study* from the ERLI Director may be exempt from the TOEFL, IELTS, Duolingo, Cambridge, Pearson PTE Academic, or EIKEN exam.

## Embry-Riddle Europe

International students interested in attending our Europe Campus may contact:

ERAU Europe
Suite 2-02.8
House of Logistics and Mobility (HOLM) GmbH
Bessie-Coleman-Straße 7
60549 Frankfurt,Germany
Phone: +49 69-27229676
Email: europe@erau.edu

## Embry-Riddle Asia

International students interested in attending our Asia Campus may contact:

Embry-Riddle Aeronautical University
Asia Campus
70 Seletar Aerospace View
#02-01 Air 7 Asia Building
Singapore 787564
Phone: +65 6933 9580
Email: asia@erau.edu

# F-1 Student Visas

## F-1 Student Visas

For international students intending to study in the U.S. on an F-1 student visa, an official bank letter, loan letter, or scholarship letter must be provided with an affidavit of financial support. Upon acceptance for admission and receipt of financial documentation, the Worldwide Principal Designated School Official (PDSO) will issue the Certificate of Eligibility form (I-20) allowing the student to apply for an F-1 visa. A Designated School Official (DSO) is located at each approved location to assist an F-1 student in maintaining immigration status.

**F-1 Visa Process**

1. Apply to an F-1 approved location and program at Embry-Riddle Worldwide.
2. Submit documentation for admission as outlined in the current catalog.
3. Receive admissions decision.
4. Sign the Form I-20 Certificate of Eligibility mailed to you by your International Student Counselor.
5. Submit the Form I-901 SEVIS fee at www.fmjfee.com. To obtain the I-901 receipt, you will need to pay the $350 SEVIS Fee (I-901).
6. Contact the nearest U.S. Embassy or U.S. Consulate in your country of residence to apply for an F-1 visa: http://travel.state.gov.
7. Attend your visa interview. The consular officer determines your eligibility for issuance of the F-1 visa.
8. Purchase health insurance to cover you during the duration of your stay in the United States before you arrive.
9. Review the International Admissions F-1 Regulation Student Guide to understand how to maintain your F-1 status while studying at Embry-Riddle Aeronautical University Worldwide.
10. Complete the F-1 Student Agreement.
11. Secure housing and transportation prior to arriving in the United States.
12. Arrive at the U.S. Port of Entry within 30 days of the term start date.

The PDSO serves as point of contact for all international students with the processing of forms and documentation of status required by foreign governments, sponsors, the U.S. Government, and the University. For further information, contact an International Student Counselor in the Admissions Office toll free at (800) 522-6787 Option 4, or by email at wwintstc@erau.edu.

## Department of Homeland Security/Student Exchange Visitor Program

This school is authorized under Federal law to enroll nonimmigrant alien students. The following sites are approved to enroll students who have obtained an F-1 student visa:

- DFW Southlake, Texas
- Ft. Lauderdale, Florida
- Los Angeles, California
- Miami, Florida
- Oklahoma City, Oklahoma
- Orlando, Florida
- Phoenix-Mesa, Arizona
- Portland, Oregon
- San Diego, California
- San Francisco Bay Area, California
- Seattle, Washington

# International Student Services

The Worldwide International Student Services Counselors serve as the central point of contact for issues concerning international students. The counselors provide services that include, but are not limited to, advising students on immigration regulations, as well as financial and personal matters.

The counselors also assist international students with the processing of forms and documentation of status required by foreign governments, sponsors, the U.S. government, and the University.

International students should contact the International Counselors toll free at (800) 522-6787 Option 4, or by email at wwintstc@erau.edu.

For additional information, visit the International Student Services website in ERNIE.

# Computer Requirements and Email

## Computer Use

Each student must have access to a computer, and any course offered may require computer-based work. Students are also required to have access to a webcam and a broadband Internet connection to access e-mail, online course materials, library databases, ERAU's Intranet, and the World Wide Web. In many courses, various types of software must be installed as a requirement to complete course work; therefore, students should have administrative rights on the computers they are using for class in order to install these programs. For certain online courses, students will be required to use a webcam to complete assignments and/or perform identity verification checks throughout the term.

Review the computer requirements for Worldwide students and faculty.

Some course software may not be compatible with Chromebooks and other mobile devices like iPads and mobile phones. Therefore, each student must have access to a computer running macOS or Windows. For the best experience, we recommend using a computer no more than five years old.

It is the responsibility of each student to ensure he/she meets all of the technology requirements listed above and in the attached document prior to attending class.

## ERAU Student Email Account

ERAU issues both an email and Embry-Riddle Network for Information Exchange (ERNIE) account to provide access to online services when an application for admission has been submitted. These accounts are made available to students via ERNIE at ernie.erau.edu. Please check your ERAU email frequently, as the University will use this account to send official notification on University matters after a student is admitted.

The University does not provide support for forwarding email from the erau.edu domain to an external service provider (e.g. Gmail, Yahoo!, Outlook.com, etc.), however doing so is not explicitly prohibited by policy. Additionally, employees and students should be cognizant of the security implications associated with submitting or forwarding any sensitive messages via a third-party email service provider. The security of those third-party solutions cannot be assessed, as they are not within the University's administrative control. Students may review ERAU's Email Policy at: https://myerauedu.sharepoint.com/teams/APPM/section-7/Pages/7-9-policy.aspx

Your ERAU email account will remain active for up to two years after your last ERAU course. If you have not registered for a course, your system access will be terminated one year from your date of admission or one year from your application date if you have not yet been admitted.

# Financial Aid and Services

Embry-Riddle participates in a number of federal, state, and University-administered programs that help students and their families meet educational costs.

Embry-Riddle believes the primary responsibility for financing education lies with the student and the student's family. Therefore, the student should apply for financial aid early, save money, look for ways to reduce costs, and become aware of specific program requirements by reading all financial aid publications. Financial aid is meant to supplement what the student and family can contribute toward costs and rarely cover all educational expenses. All financial assistance will be limited to Embry-Riddle's established cost of attendance.

- Eligibility and Application
- Financial Assistance: Grants, Loans, Scholarships
- Payments
- Tuition and Fees
- Course Drop, Course Withdrawal, and Refund Schedule

## Eligibility and Application

### Basic Eligibility Requirements

To qualify for federal student aid, you must meet certain requirements. The basic eligibility requirements are as follows:

- demonstrate financial need for need-based federal student aid programs
- be a U.S. citizen or an eligible noncitizen;
- have a valid Social Security number (with the exception of students from the Republic of the Marshall Islands, Federated States of Micronesia, or the Republic of Palau);
- be enrolled or accepted for enrollment as a regular student in an eligible degree or certificate program;
- maintain satisfactory academic progress in college or career school;
- provide consent and approval to have your federal tax information transferred directly into your *Free Application for Federal Student Aid* (FAFSA®) form;
- sign the certification statement on the FAFSA® form stating that you're not in default on a federal student loan, you do not owe money on a federal student grant, and you'll only use federal student aid for educational purposes; and
- show you're qualified to obtain a college or career school education. You can show you're qualified to obtain a college or career school education by:
    - having a high school diploma or a state-recognized equivalent such as a General Educational Development (GED) certificate;
    - completing a high school education in a homeschool setting approved under state law (or—if state law does not require a homeschooled student to obtain a completion credential—completing a high school education in a homeschool setting that qualifies as an exemption from compulsory attendance requirements under state law); see studentaid.gov for more information

**Additional information is available on the Federal Student Aid Website:** https://studentaid.gov/h/apply-for-aid/fafsa

**The Application Process**

After applying for admission to the University, students are encouraged to complete the Free Application for Federal Student Aid (FAFSA®). The FAFSA® must be completed annually to be considered for Federal Student Aid through the completion of a Free Application for Federal Student Aid (FAFSA®). When completing the FAFSA you will need to enter Embry-Riddle Aeronautical University school code **001479**. By listing ERAU (Title IV School Code: 001479) as one of your school choices, we will receive your information electronically. The FAFSA® application is available October 1st of every year. For more information on Federal Student Aid, please review How Financial Aid Works.

### Academic Eligibility to Maintain Financial Aid Eligibility

In order to maintain Financial Aid eligibility, you must understand all policies pertaining to Federal Financial Aid. Please review the policies on Academic Eligibility to have a better understanding of the specific requirements to maintain financial aid eligibility.

**Standards of Satisfactory Academic Progress**

Federal regulations require Embry-Riddle to define minimum standards of satisfactory academic progress to determine your eligibility for financial aid. Embry-Riddle must set certain quantitative and qualitative standards to ensure you are progressing toward degree completion. If you do not meet the **Standards of Satisfactory Academic Progress** (SAP), you will not be able to receive financial aid.

- The qualitative standard is your grade point average (GPA).
- This requirement is explained in detail in the Standards of Satisfactory Progress Policy.
- If you are suspended, dismissed, or not permitted to continue your enrollment, you will not be able to receive financial aid.
- There are two quantitative standards. First, you must successfully complete 67% of the courses you attempt. Grades A, B, C, D, and P are considered successfully completed. Second, the overall time it takes to complete your program is considered.
- You are allowed 150% of the length of your program to complete your degree. The maximum number of credits you could attempt depends on your degree program.
- These maximum credit hours may vary depending on your specific program. If you change degrees or are a transfer student, the maximum credit hours may be extended by the number of credit hours required to complete your degree.
- The Standards of Satisfactory Academic Progress are reviewed once each academic year and are updated at the end of the last term in the academic year. For **Worldwide programs,** the academic year ends with the last term of a track (see Financial Aid Tracks for terms associated with Tracks). The April and May Terms are optional terms and are not calculated until the following academic year. If you are failing the Standards of Satisfactory Academic Progress and have questions please contact a Financial Aid Counselor toll-free at 866-567-7202.

**Consequences of Withdrawal**

Students who withdraw, receive an "F" for *non-attendance or *non-participation from **all** of their classes are subject to the **Return of Title IV Federal Financial Aid Programs Policy**. Please review the **Return of Title IV Funds Policy** as it contains important information for students who withdraw or *ceases to attend all registered classes within a term and receive Financial Aid. The Embry-Riddle **Return of Title IV Funds Policy** and **Standards of Satisfactory Academic Progress,** in accordance with federal regulations, will determine the amount of financial aid funds to be returned.

**Scholarship** funds will be reversed in their entirety for any student that drops/withdrawals/audits a course associated with a Worldwide Scholarship. Any balance created from the reversal will be the student's responsibility.

*If a student ceases to attend ALL registered classes and/or ceases to participate in an academically related activity at any point during their Term of enrollment the faculty will use their discretion to assign an appropriate grade and supporting last date of attendance. For more information please review **Student Services & Academic Affairs** policies and procedures.

**Please note:** Any time you break continuous enrollment (i.e., do not attend all terms in your assigned Track) or cease to be enrolled at least half-time (three credit hours) for undergraduate or full-time (three credit hours) for graduate and borrowed Federal Direct Loans, you will be required to complete Exit Counseling. Also, if you did not borrow your maximum eligibility and withdrew from all courses in a term or ceased to attend all courses in a term in your Track, you will not be eligible to request additional Federal Direct Loan funds for prior terms in the academic year you attended due to a break of continuous enrollment.

**Repeated Courses and Financial Aid Eligibility**

Federal regulation limits the number of times a student may repeat a course and receive financial aid for that course.

- A student may receive aid for repeating a previously passed course as long it is the **first** repeat of the course and is required in your program.
- A student may receive aid when repeating a course that was previously failed or withdrawn from regardless of the number of times the course was attempted and failed. (Satisfactory Academic Progress Policy still applies).
- A student may receive aid to repeat a previously passed course one additional time. If a student fails the second attempt, no more financial aid will be given to repeat the course a third time. If the second attempt is a withdrawal, then it is allowable for a third attempt.
- When a student has completed any course twice with a grade (A, B, C, or D); he or she is no longer eligible to receive aid for that course. If a student retakes a course that is not aid eligible, the credit hours will be excluded from the financial aid enrollment for that term.

**Examples:**

| | 1st Attempt | 2nd Attempt/ 1st repeat | 3rd Attempt/ 2nd repeat | 4th Attempt/ 3rd repeat | Is class eligible for Financial Aid? |
|---|---|---|---|---|---|
| Course 1 | F | D | Enrolled | ---- | Yes |
| Course 2 | C | Enrolled | ---- | ---- | Yes |
| Course 3 | D | C | Enrolled | ---- | No |
| Course 4 | D | F | Enrolled | ---- | No |
| Course 5 | W | F | F | Enrolled | Yes |
| Course 6 | W | F | D | Enrolled | Yes |
| Course 7 | C | W | Enrolled | ---- | Yes |

**Explanation of the Above Examples:**

**Course 1:** Yes, these credits are included in the financial aid enrollment because the student is allowed to repeat any failed or withdrawn course until a passing grade is received. Once a passing grade is received, financial aid can pay for the course one more time (one repeat). If a grade of A, B, C, or D is made on the third attempt; the course will not count again in the calculation for financial aid enrollment.

**Course 2:** Yes, these credits may be counted, even though it was previously passed, because it is the first time the class is being repeated.

**Course 3:** No, this course was previously passed twice and this is the third attempt. Two attempts are the maximum attempts these credits can count toward financial aid enrollment because the course has been previously passed.

**Course 4:** No, the class credits are no longer considered for financial aid eligibility because it has been previously passed, and this is the second time it is being repeated.

**Course 5:** Yes, because this course has never been passed so it may still be counted toward financial aid enrollment.

**Course 6:** Yes, because this course has only been passed once and the 4th attempt will be considered the 2nd attempt if he passes the class.

**Course 7:** Yes, because this course has only been passed once, and the second attempt is a withdrawal, so it is allowable for a third attempt.

**Excess Credit and Financial Aid Eligibility**

Federal Regulations limits Financial Aid to only courses that apply to your Program of Study. Your Academic Advisor will be notified to review courses and then notify the Financial Aid office for any student enrolled in courses that are not applicable to a student's Program of Study who may be eligible for Federal Aid. This will cause a reduction or cancellation of Financial Aid. Please check with your Advisors before enrolling in courses outside of your Program of Study.

**Please Note:** At any time if you become ineligible for financial aid or are reduced after a disbursement is made for financial aid, you will be financially responsible for all charges.

# Financial Assistance: Grants, Loans, Scholarships

The major categories of financial assistance programs include grants, scholarships, and loans. Loans from federal or private lenders must be repaid; the interest rate, however, is usually low and the repayment period is extended. Grants and Scholarships are free money for school and are often based on financial need and/or merit. For more information visit the Worldwide Financial Aid Website.

A complete description of financial aid assistance and optional financing programs are available to students and their parents. Types of financial assistance are detailed online at https://worldwide.erau.edu/admissions/financial-aid/ this includes information about eligibility criteria, application procedures, deadline dates, and much more.

## Federal and State Grants

- **Federal and State Grants** – These grants are available to U.S. citizens or permanent residents who are enrolled at least half-time in a degree program. To remain eligible, you must make satisfactory academic progress and not be in default or owe a return repayment on a grant or loan. Visit the Grants page to see if you qualify.
- **State Programs** – Each state offers its own range of scholarship and grant programs that you may qualify for through residency and meeting the outlined criteria. Visit our State Scholarships and Grants page https://worldwide.erau.edu/admissions/financial-aid/scholarships/state-scholarships-grants/ or check with your state to see what programs are available to you.

## Scholarships

Embry-Riddle Worldwide recognizes the investment students and their families make when choosing a private college so providing financial assistance to aid students who have demonstrated academic achievement is important. By offering scholarship opportunities ERAU Worldwide would like to alleviate some of that burden. Students must be admitted into a degree-seeking program of study to receive any Worldwide scholarship opportunities. Scholarship awards are typically based on merit or a combination of merit and need, such as academic excellence, talent, affiliation with various groups, or career aspirations.

- **University institutional scholarship -** Embry-Riddle Worldwide donor scholarships (formally called endowed and term scholarships) are funds generously donated to the university to help students pay for their education. If you are selected for a scholarship it will be paid in the Worldwide Fall Terms and Worldwide Spring terms of the following academic year. Completing the application does not guarantee that you will receive a scholarship and you must reapply for these awards each year. The scholarship award amounts vary, ranging from $500

to $5,000, and scholarship criteria also vary. Some scholarships are specific whereas others are more general although most scholarships require a FAFSA application. Completing a FAFSA application does not require you to use Federal aid. Worldwide Students can apply during the months of January and May each year. The application will open in January and will remain open through 5 p.m. EST on May 31st. Recipients are chosen by the Worldwide Scholarship Committee during the months of June and July and notifications will be sent via ERAU email by the end of July for the academic year.

- **Worldwide Scholarship Opportunities** - Embry-Riddle Worldwide recognizes the investment students and their families make when choosing a private college, so providing financial assistance to aid students who have demonstrated academic achievement is important. By offering scholarship opportunities, Embry-Riddle Worldwide would like to alleviate some of that burden. Students must be admitted into a degree-seeking program of study to receive any Worldwide scholarship opportunities.
- **External and Private Scholarships** – Like grants, external and private scholarships do not have to be paid back. Visit our Scholarships page to learn more about the available types and whether you qualify for them.

## Loans

If you apply for financial aid, you may be offered loans as part of your financial aid offer. A loan is money you borrow and must pay back with interest. If you decide to take out a loan, make sure you understand who is making the loan and the terms and conditions of the loan. Student loans can come from the federal government, from private sources such as a bank or financial institution, or from other organizations. Loans made by the federal government, called federal student loans, usually have more benefits than loans from banks or other private sources. Learn more about the differences between federal and private student loans.

- Federal Direct Loans
- Federal Direct Graduate Plus Loans
- Federal Parent Loan for Undergraduate Students
- Private Educational Loans

If a student obtains a loan to pay for an eligible educational program of study, the student will have the responsibility to repay the full amount of the loan, plus interest, less the amount of any refund (i.e. scholarships, state, and federal grants). If the student has received federal student financial aid funds, the student is entitled to a refund of any remaining funds from the federal student aid programs after eligible university charges are paid. Students receiving federal financial aid have certain rights and responsibilities in accordance with the Borrower's Rights and Responsibilities Statement on the Master Promissory Note. Please contact the ERAU Worldwide Financial Aid Office for additional information or Student Financial Services about refunds.

**Please Note: Washington State residents** seeking information and resources about **student loan repayment** or seeking to submit a complaint relating to your student loans or student loan servicer, please visit www.wsac.wa.gov/loan-advocacy or contact the Student Loan Advocate at loanadvocate@wsac.wa.gov.

# Payments

Payment for tuition and the mandatory SGA fee is expected no later than 7 days prior to the first day of each term. Payment options include:

- Electronic Check/ACH Debit
- Credit Card: MasterCard, Visa, Discover, and American Express
  - A 3% service fee (minimum $3.00) will be assessed for all domestic credit/debit transactions.
  - A 4.25% service fee (minimum $3.00) will be assessed for all international credit/debit transactions.
- Third-Party Sponsorship
- Payment Plan
- Wire Payment
- A combination of any of the above payment methods is also acceptable

## Third-Party Sponsorship

Students who have a third-party sponsor paying all or a portion of their University tuition charges must provide their proof of sponsorship prior to the first day of the respective term to financially secure enrollment. The document can be uploaded through the Tuition Assistance, Sponsorship, VA Benefits, and/or Payment Intent Form for processing. Proof of sponsorship may include a military TA, VA documentation, or employer sponsorship documentation. Please note the below information for various military branches and their timeline requirements for obtaining TA documents.

| |
|---|
| **Air Force** |
| Opens 45 days prior to term start |
| Closes 7 days prior to term start |
| **Army** |
| Opens 60 days prior to term start |
| Closes 7 days prior to term start |
| **Coast Guard** |
| Opens 90 days prior to term start |
| Closes 7 days prior to term start |
| **Marines** |
| Opens 60 days prior to term start |
| Closes 1 day prior to term start |
| **Navy** |
| Opens 120 days prior to term start |
| Closes 7 days prior to term start |

Any portion not covered by a sponsor is expected no later than 7 days prior to the first day of each term.

## Payment Plan

The University offers a term-based payment plan which includes three installments. Eligible charges include tuition and mandatory SGA fee. The costs of books and shipping fees are not included.

At the time of enrollment, students are required to pay a $30.00 enrollment fee and one-third of the balance due. Additional installments are due at 30 and 60 days thereafter and are automatically debited from the pay method selected at the time of enrollment.

Students can only enroll in one payment plan at a time and that plan must be completed prior to starting a new term. Missed installments are subject to a late fee of $35.00. Students who default on a payment plan may be restricted from enrolling in future payment plans for up to one calendar year.

The Payment Plan Agreement can be accessed online by logging into ERNIE; and then click on *Campus Solutions* (under tools). Once on the student home page, click on *Finances*, *My Student Account*, then *Make a Payment – Access Account*. A new screen will populate, and the student will select *Enroll in Payment Plan*; follow the prompts to complete enrollment.

## Late Fees

Students enrolled in a University payment plan are subject to the payment plan fee and delinquency fees as disclosed in their Payment Plan Agreement.

Any student not enrolled in a University payment plan who has an outstanding balance of $200.00 or more will be assessed a monthly

late fee of $25.00 or 0.75% of the outstanding balance, whichever is higher. This late fee will continue to be assessed monthly (and accrued) to any outstanding balance until the student account balance falls below $200.00. The late fee will be assessed on the last business day of the month. If the last day of the month falls on a weekend or holiday, the fee will be assessed on the first business day of the following month. Students are encouraged to make payment in full by each published payment deadline to avoid the late fees. Students using VA educational benefits or Veterans Readiness and Employment (VRE) are exempt from the late payment fee.

### Delinquent Accounts

Embry-Riddle Aeronautical University is a not-for-profit institution of higher learning. As such, as student's receivable account is considered an educational loan offered for the sole purpose of financing an education. The student account is not dischargeable in bankruptcy proceedings. When a student's account is delinquent, the student is notified via email to their Embry-Riddle email address. A delinquent student account could result in suspension of all academic processing and information on class performance. Diplomas and future enrollments may be withheld. In addition to late fees, students are also subject to collection costs, which may be based on a percentage of the balance owed at a maximum of 33% of the debt and will be added to the student's account balance. Further, all costs and expenses, including reasonable attorney's fees the University incurs will be passed on to the student.

## Tuition and Fees

Payment in full or payment arrangements are expected no later than 7 days prior to the first day of each term.

### Cost and Tuition

Detailed tuition and fees are published on the web at https://worldwide.erau.edu/admissions/cost-tuition/.

**User Fees**

| | |
|---|---|
| Application Fee (nonrefundable) | $50 |
| Transcript Fee - Electronic Copy | $15 |
| Transcript Fee - Paper Copy | $20 |
| Undergraduate and Master's Graduation Fee (non-refundable) | $100 |
| Doctoral Graduation Fee (non-refundable) | $150 |
| Duplicate Diploma | $65 |
| Previously Earned Diploma | $65 |
| Credit Card/Online Debit Card Transaction Fee | A 3% service fee (minimum $3.00) will be assessed for all domestic credit/debit transactions. A 4.25% service fee (minimum $3.00) will be assessed for all international credit/debit transactions. |
| Student Government Association (SGA) Fee | $25 per year (Assessed during the first term of enrollment each Academic year.) |

**Credit card/online debit card transaction fee does not apply to transcript orders.

## Course Drop, Course Withdrawal, and Refund Schedule

| | |
|---|---|
| Business Days 1-4 (drop) | 100%* |
| Business Days 5 and beyond (withdrawal) | 0%* |

* Unless specified by Memorandum Of Understanding (MOU), contract, or state regulations.

Students who drop a course after the 4th business day "drop" period are responsible for their tuition/fees, and the action will be processed as a withdrawal. Request for drops/refunds due to circumstances beyond those permitted by the University, such as severe personal illness, required military deployment, etc., must be in writing and accompanied by third party documentation, such as a physician's statement, military orders, etc.

University Policy for Add, Drops, and Withdrawals: https://catalog.erau.edu/worldwide/student-services-academic-affairs/courses/.

For nonmilitary students enrolled in Alaska, Alabama, Arizona, California, Louisiana, Maryland, Nevada, New Mexico, North Dakota, and Oregon, refund tables are available at local Worldwide locations or on the State Authorization and Compliance site.

*Unless specified by Memorandum of Understanding (MOU), contract, or state regulations.

**Arizona Students Cancellation and Refund Policy**

An applicant rejected by the school is entitled to a refund of all monies paid.

An applicant who provides written notice of cancellation within three days (excluding Saturday, Sunday, and federal and state holidays) of signing an enrollment agreement is entitled to a refund of all monies paid. No later than 30 days after receiving the notice of cancellation, the school shall provide the 100% refund.

An applicant requesting cancellation more than three days after signing an enrollment agreement and making an initial payment, but prior to entering the school, is entitled to a refund of all monies paid (minus an administrative or registration fee, not to exceed $200, if applicable).

### Nevada Students Cancellation and Refund Policy

2017/2018 Catalog Addendum, effective date July 1, 2017.

The minimum refund that shall be paid to a Nevada student who withdraws or is terminated after completing only a portion of a course, program, or term within the applicable billing period is a follows:

1. Each postsecondary educational institution shall have a policy for refunds which at least provides:

(a) That if the institution has substantially failed to furnish the training program agreed upon in the enrollment agreement, the institution shall refund to a student all the money the student has paid.

(b) That if a student cancels his or her enrollment before the start of the training program, the institution shall refund to the student all the money the student has paid, minus 10 percent of the tuition agreed upon in the enrollment agreement or $150, whichever is less, and that if the institution is accredited by a regional accrediting agency recognized by the United States Department of Education, the institution may also retain any amount paid as a nonrefundable deposit to secure a position in the program upon acceptance so long as the institution clearly disclosed to the applicant that the deposit was nonrefundable before the deposit was paid.

(c) That if a student withdraws or is expelled by the institution after the start of the training program and before the completion of more than 60 percent of the program, the institution shall refund to the student a pro rata amount of the tuition agreed upon in the enrollment agreement, minus 10 percent of the tuition agreed upon in the enrollment agreement or $150, whichever is less.

(d) That if a student withdraws or is expelled by the institution after completion of more than 60 percent of the training program, the institution is not required to refund the student any money and may charge the student the entire cost of the tuition agreed upon in the enrollment agreement.

2. If a refund is owed pursuant to subsection 1, the institution shall pay the refund to the person or entity who paid the tuition within 15 calendar days after the:

(a) Date of cancellation by a student of his or her enrollment;

(b) Date of termination by the institution of the enrollment of a student;

(c) Last day of an authorized leave of absence if a student fails to return after the period of authorized absence; or

(d) Last day of attendance of a student, whichever is applicable.

3. Books, educational supplies or equipment for individual use are not included in the policy for refund required by subsection 1, and a separate refund must be paid by the institution to the student if those items were not used by the student. Disputes must be resolved by the Administrator for refunds required by this subsection on a case-by-case basis.

4. For the purposes of this section:

(a) The period of a student's attendance must be measured from the first day of instruction as set forth in the enrollment agreement through the student's last day of actual attendance, regardless of absences.

(b) The period of time for a training program is the period set forth in the enrollment agreement.

(c) Tuition must be calculated using the tuition and fees set forth in the enrollment agreement and does not include books, educational supplies or equipment that is listed separately from the tuition and fees.

## Oklahoma Students Cancellation and Refund Policy

If a student receiving Veterans Administration (VA) funds withdraws from a course, a debt between the student and VA may be created as a result. VA funds remaining in the student's account after a drop, late drop or withdrawal will be returned to the VA. Any credit created by a student payment, Title IV funds, or non-tuition specific scholarship after the VA portion of the student's tuition has been deferred will be refunded to the student after the drop period.

## Virginia Relief, Refund, and Reinstatement Tuition Guidelines

**Late Drop/Late Withdrawal Requests for Active Duty Military Students**

Personnel covered under this section of the catalog are uniformed members of the U.S. Armed Forces who do not exercise a military withdrawal option through their military service, who are registered or enrolled in a class at Embry-Riddle Worldwide, and who must drop or withdraw from a class for reasons related to their military service. Drop or withdrawal requests will be reviewed and if approved, will be processed based on the type of request and the information submitted. The student submits the request for a late drop or late withdrawal within 30 days of receiving notification of the deployment or the start of service related travel which prevents continued enrollment in courses. All requests will be reviewed on a case by case basis.

Request for drops/refunds due to circumstances beyond those permitted by the University, such as, required military deployment, must be in writing and accompanied by third party documentation, such as military orders.

**A late drop** is defined as any drop after the completion of add/ drop period and prior to the mid-point of the course, and is reviewed as an exception to policy. Students petitioning for a late drop from a course must provide a written petition along with third-party documentation explaining their extenuating circumstances, such as military assignment. Each petition is considered individually.

**A late withdrawal** is defined as any withdrawal after the mid-point of a course, and is reviewed as an exception to policy. Students petitioning for a late drop or withdrawal from a course must provide a written petition along with third-party documentation explaining their extenuating circumstances, such as military assignment. Each petition is considered individually.

Request for drops/refunds after the 4th business day "drop" period due to circumstances beyond those permitted by the University, such as required military deployment, must be in writing and accompanied by third party documentation, such as military orders.

Students who are unable to complete course requirements due to extenuating circumstances may complete and submit a written request to their instructor for an incomplete grade. While the expectation for maximum time frame for completion for Worldwide terms remains 30 days following the last published day of the respective course, University policy dictates that an incomplete grade must be completed no later than 150 days after the end of the term in which the course was taken. An incomplete grade does not extend the end date of a course. A student working to complete an incomplete grade is not granted continuing enrollment status for the period of time given to complete the course. The instructor may require a student to complete the course requirements earlier than 150 days following the end of the term. If the student fails to complete the course and government tuition assistance (TA) funding was used, the government will determine if the funds expended must be repaid by the student. If Department of Veterans Affairs (VA) funds were used, similar restitution of Veterans Educational Benefits may have to be made to the VA if a course is not completed. Students not completing their courses within the time limit will receive a failing grade (F) in the course.

**Continuous Student Status For Active Duty Military Students**

Active-duty military students must maintain continuous student status as detailed above; however, active duty undergraduate military students may also maintain continuous student status by submitting National Exam results, or transcripts within a one-year period showing that the student has done one of the following to maintain continuous student status: 1. Passed a nationally recognized exam (ie. CLEP, DSST/DANTES) that can be applied toward degree completion 2. Completed any non-traditional education (military course or updated occupational skill as listed on the service transcript and reviewed by the American Council on Education) that can be applied toward degree completion 3. Completed a course at another institution to be used toward an ERAU degree after receiving prior written approval *Active duty military students may complete a waiver to establish continuous student status.

**Undergraduate Degree Completion Time Limits**

An undergraduate student may graduate under the provisions of the ERAU-Worldwide catalog which were in effect when the student matriculated at the University, up to a maximum time limit of seven years, after which one must reapply for admission. All requirements for an Embry-Riddle associates degree, bachelor's degree, or combination therein, must be completed within seven years from the date of matriculation regardless of degree change, catalog change, or campus changes.

**Graduate Degree Completion Time Limit**

Graduate students are expected to complete their ERAU program of study within three years to ensure course and program currency. All requirements for an Embry-Riddle master's degree are expected to be completed within three years from the date of initial course enrollment following admission to the University, regardless of a degree change, catalog change, or campus changes. If a student must reapply for admission, the three years commences from the start date of the first course enrollment after the most recent admission to the University. Graduate coursework will remain applicable for seven years. Students should speak with their academic advisor for additional information about master's degree program requirements as specified in University policy.

*Students Earning Two Master's:*

A student who completes an ERAU master's degree and still maintains continuing student status may add another ERAU graduate degree program. The expected completion of the second master's degree will also be three years, beginning with the start date of the first course enrollment after the add-a-program request date.

*Readmission into a Master's Program:*

When readmitted to the University, the applicability period commences from the start date of the first course enrollment after the most recent admission to the University.

Exceptions to this policy are not permitted other than those considered for military students readmitted under the provisions of the Higher Education Opportunity Act. The time limit will not be applied to advanced standing credit for academic work at eligible senior military service schools if the service member is on active duty when accepted for admission. The expected degree completion for such applicants commences on the date the service member separates from active military service.

All student drop requests require counseling with an academic advisor, in order to be processed. Advisors/campus staff will receive a notification email for students who are inactive in a course for ten (10) consecutive calendar days. Upon receipt of notification, advisor/campus staff will contact student within one business day of the notification. This policy shall provide for counseling for the student to determine the impact of absence from the program on the ability to resume study and to advise the student of his or her options when a program is no longer available or suitable.

If student intends to withdraw from a course, advisor/campus staff will assist student with appropriate documentation to submit this request. The student should submit the request for a late drop or late withdrawal within 30 days of receiving notification of the deployment or the start of service related travel which prevents continued enrollment in courses. Military deployment, must be in writing and accompanied by third party documentation, such as military orders.

## Department of Education Withdrawal/Refunds Policy

### Standards of Academic Progress for Federal Financial Aid

**What are the Standards of Satisfactory Academic Progress (SAP)?**

The Satisfactory Academic Progress (SAP) describes the academic standards a student must meet in order to remain eligible for federal aid and ensure they are progressing toward degree completion as required by federal regulations. If a student is not meeting these requirements, they may not be eligible for federal aid.

**How is SAP measured?**
The following measurements will be reviewed to determine good standing for continued financial aid eligibility:
Qualitative: College level grade point (Cumulative GPA)
Quantitative (Pace): College credits completed and time frame needed to complete the degree

**What are the standard requirements?**
**Qualitative:**
- Undergraduate students: Minimum cumulative GPA of 2.0
- Graduate students: Minimum cumulative GPA of 3.0

**Quantitative /Pace:**

- College credits hours completed: required to complete 67% of total credit hours attempted.
- How to calculate Pace: Cumulative number of credit hours that student successfully completed divided by the cumulative number of credits hours that student attempted.

**Application of Grades and Credit Hours**
Credit hours attempted are all course credit hours for which you are enrolled as of the end of add/drop period.
For calculating credit hours, grades of "F" (failure), "I" (incomplete), "IP" (in progress), "W" (withdrawn), "WP" (withdrawn passing), "WF" (withdrawn failing), "U" (unsatisfactory), AU (audited), FX (ceased attendance) and repeated courses, are counted as hours attempted but not as credit hours completed.

For example, a sophomore that has attempted 60 credit hours and has satisfactorily completed 48 of those credit hours would have completed 80% of attempted credits hours.

- Time frame needed to complete the degree: You are not allowed to attempt more than 1.5 times, or 150%, of the number of hours in your degree program of study. A typical 2-year degree program should be completed no longer than 3 years. A typical 4-year degree program should be completed no longer than 6 years.

A sample of the maximum allowable attempted hours is noted below:

| No. Credit Hours in Allowable Degree Program | | 150% of Degree Program Credit Hours | | Maximum Attempted |
|---|---|---|---|---|
| 60 | x | 1.5 (150%) | = | 90 hours |
| 120 | x | 1.5 (150%) | = | 180 hours |
| 129 | x | 1.5 (150%) | = | 194 hours |

These maximum credit hours may vary depending on your specific program.

**Repeat Courses**
Repeated coursework during your program of study, both the original and repeated credit hours may negatively impact your completion ratio (PACE and Maximum timeframe). All attempts will be considered towards your ratio calculation, but only one successful completion will be considered.

**Dual Degree Programs/Change of Degree Program**

Students seeking two programs of study at the same time (i.e. major and minor, two undergraduate degrees, two master's degrees) or those who change their degree program of study: Your chosen Primary program of study is evaluated based on the number of credit hours that count toward the primary program of study. All courses applicable to the chosen program of study are counted in **Timeframe**, ***Attempted Hours,*** and **Completed Hours.**

**Transfer Credit Hours/Dual Enrollment Credit Hours**

Transfer credit hours/Dual Enrollment credit hours that are accepted toward your chosen program of study are calculated in the **Time Frame** needed to complete your degree. You are not allowed to attempt more than 1.5 times, or 150%, of the number of hours in your degree program of study. These maximum credit hours may vary depending on your specific program.

**Embry-Riddle Dual Enrollment Credit Hours**

Dual Enrollment credit hours earned through participation in Embry-Riddle dual enrollment programs that are applicable to your chosen degree program but taken before admitted into your degree program will count towards the **Time Frame**. If you are or were an Embry-Riddle Dual Enrollment student and have questions about the effect of non-successful dual enrollment credit hours for the Satisfactory of Academic Progress for Financial Aid, please contact the Financial Aid office at your campus.

**Withdrawing from courses**
Withdrawing from courses may impact your financial aid awards. Before withdrawing from class, you should contact the Financial Aid Office to determine the consequences.

**Withdrawing from the university or dropping all courses in a term**
Students who totally withdraw or drop all courses in a term and receive aid may owe the university money. Before withdrawing from the university, you should contact the Financial Aid Office to determine the consequences.

**Auditing Courses**
Audited courses are not eligible for Financial Aid. Students who enrolled in courses applicable to their degree and received Federal Aid and then change all enrolled courses to audited courses will be considered to have withdrawn on the date the final course was changed to an audited course and may owe the university money.

**When are these standards reviewed?**

The standards are reviewed once each academic year at the end of the spring semester. Email notifications will be sent to your ERAU email account if you fail to meet the SAP standards.

Please note: For **Worldwide programs**, the academic year ends with the last term of a track (see **Financial Aid Tracks** for terms associated with Tracks). The April and May Terms are optional terms and are not calculated until the following academic year. If you are failing the Standards of Academic Progress and have questions, please contact a Worldwide Financial Aid Counselor toll-free at 866-567-7202.

**What happens if I'm not meeting the standards?**

**Financial Aid Suspension**
Students who fail to meet satisfactory academic progress are placed on **financial aid suspension**. You will not receive federal or institutional aid during this suspension.

**Can I appeal my suspension?**
You have the option to appeal the suspension. An appeal must be based on extenuating circumstances that seriously affected academic performance such as student or parent injury or illness, death of a relative or other special circumstances.

**The Appeal Process**

The appeal form and instructions may be found on your campus website. You will be required to submit supporting documentation. You will also need to explain what type of circumstances contributed to the academic problem and what plans you have to eliminate those problems in the future. We realize that sharing personal information can be difficult. Be assured that your statement will remain confidential. An academic plan approved by an academic advisor may be required. Contact the Financial Aid Office if you have questions or need assistance to begin processing an appeal.

Appeal Forms can be found on your campus website.

**Financial Aid Probation**
For students who are successful in their appeal, aid will be reinstated; however, placed on probation for one payment period/term. At the conclusion of the probation term, you must be meeting the school's SAP standard in order to qualify for further Federal Title IV Funding. If you are academically suspended, dismissed, or not permitted to continue your enrollment, you will not be eligible to receive financial aid.

**Reinstatement**

You may reestablish your eligibility for financial assistance by achieving the satisfactory academic progress standards. Keep in mind this will be **at your own expense as you are ineligible for aid**. Once you have earned the required grade point average or completed the required credit hours, **you must contact your Financial Aid Counselor at your Campus to request the reinstatement of your financial aid eligibility.**

**Do these standards apply to every financial aid program?**

These standards are related directly to the Federal Financial Aid programs. However, state, institutional and private sources of aid have other standards that must be considered. Refer to your state web sites to review the specific criteria for each program. Contact the Financial Aid staff to determine the specific requirements of each type of aid that you receive.

There are many resources to help you if any difficulties arise, including tutoring labs, the Counseling Center, your Academic Advisor and Financial Aid Counselors. We are here to help make your educational experience at Embry-Riddle successful. Contact us if you need help!

## Return of Federal Financial Aid Funds

The Return of Title IV policy helps explain certain procedures the ***Embry-Riddle Aeronautical University (ERAU) Financial Aid Office must follow when administering the Federal Financial Aid Programs. It contains information for students who audit, drop, withdraw, ceases to attend, or ceases to participate from all classes within a semester/term and receive financial aid. The Return of Title IV Funds Policy, in accordance with federal regulations, will determine the amount of financial aid funds to be returned. This policy is subject to change in order to comply with administrative and regulatory requirements.

**What constitutes a withdrawal?**

Students who *audit, drop, withdraw, receive an "F" for *non-attendance or *non-participation from all their classes in a semester and/or term are subject to the Return of Title IV Federal Financial Aid Programs Policy.

*If student changes ALL enrolled courses to audited courses after a Federal Aid disbursement occurred, the student is considered to have withdrawn on the date the final course was changed to an audited course, and a return of Title IV funds (R2T4) calculation must be performed.

*If a student ceases to attend ALL registered classes and/or ceases to participate in an academically related activity at any point during their Semester or Term of enrollment the faculty will use their discretion to assign an appropriate grade and supporting last date of attendance. For more information, please review your campus catalog for grading and academic policies.

**How does ERAU determine the Return of Title IV Funds amount?**

Students earn a percentage of their federal financial aid each day they are enrolled. When a student withdraws from all their courses or ceases attendance or non-participation in all courses in a semester/term, this percentage is calculated by the number of days attended divided by the number of days in the semester/term.

The amount of federal aid you received and your institutional charges will also be used to determine the amount of federal funds to be returned.

Students withdrawing beyond 60% of the semester/term will have 100% of Title IV programs funds earned.

**Who is responsible for the Return of Funds?**

Both the university and/or the student could be responsible for the return of funds. The financial responsibility is determined as part of the Return of Title IV funds calculations. If the university is responsible, the funds are returned to the appropriate program.

If the student is responsible, direct loans are returned according to the promissory note. If any portion of the return of funds is due to a grant program, the university will return the funds, on behalf of the student. In some cases, the student may have a balance owed to the university.

**How will the money be returned?**

The money will first be returned to the loan and/or grant programs that you received during the semester/term. ERAU must follow a specific order in returning the money. The order is:

1. Federal Unsubsidized Direct Loan
2. Federal Subsidized Direct Loan
3. Federal Direct PLUS Loan
4. Federal Pell Grant
5. Iraq and Afghanistan Service Grants
6. Federal Supplemental Educational Opportunity Grant (SEOG)

***Circumstances may necessitate withdrawal from the University for a semester or term in which you are already registered. Withdrawal from all classes, programs, campus and/or locations impacts your financial aid differently depending on when the withdrawal is initiated and the type of financial aid you received. However, in all cases, your financial aid must be recalculated.

# Student Services and Academic Affairs

### Mission Statement

*Our mission is to provide comprehensive student services that are coordinated and personalized for financial, academic, and career needs. These resources are geared toward addressing specific academic needs and contribute to the quality of each student's overall University experience. We strive for continuous improvement that extends through a culture of caring with the highest educational practices and professional standards. We are here to serve you.*

- Academic Advisement
- Books, Library, and Supplies
- Embry-Riddle Asia Students
- Student Responsibilities
- Registration
- VECTOR
- Articulations & Educational Academic Agreements
- Credit: Transfer, Military, Time Limits, and Advanced Standing
- Courses: Add/Drop, Load, Classification, Withdraw, GPA
- Dean's List, Honor Roll, Academic Warning, Probation, Undergraduate Suspension and Graduate Dismissal, Dismissal for Cause
- Academic Integrity
- Transfer or Change in Degree Program
- Earning Multiple Degrees and Minors
- Matriculation, Continuous Student Status, Catalog Applicability
- Transcript Requests
- Skills Assessments
- Privacy of Student Records (FERPA)
- Grades
- Graduation
- Classroom Rules and Regulations
- Title IX
- Center for Career and Professional Development

## Academic Advisement

**Student Success Operations (SSO)**

For students located in the United States and abroad, the primary point of contact is their Worldwide Academic Advisor within the Student Success Operations department. Worldwide Academic Advisors are assigned based on the student's college affiliation (COAS, COA, COB) and primary program of study.

**US Military Worldwide Campus Operations - Europe Tri-Services/ PACOM**

For students assigned to a Worldwide Campus location in Europe or PACOM, the primary point of contact is their campus staff or Campus Director at their Campus home location.

The Student Success Operations (SSO) and Europe/PACOM teams consist of highly qualified Academic Advisors who are assigned to students at the time of admission. The Academic Advisor aims to support and empower students to make informed decisions about their education, career, and personal development. They serve as a valuable resource to help students navigate their educational journey and achieve success. Their responsibilities include but are not limited to:

- ***Educational Planning:*** *Advisors help students plan their academic path, select appropriate courses, and create a schedule that aligns with their academic and career goals. They may also assist in choosing majors and minors.*
- ***Degree Requirements:*** *Advisors guide students on the requirements for their chosen degree programs, ensuring that they understand and fulfill all necessary coursework, exams, and other academic obligations.*
- ***Course Selection:*** *Advisors help students choose courses that match their interests, skills, and degree requirements in a logical sequence. They provide information on prerequisite courses and suggest elective options.*
- ***Academic Policies:*** *Advisors inform students about academic policies, procedures, and regulations of the institution.*
- ***Goal Setting:*** *Advisors work with students to set short-term and long-term academic and career goals. They guide how to achieve these goals and may assist in developing strategies to overcome challenges.*
- ***Resource Referral:*** *Academic Advisors connect students with resources and support services available, such as tutoring, career services, and more.*
- ***Monitoring Progress: A****dvisors track students' academic progress and intervene if they notice any issues or challenges. They may encourage or recommend additional resources to help students succeed.*
- ***Graduation Planning:*** *Advisors help students plan for graduation by ensuring they have met all degree requirements and guiding them through the process of applying for graduation.*
- ***Financial Resources:*** *Advisors assist students in exploring financial aid options, including scholarships, Tuition Assistance and other funding sources to help support their education costs.*

Assigned Academic Advisor contact information can be found in the Campus Solutions Student Center.

## Books, Library and Supplies

### Textbook Purchase

Students may search for textbook information on the Worldwide Master Textbook & Materials List. This list should be checked first when searching for any course materials. Online, EagleVision Home, and classroom books may be purchased through our Worldwide Bookstore operated through Follett Higher Education Group. Please consult your academic advisor or Follett Higher Education group at 1596asm@follett.com for any course material questions. You may also contact Customer Service directly at 904-732-5010 for any order related questions.

### Identification Cards

Applying for a student identification card, known as the EAGLEcard, is done through your ERNIE login under Student Services. These identification cards may be required to use the library facilities of other universities and might be used for student discounts wherever a student identification card is honored.

### Hunt Library: Committed to the Worldwide Community

The Hunt Library, located on the Daytona Beach Campus, is the library for all Worldwide students, faculty, and staff, regardless of location. The library's mission is to provide information resources and services to students, faculty, and staff in support of the University's commitment to excellence in teaching, learning, and research.

The library's website is huntlibrary.erau.edu. Use EagleSearch to explore much of the library's electronic collection and print holdings simultaneously. You may even expand your EagleSearch results by clicking on "Expand your search" at the top of the results list. Researchers may also search subject-specific subscription databases (some of which

are predominantly full-text). Library resources are in many formats: online journal articles, books and ebooks, government documents, conference proceedings, streaming videos, and more.

### Research Help

The Hunt Library is the first place to go for research. Members of Embry-Riddle's Worldwide community may receive librarian assistance, utilize electronic resources and self-help tools, and gain access to large portions of the print collection through the Scan & Deliver service. Print books may also be requested for shipment.

The highly rated *Ask a Librarian* service is staffed by professional librarians. Ask a Librarian can be reached by chat, by text (386-968-8843), by email (library@erau.edu), or by phone/voicemail (386-226-7656). Librarians will provide detailed advice on research strategies and help with navigating the library's databases. For in-depth assistance, students may schedule an online meeting with a librarian.

The Library also offers a wide variety of tutorials and research guides designed to help you succeed.

### How to Contact Hunt Library

Library Website: https://huntlibrary.erau.edu/
Hours: http://huntlibrary.erau.edu/about/hours
Email: library@erau.edu
Text: 386-968-8843
Phone: 386-226-7656 or 800-678-9428

## Embry-Riddle Asia Students

Students participating in academic programs offered through Embry-Riddle Asia may be subject to variations in academic program content or University regulations, as appropriate to individual locations.

Please consult Enrollment & Campus Operations for any specifics regarding ERAU Asia.

Visit the asia.erau.edu site and online catalog to learn more about the Embry-Riddle Asia Campus.

## Student Responsibilities

All Embry-Riddle Aeronautical University students are responsible for knowing and abiding by the academic regulations and procedures required for continued attendance at the University.

Academic regulations and procedures are detailed in University publications. A student who requires clarification of any policy or regulation should seek help from an academic advisor.

University regulations will not be waived because a student is unaware of established policies and procedures. The University reserves the right to change curricula, as well as academic regulations and procedures, without notice or obligation.

## Registration

Students are responsible for initializing enrollment each term by contacting their academic advisor.

At all site locations, students are allowed to register online if they meet the required criteria. Registration must be completed according to instructions published by the Office of Enrollment Management. Students may register for classes up to six months in advance of a term.

Payment in full or payment arrangements are required on or before the session date of each month. Students are not officially enrolled until they complete all phases of registration, including financial requirements.

Enrollment may be restricted by Academic Advising or the Office of the Registrar for reasons including, but not limited to, students on a conditional admission status, on an academic probationary status, or who have outstanding incompletes or a history of incompletes.

## VECTOR

The mission of the Virtual Environment for Communication: Teaching, Outreach, and Research – **VECTOR** – is to support Embry-Riddle students and faculty in teaching, learning, and research related to written, spoken, visual, and digital communication. VECTOR supports all Worldwide students through its **Virtual Communication Lab** (VCL). The VCL offers **free tutoring, workshops, and online resources** to support student communicators. Our tutors can help with any communication-related project, and we can support you at any stage of the composing process – from brainstorming your speech topic, to revising a draft of an essay, to helping you design effective visuals for your personal website or e-portfolio. Students can schedule a tutoring appointment, access online resources, and view upcoming workshops through ERNIE.

## Articulations & Educational Academic Agreements

Articulation and Educational Academic Agreements are two distinct types of cooperative agreements that facilitate the transfer of students from other institutions to Embry-Riddle Aeronautical University.

Articulation Agreements provide for formal evaluation and guaranteed acceptance of courses within specific degree programs from other institutions to ensure that their content and course objectives are equivalent to those at the University. The primary benefits of an Articulation Agreement for the student are guaranteed acceptance of courses completed at the other institution to satisfy specified degree requirements at the University, and locking students into curriculum requirements specified in the catalog at the time of enrollment. As long as the student has completed and signed the Articulation Agreement Enrollment Form, he/she is assured that the courses taken will apply, even though the curriculum may have undergone significant change before the student has transferred to the University (subject to matriculation and continuous enrollment requirements).

Educational Academic Agreements seek to link specific programs for transfer into the University, but without the same level of evaluation and guaranteed, program-specific, credit acceptance under a determined catalog year.

For more information regarding either of these types of curricular agreements, please contact the office of Worldwide Business Development and Professional Education.

Please visit https://myerauedu.sharepoint.com/sites/Registrar/SitePages/worldwide-education-agreements.aspx for additional information.

## Credit: Transfer, Military, Time Limits, and Advanced Standing

### Unit of Credit

Semester credits are used throughout the University system.

Transferred quarter hours will be converted to semester credit hours on the following basis: A quarter hour equals two-thirds of a semester hour. Converted credit totals are not rounded to the nearest whole credit.

### Release of Student Transcripts from Previous Institutions

Student transcripts from previous institutions that were provided for consideration become the property of ERAU. ERAU does not re-release copies of transcripts from other institutions that are part of a student's education record. A student must contact the originating school for a copy of any transcript.

## Transferability of ERAU Credit to Other Institutions

NOTICE CONCERNING TRANSFERABILITY OF CREDITS AND CREDENTIALS EARNED AT OUR INSTITUTION
The transferability of credits earned at Embry-Riddle Aeronautical University is at the complete discretion of an institution to which you may seek to transfer. Acceptance of the degree, diploma, or certificate you earn in the educational program is also at the complete discretion of the institution to which you may seek to transfer. If the credits, degree, diploma, or certificate that you earn at this institution are not accepted at the institution to which you seek to transfer, you may be required to repeat some or all of your coursework at that institution. For this reason you should make certain that your attendance at this institution will meet your educational goals. This may include contacting an institution to which you may seek to transfer after attending Embry-Riddle Aeronautical University to determine if your credits, degree, diploma or certificate will transfer.

## Washington Students Transferability of Credits Statement

The transferability of credits earned at Embry-Riddle Aeronautical University is at the discretion of the receiving college, university, or other educational institution. Students considering transferring to any institution should not assume that credits earned in any program of study at Embry-Riddle Aeronautical University will be accepted by the receiving institution. Similarly, the ability of a degree, certificate, diploma, or other academic credential earned at Embry-Riddle Aeronautical University to satisfy an admission requirement of another institution is at the discretion of the receiving institution. Accreditation does not guarantee credentials or credits earned at Embry-Riddle Aeronautical University will be accepted by or transferred to another institution. To minimize the risk of having to repeat coursework, students should contact the receiving institution in advance for evaluation and determination of transferability of credits and/or acceptability of degrees, diplomas, or certificates earned.

## Veterans Transfer Credit

Applicants using VA benefits must provide transcripts of all previous education and training prior to admission. Prior academic work and courses taken at other institutions by veteran students and/or eligible students receiving Veterans Education Benefits will be evaluated and credit granted as appropriate and reported to the U.S. Department of Veterans Affairs (VA) as required by law.

## Transcribing Transfer and Advanced Standing Credit

Students are eligible for an Embry-Riddle transcript showing credit awarded from other sources toward their degree after they have matriculated.

Matriculation occurs when an applicant has been officially accepted for admission, has enrolled in an Embry-Riddle course within one year of the date of admission, and has maintained that enrollment beyond the drop period. If an applicant fails to maintain enrollment beyond the drop period, he/she will need to reapply for admission.

Continuing-student status is maintained through enrollment beyond the drop period in at least one course within a one-year period. If a student fails to maintain enrollment beyond the drop period, he/she will forfeit active-student status, will need to reapply for admission, and the matriculation process will begin again.

Courses previously taken with ERAU will not immediately matriculate a returning student.

# Undergraduate Students:

Once admitted to the University as degree candidates, students are expected to complete all work to be applied toward their degrees with the University unless advance written authorization is granted.

After initial matriculation, students may not earn more than a total of 18 semester credit hours, or that equivalent, at other institutions. It is required that the last 30 credits of a bachelor's degree, or the last 15 credits of an associate degree, be completed in residence with ERAU.

Active-duty undergraduate military students may transfer more than 18 credits after matriculation and can complete academic residency requirements at any time, to include the last 15 credits of an associate degree and last 30 credits of a bachelor's degree.

Embry-Riddle Aeronautical University limits academic residency to no more than 25% of the degree requirements for all undergraduate degrees for civilian and active-duty service members (no more than 30% for completely online delivery). Per state regulations, for undergrad degree completion, all Virginia Campus students are required to complete a minimum of 30% coursework at Embry-Riddle Aeronautical University in order to achieve residency.

Academic residency can be completed at any time while active-duty service members are enrolled. Reservists and National Guardsmen on active duty are covered in the same manner.

Students applying prior academic work toward their Embry-Riddle degree program requirements must submit appropriate documentation for such credit as part of the admission process.

Previous academic credit is evaluated on a course-by-course basis. Acceptable transfer work will be recorded on the Embry-Riddle transcript. Embry-Riddle does not accept life-experience credit as transferrable credits towards degree completion.

If courses are not applicable to the student's degree program at Embry-Riddle, they will be considered as electives in excess of minimum degree requirements. The level of credit (upper- or lower-division) is determined by evaluation of the course at Embry-Riddle.

It is the student's responsibility to have official transcripts sent to Embry-Riddle Aeronautical University. Transcripts that have been in the possession of a student are not considered official.

Transfer credit may be granted under the following conditions:

1. Appropriate coursework completed with a grade of A, B, C, pass, satisfactory (or equivalent) will be accepted.
2. Credits earned at institutions listed as degree-granting institutions in the Accredited Institutions of Postsecondary Education (AIPE) as recognized by the Council for Higher Education Accreditation (CHEA) will be considered for transfer credit. Undergraduate academic credit is generally accepted without regard to the date the course was completed. Embry-Riddle has sole discretion in determining which and how many transfer credit hours will be accepted toward degree requirements.

Consideration for transfer credit is available to degree-seeking and certificate students. Non-degree-seeking students are not eligible for transfer credit. The only exception to this policy is for specific established corporate agreements. Transfer credit is not included in GPA/CGPA calculation for any purpose.

Embry-Riddle may, at its discretion, require an evaluation examination for any course submitted for transfer credit if there is doubt concerning the equivalency of the transfer course with a similar course offered at Embry-Riddle.

Embry-Riddle cannot guarantee that courses are transferable unless otherwise established by any contract or memorandum of understanding/agreement currently in effect. Courses are accepted at the discretion of the University.

The transfer student's records (transcripts, etc.) will be evaluated according to the rules and regulations as described in the catalog and in accordance with University policies in effect at the time of the student's admission to a degree program.

After evaluation, the student will be notified that an official evaluation has been completed, which details all applicable transfer credit that has been accepted by the University.

### Advanced Standing Credit

Advanced standing credit for prior learning may be awarded for postsecondary education, work and/or training experience, or from programs completed before enrollment at Embry-Riddle. Embry-Riddle does not accept life-experience or experiential credit as transferrable credits towards degree completion.

It is the student's responsibility to ensure that all documentation of previous course work, military learning experiences, credit by examination, and all FAA certificates are submitted for evaluation, along with the formal application for admission as a degree-seeking student.

Just as official transcripts are required to transfer credit from one university to another, documentation of prior learning through professional training and experience must be official.

1. Embry-Riddle will accept the minimum scores recommended by the American Council on Education (ACE) on all exams offered by CLEP, DSST/DANTES, and Excelsior College Examinations-ECE (formerly REC or ACT-PEP) for the award of undergraduate academic credit. In addition, the amount of academic credit and the academic level (upper- or lower-level) designation recommended by ACE for a passing score on each of the exams will be accepted by the University. As per University policy, credit earned by examination (including CLEP, DSST/DANTES, etc.) must be completed prior to the time the student reaches the last 30 credits of a bachelor's degree, or the last 15 credits of an associate degree. The number of credits accepted via exam (including CLEP, DLPT, DSST/DANTES, etc.) is limited by ERAU to 15 credit hours. Active-duty undergraduate military student exceptions are noted below. University issued challenge exams (not including CLEP, DSST/DANTES, etc.) were discontinued at ERAU-Worldwide as of June 30, 2013.
2. Embry-Riddle will generally follow the recommendations of ACE for courses listed in the National Guide to Educational Credit for Training Programs and the Guide to the Evaluation of Educational Experiences in the Armed Forces.
3. Credit may be granted on the basis of certain FAA licenses with appropriate rating, and may vary by program.
4. Advanced placement may be granted, based upon the existence of earned credit at a postsecondary institution that is determined by the University to demonstrate a higher level of competency than a particular English, math, or accounting course requirement. Under the advanced placement ruling, a course may be waived and considered for the purpose of student advisement to be "met"; however, the student must make up the credit deficit. The deficit may be made up in electives unless otherwise specified by the Department Chair. An advisement report will be maintained in the student information system.

### Course Equivalency Exams

As per University policy, exams (including CLEP, DSST/DANTES, etc.) must be completed prior to the time the student reaches the last 30 credits of a bachelor's degree, or the last 15 credits of an associate degree. National exams may not be used to subsequently satisfy a pre-requisite requirement when a student has taken an ERAU course and failed to earn a sufficient final grade to satisfy that pre-requisite requirement. In this circumstance, the ERAU course must be repeated to satisfy the pre-requisite requirement.

Active-duty undergraduate military students may complete national exams (CLEP, DSST/DANTES, etc.) at any time while pursuing their undergraduate degree and are not restricted from applying exam credits within their last 15 credits for associate degrees or 30 credits for bachelor's degrees.

### Online Course Vendors

Online course vendors, such as SOPHIA Learning LLC (Sophia.org), StraighterLine.com, Study.com and Saylor Academy, who offer on-demand, self-paced coursework, are not considered to be national examinations, such as CLEP, DSST/DANTES, etc., nor are they accredited degree-granting institutions. Therefore, they fall under different credit acceptance criteria: **prior to matriculation**, students who have completed coursework via institutions whose courses carry ACE recommendations but may be non-degree granting and/or non-accredited, including, but not limited to: SOPHIA Learning LLC (Sophia.org), StraighterLine.com, Study.com and Saylor Academy, will be awarded any applicable ACE recommended credit. **After matriculation**, the acceptance of additional credit from such institutions, despite any ACE recognition, is not permitted.

### Undergraduate Degree Completion Time Limits

An undergraduate student may graduate under the provisions of the ERAU-Worldwide catalog which were in effect when the student matriculated at the University, up to a maximum time limit of seven years. All requirements for an Embry-Riddle associates degree, bachelor's degree, or combination therein, must be completed within seven years from the date of matriculation regardless of degree change, catalog change, or campus changes.

## Graduate Students:

Once admitted to the University as degree candidates, students are expected to complete all work to be applied toward their degrees with the University unless advance written authorization is granted.

Credits earned at institutions listed as degree-granting institutions in the Accredited Institutions of Postsecondary Education (AIPE) as published by the Council for Higher Education Accreditation (CHEA) will be considered.

Credit may be received for certain graduate courses taken as non-degree graduate work or as part of another (completed or incomplete) Embry-Riddle graduate degree program. Only relevant coursework will be applied to an applicant's graduate degree program at Embry-Riddle. Transfer credit is not included in GPA/CGPA calculation for any purpose.

The content of the applicable course or other program will be used to determine the nature of the credit to be applied to the student's degree requirement. The appropriate department chair and program chair will make these determinations.

When transferring from one Embry-Riddle graduate program to another, this credit may include prior work on a Graduate Capstone Project (GCP). The combined total credit applied to an Embry-Riddle graduate degree is 12 credit hours.

Transfer credit will be granted only if the student demonstrates academic performance expected of a graduate student at Embry-Riddle, meaning that the course was completed with a "B" or better (3.0 on a 4.0 system). Credit for academic work used to satisfy the requirements of an ERAU undergraduate degree will not be accepted toward the requirements of a graduate degree, unless in a program designed to facilitate shared credit.

### Graduate Degree Completion Time Limit

Graduate students are expected to complete their ERAU program of study within three years to ensure course and program currency. All requirements for an Embry-Riddle master's degree are expected to be completed within three years from the date of initial course enrollment following admission to the University, regardless of a degree change, catalog change, or campus changes. If a student must reapply for admission, the three years commences from the start date of the first course enrollment after the most recent admission to the University. Graduate coursework will remain applicable for seven years. Students should speak with their academic advisor for additional information about master's degree program requirements as specified in University policy.

*Students Earning Two Master's:*

A student who completes an ERAU master's degree and still maintains continuing student status may add another ERAU graduate degree program. The expected completion of the second master's degree will also be three years, beginning with the start date of the first course enrollment after the add-a-program request date.

*Readmission into a Master's Program:*

When readmitted to the University, the applicability period commences from the start date of the first course enrollment after the most recent admission to the University.

Exceptions to this policy are not permitted other than those considered for military students readmitted under the provisions of the Higher Education Opportunity Act. The time limit will not be applied to advanced standing credit for academic work at eligible senior military service schools if the service member is on active duty when accepted for admission. The expected degree completion for such applicants commences on the date the service member separates from active military service.

### Graduate Course Currency

Prior graduate credit earned with ERAU, as well as any transfer credit, is permitted to satisfy program requirements only if courses were completed within the seven-year period immediately preceding the date the most recent application for admission is received at Worldwide Headquarters. Credit awarded on the initial evaluation after admission is generally applied to a new program or catalog curriculum version when students request a change of program/catalog, however, courses over seven years old at the time of the request are generally ineligible to satisfy degree programs requirements.

### Validated Advanced Placement (VAP)

Graduate students who believe their knowledge and prior learning experience qualify them for master's level credit for a specific Embry-Riddle graduate course may submit the Petition for Award of Validated Advanced Placement (VAP).

To be eligible for an award of VAP credit, students must be admitted to an ERAU graduate degree completion program and have received the completed evaluation of previous credit. Students may petition for VAP credit only once, and this must be done within one year of the first term of enrollment.

The student must submit a VAP petition form, a detailed comparison of the training to the learning outcomes in the outline of the course(s) in question, and creditable supporting documentation to substantiate the petition, which is then retained by the University in the student's academic file.

ERAU academic chairpersons will review the petition and make the determination of credit. There are eligibility maximums established for VAP credit awards. Credits awarded through the VAP process are generally minimal.

Contact the Office of the Registrar at worldwide.registrar@erau.edu or (866) 393-9046 to request additional information regarding the Validated Advanced Placement process.

### Internship Grading

Upon completion of the internship assignment a final grade of S or U will be assigned by the student's internship advisor based on review of the intern's performance during the internship and/or on recommendations offered by the employing manager of the sponsoring organization, as appropriate.

# Courses: Add/Drop, Load, Classification, Withdrawal, GPA

## Course Load

**Undergraduate Students:** Due to compressed term length at the Worldwide Campus, six semester hours constitute the minimum load for full-time student status. Students carrying less than the minimum full-time load are classified as part-time students.

The maximum load for students is 12 hours per term, or in overlapping terms. A student whose cumulative GPA is 3.00 or higher may enroll for an overload of three credit hours with advance approval from Academic Advising. Requests for overloads in excess of three credits must be approved by the College Dean or designee.

**Graduate Students:** Due to compressed term length at the Worldwide Campus, three semester hours constitute a full-time load for courses of nine weeks or less. Six semester credit hours constitute a full-time load in courses of 10-15 weeks.

The maximum course load for graduate students is nine credit hours per term. If a student demonstrates exceptional academic performance, a maximum of a one-course overload may be approved by Academic Advising. A student's enrollment may be restricted when deemed in the best interest of the student.

## Classification of Undergraduate Students

Students are classified at the end of each term based on the number of credit hours earned in accordance with the following schedule:

| | |
|---|---|
| Freshman | fewer than 28 hours |
| Sophomore | 28-57 hours |
| Junior | 58-87 hours |
| Senior | 88 hours or more |

## Repeating a Course

**Undergraduate Students:** With the exception of flight courses, which may be repeated only once, a student may attempt a course three times, including the initial grade, and repeat grades. Students who fail to successfully complete a course on a third attempt are subject to suspension from the University.

In determining both the Cumulative Grade Point Average (CGPA) and course completion requirements, the grade for a second course attempt replaces the first, and the grade for a third course attempt replaces the second. (For example, a student retaking a course in which a grade of "D" is earned on the first attempt, who then earns a grade of "F" on the second attempt will have the "F" grade utilized for both CGPA calculation, and course completion requirements.)

All course attempts are recorded on the University transcript.

**Graduate Students:** A student with graduate status may be permitted one opportunity to repeat one course in which a grade of less than a B has been earned for the purpose of improving the cumulative Grade Point Average.

a. To repeat a course for the purpose of improving the CGPA, a student must submit a written request and receive approval of the department chair or designee.

b. In this case, both grades will be shown in the Embry-Riddle transcript, but only the grade attained the second time the course is taken will be included in the calculation of the cumulative GPA. This applies to thesis credit as well. For purposes of repeating a course, all credits for GRP or thesis will be considered as one course.

**Adding a Course**

Students may add a course through the "Last Day to Add a Course" deadline published on the academic calendar. Students seeking to add a course after the published deadline must have permission of the instructor, Department Chair and Dean.

**Dropping a Course (No Notation of Course Enrollment)**

Students may drop a course through their academic advisor with no notation of course enrollment on their transcripts or financial penalty during the drop period only. All student drop requests must be submitted in writing, and require counseling with an academic advisor, in order to

be processed. Due to the compressed term schedules at Worldwide locations, the drop period extends through the first four class days of each term, ending at 11:59pm EST on that final day. Deadlines are enforced using Eastern Standard Time (EST), in keeping with the location of ERAU Worldwide Headquarters. Tuition is not refunded after the conclusion of the drop period, unless required by state law or via an approved exception.

A late drop is defined as any drop after the completion of add/drop period and prior to the mid-point of the course, and is reviewed as an exception to policy. Students petitioning for a late drop from a course must provide a written petition along with third-party documentation explaining their extenuating circumstances, such as military assignment, medical emergency, etc. Each petition is considered individually; not all petitions are approved, nor all waivers granted.

Students are not permitted to drop a course while an academic integrity violation is pending.

## Withdrawal from a Course and from the University (W) (WF)

a. Because the length of academic terms varies within Worldwide programs, the withdrawal period also varies. Generally, students who withdraw up to the middle of the term, unless otherwise established by any contract or memorandum of understanding/agreement, receive a grade of W. Deadlines are enforced using Eastern Standard Time (EST), in keeping with the location of ERAU Worldwide Headquarters. In exceptional cases, a student may petition the Enrollment Management Committee to receive a grade of W after the mid-point of the term.

b. A late withdrawal is defined as any withdrawal after the mid-point of a course and is reviewed as an exception to policy. Students petitioning for a late withdrawal from a course must provide a written petition along with third-party documentation explaining their extenuating circumstances, such as military assignment, medical emergency, etc. Each petition is considered individually; not all petitions are approved, nor all waivers granted.

c. If a student fails to complete the formal withdrawal process during the allowed withdrawal period (after the add/drop period concludes up to the course mid-point), a grade of "F" will be assigned for the course.

d. Uniformed members of the U.S. Armed Forces currently enrolled in undergraduate or graduate classes who must drop or withdraw from a class for reasons related to their military service must submit the request for a late drop or late withdrawal within 30 days of receiving notification of the deployment or the start of service-related travel that prevents continued enrollment in courses. All requests will be reviewed on a case-by-case basis.

e. Students who do not participate in a course, but do not drop or withdraw from the course will be issued a grade of "FX" by their instructor, which designates failure due to non-attendance. Students who initially participate in a course, but who then cease to participate and do not withdraw from the course will be issued a grade of "FX" by their instructor, which designates failure due to non-attendance. Students are financially responsible for courses in which they earn an "FX" grade, as they have not fulfilled their obligation to either complete the course or complete the necessary steps to drop/withdraw from the course. "FX" grades are noted on the official transcript as "F" grades.

f. Students are not permitted to withdraw from a course while an academic integrity violation is pending. Students are not permitted to be registered in any class when withdrawn, suspended or dismissed from the University.

**Late Drop/Late Withdrawal Requests for Active Duty Military Students**

Personnel covered under this section of the catalog are uniformed members of the U.S. Armed Forces who do not exercise a military withdrawal option through their military service, who are registered or enrolled in a class at Embry-Riddle Worldwide, and who must drop or withdraw from a class for reasons related to their military service. Drop or withdrawal requests will be reviewed and if approved, will be processed based on the type of request and the information submitted.

The student submits the request for a late drop or late withdrawal **within 30 days of receiving notification of the deployment or the start of service related travel** which prevents continued enrollment in courses. Changes in military work schedule or assignment are generally not considered sufficient grounds to justify a late drop request. All requests will be reviewed on a case by case basis.

## Late Drop/Late Withdrawal Requests Resulting in Late Grade Changes

Late Drop/Late Withdrawal requests that result in changes of grade are subject to grade change policy. Late grade change requests are only considered for up to one year after the conclusion of the class in question, via petition with supporting documentation. Military exception requests with cause, such as active-duty deployment, may be reviewed via petition with supporting documentation. Students must be in active status with ERAU to have cases considered. Students who have graduated, enrolled in other institutions, been suspended or dismissed, or otherwise broken their continuing student status, are not eligible for late grade change consideration.

## Auditing a Course (AU)

**Undergraduate Students:** Students audit a course solely to enhance their knowledge and do not receive academic credit. Students may change their registration from audit to credit during the add period only. They may change from credit to audit through the last day of the withdrawal period. When a student auditing a course fails to maintain satisfactory attendance, as determined by the instructor, a grade of W will be assigned.

**Graduate Students:**

a. Any Embry-Riddle student may register to audit any graduate course with the approval of the chair (or designee) of the department offering the course. Regular class attendance is required. A student who fails to maintain satisfactory attendance, as determined by the instructor, will be assigned a grade of W.

b. A graduate student may change registration from audit to credit only during the "Add" period at the beginning of the semester/term, with the approval of the chair (or designee) of the department in which the student is enrolled.

c. A change of registration from credit to audit may be made only during the authorized withdrawal period.

## Incomplete Grades (I)

a. At the instructor's discretion, a grade of "I-Incomplete" may be assigned if illness, unavoidable absence, or other reasons beyond a student's direct control prevent the student's completion of course requirements by the official last day of the term in which the course is offered. This temporary grade may be awarded to a student when, in the estimation of the instructor, (1) the student has a legitimate reason to request an Incomplete grade; (2) the student attended the course and (3) the student has a reasonable likelihood of satisfactorily completing the remaining course requirements. An Incomplete grade cannot be assigned as a substitute for a student's non-attendance or as remediation for a low or failing grade. In all cases, the Incomplete grade is a privilege exercised by an instructor; it is not a right ascribed to a student.

b. If a student seeks a grade of Incomplete, the student is responsible for developing a work plan which itemizes outstanding coursework and expected completion date(s). The work plan must be submitted to the instructor before the official last day of the term in which the course is offered. The instructor is responsible for delineating the conditions and terms for the course's completion, communicating the requirements to the student, and maintaining a record of the request. A student assigned a grade of Incomplete must complete outstanding course requirements by the deadline(s) established for him/her by the instructor. The maximum

timeframe for completion of all course requirements may not exceed 150 days following the last published day of the respective course.

c. Credits for a course for which an Incomplete grade has been issued are not considered earned to determine academic standing, academic honors, federal financial aid eligibility, athletic eligibility, or other purposes.

d. The student may not register for alternate coursework in future terms to complete outstanding course requirements. Additionally, the course can only be repeated once the incomplete has been resolved and a final grade has been posted. Work submitted by the stipulated deadline will be assessed by the course instructor. The grade of "I" will be changed to the earned grade for the course within four business days. Failure of the student to complete the necessary work by the defined deadline will result in conversion of the temporary "I - Incomplete" grade to a permanent grade of "F - Failure." The grade of F is considered final and will be reflected in the student's GPA and Satisfactory Academic Progress calculations.

e. Requests for an extension of a deadline for completion of an Incomplete grade must be made by the stipulated Incomplete grade deadline and are subject to the approval of the instructor and the Dean (or designee). Only in the most extenuating circumstances will extensions be granted. To make a request for an extension of a deadline for completion of an Incomplete grade, a student must submit a justification for the request, a work plan that itemizes outstanding coursework with expected completion date(s) and relevant supporting documentation to the instructor and the Dean of his/her respective College. If approved, an extension of the Incomplete grade deadline may not exceed an additional 90 days. Requests to exceed the 90-day period extension would need to be made to the Office of the Provost.

f. In no circumstances may a student graduate with an incomplete grade. All courses with Incomplete grades must be completed and graded within three weeks of the student's anticipated graduation date for a degree candidate to be eligible for the original conferral date. Otherwise, the student's graduation date will be moved to the next available date.

g. International students in F-1 or J-1 status assigned a grade of "Incomplete" must complete the required work for a course within a timeframe that ensures compliance with United States Immigration and Customs Enforcement regulatory requirements.

**Grade Point Averages (GPA, CGPA)**

**Undergraduate Students**

a. A student will be assigned a grade at the end of each term for every course for which the student was registered.

b. A term grade point average (GPA) and cumulative grade point average (CGPA) are computed for each student after every term. The GPA is calculated by dividing the number of grade points earned during the term by the number of hours attempted in that period. The CGPA is determined by dividing the total number of grade points earned by the total number of hours attempted at the University. Grade points and hours attempted are accrued only in courses graded A, B, C, D, F, FX and WF.

**Graduate Students**

a. A student will be assigned a grade at the end of each term for every course for which the student was registered.

b. A term grade point average (GPA) and cumulative grade point average (CGPA) are computed for each student after every term. The GPA is calculated by dividing the number of grade points earned during the term by the number of hours attempted in that period. The CGPA is determined by dividing the total number of grade points earned by the total number of hours attempted at the University. Grade points and hours attempted are accrued only in courses graded A, B, C, F, FX and WF.

c. The courses and credits from another graduate program at Embry-Riddle accepted towards a degree program will be included in the CGPA.

**Grading of Theses and Projects**

a. A student registered for thesis or project will receive a grade each term, as determined by the student's advisor or thesis committee. If the student is making satisfactory progress toward completion of the thesis, a grade of S will be assigned. If the student is making satisfactory progress toward completion of the project, a grade of F will be assigned. If the student has not made satisfactory progress, a grade of U/F will be assigned.

a. No more than one grade of U or F is permitted during the course of the thesis or project preparation. Upon earning the second U or F grade, the candidate will be placed on academic probation. A third U or F grade will result in dismissal from the program.

**Change from Thesis or GRP Option**

Students may, with appropriate permission, change from thesis or GRP options to another available option within their graduate program.

a. A student may petition for permission to change from thesis to another option (Graduate Research or all course work). The student must obtain permission from the thesis committee chair and approval from the department chair or designee to make such a change. If the petition is approved, a grade of W will normally be assigned to all thesis credits.

b. When a student changes from the thesis to another option, a maximum of three credits earned for thesis work may be counted toward the degree requirements. This requires recommendation from the thesis committee and approval from the department chair or designee. The committee must document that the work was productive and warrants credit as a special topics course.

c. A student may petition to change from GRP to all course work. The student must obtain permission from the GRP committee chair and approval from the department chair or designee to make such a change. If the petition is approved, a grade of W will normally be assigned to all GRP credits.

d. When a student changes from the thesis to another option, a maximum of three credits earned for GRP work may be counted toward the degree requirements. This requires recommendation from the GRP committee and approval from the department chair or designee. The committee must document that the work was productive and warrants credit as a special topics course.

**Academic Rigor**

Master's programs are progressively more advanced in academic content and are structured (a) to include knowledge of the literature of the discipline and (b) to ensure engagement in research and/or appropriate professional practice and training. Depending on the specific program, students in master's programs may be given three options to complete part (b): a thesis, a Graduate Research Project (GRP); a Graduate Capstone Project (GCP); additional specific culminating experience class work; or industry work that will focus on professional practice and training.

# Dean's List, Honor Roll, Warning, Probation, Suspension, and Dismissal

## Dean's List and Honor Roll

**For Undergraduate Students:** Any full-time student who demonstrates academic excellence is recognized by being named to the Dean's List or Honor Roll and is notified in writing by the Office of the Registrar, via ERAU email.

Students who are enrolled at a full-time status and earn a GPA of 3.50-4.00 for a term and maintain a minimum 2.00 cumulative GPA will be named to the Dean's List. Students who are enrolled at a full-time status and earn a GPA of 3.20-3.49 for a term and maintain a minimum 2.00 cumulative GPA will be named to the Honor Roll.

## Academic Warning, Probation, Undergraduate Suspension, and Graduate Dismissal

**Undergraduate Students:**
**Warning:** A Worldwide Campus student whose cumulative or term GPA falls below 2.00 will be placed on Academic Warning for up to two consecutive terms.

**Probation:** After a second consecutive term on Academic Warning, a student whose cumulative or term GPA remains below 2.00 will be placed on Academic Probation for up to two consecutive terms.

**Suspension:** After a second consecutive term on Academic Probation, a student whose cumulative or term GPA remains below 2.00 for an additional term will be academically suspended from the University.

When a change of grade or the conversion of the grade "I" changes a student's academic status, the previous academic status of warning, probation, or suspension is removed and does not become part of the student's permanent record.

All ERAU coursework taken at the undergraduate level applies to a student's CGPA, whether applicable to the current degree plan or not.

For students who have been academically suspended from the University, a written petition for readmission detailing the existence of any exceptional mitigating circumstances must accompany the application for readmission and fees. Suspended students are eligible to reapply for admission **after** completing a minimum of 15 semester hours of academic credit with a CGPA of 2.50 on a 4.00 scale or higher from an accredited degree-granting institution. A suspended student who wishes to be readmitted to another ERAU campus should apply for readmission to that campus through its Office of the Registrar or the equivalent office. Unless readmitted to the University, suspended students will not be permitted to take any further courses with the University. Student questions regarding next steps and/or reinstatement after a suspension should be directed to their academic advisor. Questions regarding the undergraduate suspension procedure should be directed to the Office of the Registrar, at worldwide.registrar@erau.edu.

Undergraduate students returning to the University on conditional-admission status who are placed on warning, probation, or suspension should speak with their academic advisor, who will work with the Office of the Registrar if status adjustments are necessary. A student on conditional-admission status who fails to satisfy the conditions of his/her admission may be suspended.

Undergraduate students on conditional-admission status should refer to the Undergraduate Conditional Admission section of the catalog for further information.

**Graduate Students:**

**Academic Probation:** Whenever the Cumulative Grade Point Average (CGPA) of a student who has graduate status falls below 3.0, and/or the student earns a U (Unsatisfactory) or F (Failure) grade in graduate milestones or thesis coursework, the student will be placed on academic probation.

A student who receives a U (Unsatisfactory) or F (Failure) grade in graduate milestone or thesis coursework will be required to complete an improvement plan to meet graduate milestones or thesis requirements during the subsequent semester. The student must earn an S (satisfactory) or P (Pass) grade in the subsequent semester to be removed from probation status.

**Academic Dismissal:** Students will be dismissed from their graduate program whenever any of the following conditions occur:

- Students on conditional status fail to satisfy the conditions of their admission.
- A final grade of less than B is earned in any undergraduate course required in the graduate program as a condition of admission.
- A final grade of less than B is received in any three graduate courses.
- A final grade of U has been received for any two graduate courses.
- A final grade of F has been received for any two graduate courses.
- A final grade of F is received in any course worth 6 credit hours or more.
- The cumulative grade point average has not been raised to at least 3.0 within the first twelve graduate hours attempted after the semester/term in which the student is placed on academic probation.

All ERAU Coursework taken at the graduate level applies to the student's CGPA, whether applicable to the current degree plan or not.

Academic dismissal is entered on the student's permanent record.

To appeal academic dismissal, the student must submit a petition in writing detailing the existence of any exceptional, mitigating circumstances to the Chair of the academic department with responsibility for overseeing the graduate program or their designee within 30 days of the receipt of the dismissal notice. The College Dean and/or Department Chair or designee will provide his/her decision to uphold the dismissal or recommend a dismissal reversal and notify, in writing, the Senior Vice President for Academic Affairs and Provost or designee, who will review the case and make a final determination of the action to be taken. Such action will be carried out in a timely manner not to exceed 30 days following receipt of the petition by the Senior Vice President for Academic Affairs and Provost or designee. If confirmed, academic dismissal is final.

Students may appeal their academic dismissal from the University only once.

### Dismissal for Cause

The University reserves the right to dismiss a student at any time and without further reason, if the student exhibits the following undesirable conduct:

- Actions that pose a risk to the health, safety, or property of members of the University community, including, but not limited to, other students, faculty, staff, administrative officers, or the student himself/herself.
- Conduct that disrupts the educational process of the University.
- Any other just cause.

## Academic Integrity

Embry-Riddle is committed to maintaining and upholding intellectual integrity.

All students, faculty, and staff have obligations to prevent violations of academic integrity and take corrective action when they occur. The adjudication process will involve imposing sanctions that may include, but are not limited to, a failing grade on the assignment, a failing grade in a course, suspension, or dismissal from the University, upon students who commit the following academic violations:

**Plagiarism:** Presenting the ideas, words, or products of another as one's own. Plagiarism includes use of any source to complete academic assignments without proper acknowledgement of the source. Reuse or resubmission of a student's own coursework, if previously used or submitted in another course, is considered self-plagiarism and is also not allowed under University policy.

Examples include, but are not limited to:

1. The use of any source to complete academic assignments without proper acknowledgement of the source.
2. Submission of work without appropriate documentation or quotation marks.
3. The use of part or all of written or spoken statements derived from sources, such as textbooks, the internet, magazines, pamphlets, speeches, or oral statements.
4. The use of part or all of written or spoken statements derived from files maintained by individuals, groups or campus organizations.
5. Resubmission of previously submitted work without formal quotation.
6. The use of a sequence of ideas, arrangement of material, or pattern of thought of someone else, even though you express such processes in your own words.

**Cheating:** A broad term that includes, but is not limited to, the following:

1. Giving or receiving help from unauthorized persons or materials during examinations.
2. The unauthorized communication of examination questions prior to, during, or following administration of the examination.
3. Collaboration on examinations or assignments expected to be, or presented as, individual work.
4. Fraud and deceit that include knowingly furnishing false or misleading information or failing to furnish appropriate information when requested, such as when applying for admission to the University.

**Electronic Plagiarism Tool:** Instructors reserve the right to use any form of digital method for checking plagiarism. Several electronic systems are available and other methods may be used at the Instructor's discretion. All student work may be submitted to any electronic plagiarism detection system database.

All student work submitted to any electronic plagiarism system by the instructor will remain in the ERAU plagiarism system database. Students are not able to request the removal of the content submitted to any plagiarism system used by ERAU.

Review the ERAU Worldwide Campus Honor Code: https://worldwide.erau.edu/administration/student-handbook

# Transfer or Change in Degree Program

## Change of Degree or Certificate Program

Students may apply to change their degree program if they meet academic qualifications.

When a student elects to change a program, certificate, or minor, the requirements of the catalog in effect at the time the request was initiated apply. When a student elects to change a specialization/concentration or undergraduate level (AS to BS or BS to AS) within a degree program, the catalog year remains the same.

Students considering such changes should contact Academic Advising to determine how they will be affected.

## Transfer Between Graduate Degree Programs

Only relevant coursework will be applied to an applicant's graduate degree program at Embry-Riddle. The content of the applicable course or other program will be used to determine the nature of the credit to be applied to the student's degree requirement. The appropriate department chair and program chair will make these determinations.

When transferring from one Embry-Riddle graduate program to another, this credit may include prior work on a Graduate Capstone Project (GCP). The combined total credit applied to an Embry-Riddle graduate degree for most programs is 12 credit hours.

## Intra-University Transfer

Students wishing to transfer among the Daytona Beach, Prescott, and Worldwide Campuses must meet eligibility criteria and requirements as defined by the University academic policy. Students should contact their Academic Advisor to ensure the desired courses are available at the receiving campus in the desired modality and can meet the requirements of the student's current or intended degree program. Transfers may not be permitted if the student is on academic probation/warning, AND/OR the student is not in good financial standing, has an account balance or financial hold, AND/OR the receiving campus does not offer the degree program which the student wishes to pursue, in the modality desired.

# Earning Multiple Degrees and Minors

## Two Degrees of the Same Rank

To earn a second baccalaureate degree, students must complete a minimum of 30 non-duplicating, degree applicable credit hours of course work over and above that required for the declared primary degree. At least 60 credit hours must be completed in residence at the University, and at least 20 of the 30 additional credit hours must be courses at the 300-400 level.

To earn a second associate degree, students must complete a minimum of 15 non-duplicating, degree applicable credit hours of course work over and above that required for the declared primary degree. At least 30 credit hours must be completed in residence at the University.

Students may not simultaneously pursue degrees of different levels (such as a bachelor's and master's) at ERAU Worldwide.

## Declaration of a Concurrent Second Undergraduate Degree or Minor

Students must declare their intention to seek an associate's degree concurrently with a bachelor's degree as early as possible, preferably at the time of admission. Students are prohibited from declaring a minor for an associate degree.

Students may declare their intention to seek an associate's degree later in their baccalaureate studies with ERAU, but not after the date on which their application for graduation in the bachelor's degree program is received by the Office of the Registrar.

For university policy regarding earning a second degree at the same academic level, please refer to the catalog section titled: "Two Degrees of the Same Rank".

Students must declare their intention to seek a minor(s) as early as possible, preferably at the time of admission.

Students may declare their intention to seek a minor later in their academic career with ERAU, but not after the date on which their application for graduation is received by the Office of the Registrar.

The student is subject to the requirements of a second degree track or minor as stated in the catalog in effect at the time the request is made. Students must complete each degree or minor with a 2.00 GPA or higher.

Both degree programs will be reflected on the student transcript, and each will generate an individual diploma. Minors or specializations are reflected on the student transcript but are not noted on the diploma.

At least six hours in each minor must be completed with ERAU courses. Of the six hours completed at ERAU, three hours must be from an upper-level course.

Students may request a substitution of one course for another in the minor, however; the maximum number of course substitutions allowed in minors is two, regardless of the number of minors pursued.

When a student is pursuing multiple minors and the same course is required in both or all, the course may apply to all, and the student does not have to make up additional hours for the shared course.

## Additional Graduate Degrees

A graduate student is allowed to apply up to 12 applicable credit hours from one graduate degree program to meet the requirements of another graduate degree program. In order to pursue a second graduate degree, the student must satisfy all the requirements of the first degree sought.

# Matriculation, Continuous Student Status, Catalog Applicability

## Matriculation

Matriculation is the process by which an applicant becomes an Embry-Riddle student. This occurs when an applicant has been officially accepted for admission, has enrolled in an Embry-Riddle course within one year of the date of admission, and has maintained that enrollment beyond the drop period.

If an applicant fails to maintain enrollment beyond the drop period within that year, he/she will need to reapply for admission. Students are eligible for an Embry-Riddle transcript showing credit awarded from other sources toward their degree after they have matriculated.

**Undergraduate Students:** Upon matriculation, students are expected to maintain degree-progression throughout their academic careers at Embry-Riddle Aeronautical University – Worldwide (see "Undergraduate Degree Completion Time Limits" for more information). Students shall successfully complete 18 UG credit hours per year. The 18 credit hour calculation will be measured on each annual anniversary of a student's matriculation and will include all activity in the previous 365 days. Students receiving federal financial aid should speak to their financial aid advisor about any unique applicable requirements.

**Graduate Students:** Upon matriculation, students are expected to maintain degree-progression throughout their academic careers at Embry-Riddle Aeronautical University – Worldwide. Students shall successfully complete 15 GR credit hours per year. The 15 credit hour calculation will be measured on each annual anniversary of a student's matriculation and will include all activity in the previous 365 days.

## Continuous Student Status

Continuous student status is maintained through enrollment beyond the drop period in at least one course within a one-year period. If a student fails to maintain enrollment beyond the drop period, he/she will forfeit active-student status, will need to reapply for admission, and the matriculation process will begin again. Courses previously taken with ERAU will not immediately matriculate a returning student.

Students remain in continuous student status unless they:

1. Enroll at another institution without advance written approval. Once admitted to Embry-Riddle as degree candidates, students are expected to complete all work with the University unless advance written authorization is granted. If applicants fail to disclose on their applications for admission that they are currently attending another school, or if they decide to take courses outside of Embry-Riddle after they have applied and been admitted, that credit won't be considered for transfer unless they have obtained prior written authorization from Embry-Riddle.
2. Fail to enroll and maintain enrollment beyond the drop period, in at least one course at Embry-Riddle in any one-year period from the end date of last course.
3. Have been suspended or dismissed from the University.
4. Have completed an Embry-Riddle bachelor's, master's, or Ph.D. degree. Students who pursue an additional degree of the same rank (undergraduate/graduate) may be permitted to do so without reapplying.
5. Are students who do not complete the degree requirements of their program within seven years from the date of admission or seven years from the date of readmission.

Students failing to maintain continuous enrollment for any reason are required to reapply for admission under the catalog in effect at the time of their readmission. An exception to this policy may apply to active duty servicemembers. These exceptions will be considered on a case-by-case basis.

## Continuous Student Status For Active Duty Military Students

Active-duty military students must maintain continuous student status as detailed above; however, active duty undergraduate military students may also maintain continuous student status by submitting National Exam results, or transcripts within a one-year period showing that the student has done one of the following to maintain continuous student status:

1. Passed a nationally recognized exam (ie. CLEP, DSST/DANTES) that can be applied toward degree completion
2. Completed any non-traditional education (military course or updated occupational skill as listed on the service transcript and reviewed by the American Council on Education) that can be applied toward degree completion
3. Completed a course at another institution to be used toward an ERAU degree after receiving prior written approval

*Active duty military students may complete a waiver to establish continuous student status.

## Catalog Applicability

The academic provisions of the catalog in effect at the time of a student's initial academic evaluation remain applicable as long as the student remains in the original degree program, minor, or area of concentration and maintains continuous enrollment status. Revisions to university policies, rules, and regulations are in immediate effect for all students with the publication or revision of each new catalog.

If a student does not maintain continuous enrollment at the University, the student must apply for readmission. The provisions of the catalog in effect at the time of readmission then become applicable to the student.

Course prerequisites are catalog-year specific from the implementation date forward.

Curricular requirements stated in the applicable catalog will not be affected by subsequently published addenda to that catalog or by later catalogs unless the student elects to graduate under the provisions of a later catalog. Students electing to graduate under the provisions of a later catalog must meet all requirements (admission, transfer, graduation, etc.) contained in that catalog.

# Transcript Requests

Embry-Riddle transcripts are provided through the Parchment Digital Credential Service.

- Current students may request an official transcript via the ERAU Online Student Services Portal at ERNIE. To access portal services, a student will need a current username and password. As logging into ERNIE satisfies federal requirements for establishing identity, students may then complete the Parchment Digital Credential Service online request form; there is no need to submit an additional signed request. Unofficial transcripts are available to current students only and may be obtained directly through Campus Solutions at no cost.
- Prior students and alumni may request an official transcript by visiting the Parchment Digital Credential Service website and completing the consent form that will allow its release. The consent form must be completed only the first time the service is used; it will be maintained by Parchment Digital Credential Service for future requests. Unofficial transcripts are not available to prior students and alumni who no longer have a current username and password for ERNIE.

Transcripts are available for delivery either in traditional paper form or electronically. The format must be selected by the student during the ordering process.

Transcripts issued by the University will reflect the academic record of the student in its entirety, including all undergraduate and graduate coursework. Student may not select, or suppress, specific terms of attendance or levels of study from their record when ordering transcripts.

There is a fee for either official paper or electronic transcripts.

The Office of the Registrar does not provide unofficial transcripts. Electronic transcripts may be obtained through the Parchment Digital Credential Service only. Transcripts are not available via fax.

Student transcripts and records are maintained in perpetuity.

# Skills Assessments

The purpose of the English and Mathematics Skills Assessments is to ensure that students are initially enrolled in English and Mathematics courses where they can successfully learn required concepts while simultaneously preparing for subsequent courses.

There is no pass or fail on these assessments, only proper placement in the appropriate English or Mathematics course. Additionally, completion of a skills assessment does not guarantee admission to the university. To be admitted, students must meet the full terms of admission, which include submitting all required documentation needed to render an official decision.

Students may access pre-assessment refresher tools located in ERNIE on the Worldwide Skills Assessments site.

ERAU Worldwide English and Mathematics Skills Assessment policies are as follows:

All undergraduate students who do not possess transfer credit equivalent to ENGL 106 or more advanced ENGL courses that include a significant writing skills component will need to complete the English skills assessment before registering for courses with the ENGL, ENGR, and ESCI prefixes.

All undergraduate students without applicable prior credit will need to complete the Mathematics skills assessment before registering for courses with the ENGR, MATH, and STAT prefixes as well as before registering for PHYS 150/160/250/253 (Engineering Physics).

## English

The English Skills Assessment may be taken one time only; there will be no opportunity to retake an examination after the first time it is completed and scored. After completing the English Skills Assessment, the course(s) for which a student should register will be displayed in their Campus Solutions Student Center To-Do list.

1. For students who do not possess transfer credit equivalent to ENGL 106 or more advanced ENGL courses that include a significant writing skills component, the following placement criteria apply:
   a. Students who score 70% or above on the Skills Assessment may enroll inENGL 123.
      i. Students who score 70-79% are strongly advised to book an individual mentoring session at the Virtual Communication Laboratory of VECTOR.
   b. Students who score at least 50% but less than 70% on the Skills Assessment must take ENGL 106.
   c. Students who score less than 50% on the Skills Assessment must take both ENGL 104 and ENGL 106.
2. ENGL 104 and ENGL 106 cannot be used to satisfy General Education Communication Theory and Skills requirements.

English is the language of instruction for all courses at Embry-Riddle Aeronautical University – Worldwide. ERAU does not offer English language services.

## Mathematics

After completing the Mathematics Skills Assessment, the course(s) for which a student should register will be displayed in their Campus Solutions Student Center To-Do list. Visit the Mathematics Skills Assessment site in ERNIE to learn how you can self-remediate and repeat the mathematics skills assessment.

1. Students who do not possess transfer credit equivalent to MATH 100, MATH 106, or 100 to 200-level courses with a MATH prefix are required to complete the recommended courses listed in the Student Center To-Do list.
   a. Topics included in the Mathematics Skills Assessment range from arithmetic to algebra through trigonometry and pre-calculus.
   b. Course recommendations combine the results of the assessment with the student's degree program listed in Campus Solutions at the time of the assessment.
2. Students who place into MATH 100, MATH 106, or above and yet possess transfer credit equivalent to MATH 100, MATH 106, or above *should still* take the recommended course(s) listed in the Student Center To-Do list to have the best preparation for success in later mathematics courses.
3. MATH 100 and MATH 106 cannot be used to satisfy General Education Mathematics requirements.

# Privacy of Student Records (FERPA)

The University respects the rights and privacy of students in accordance with the Family Educational Rights and Privacy Act (FERPA). The University may disclose certain items of directory information without the consent of the student, unless the student submits a written non-disclosure request, verified by University personnel or a notary.

Students are required to file requests for non-disclosure with the Office of the Registrar. Non-disclosure requests remain in place permanently, unless the office is notified otherwise. Students may grant online access to select individuals via the student information system (auxiliary access); requests to grant online access cannot be processed by the Office of the Registrar. Auxiliary access is "view only" and does not permit the person who has been granted auxiliary access to act as an agent of the student, or to act upon the student's behalf.

Directory information consists of:

- Student name
- Permanent or local mailing addresses and telephone numbers*
- ERAU e-mail or box address
- Non-ERAU email addresses or account information*
- Date of birth*
- Major courses of study and areas of specialization
- Dates admitted, attended, and graduated
- Enrollment and class status
- Campus, school, or college attended
- Degrees sought or earned, and dates received or anticipated
- Awards, honors, and special programs or recognitions
- Most recent previous school attended
- For student-athletes and scholarship recipients, the ERAU ID and photograph
- Information from public sources

*Though directory information may be released without student consent, information of this nature is only released for compelling reasons.

The University shall obtain written consent from students before disclosing any personally identifiable information from their education records with the exception of the directory information.

The receipt of a written request to release an education record electronically satisfies this requirement. Such written consent must specify:

1. The records to be released.
2. The purpose of the disclosure.
3. Identify the party or class of parties to whom disclosure may be made and their address.

4. Do not designate a recipient fax number for requests, including academic transcripts; transcripts are not available via fax. If urgency exists, students are advised to request the delivery of an electronic transcript, via Parchment.
5. Must be signed and dated by the student or former student.

An institution may release personally identifiable information from a student's educational record without the student's written consent as required under federal law if the disclosure meets one or more of the conditions as defined under the *Exceptions to Written Consent Requirement (*§99.31).

The law authorizes students and former students the right to inspect and review information contained in their education records.

Students can submit written requests to the Office of the Registrar. Once a request is received, the Office of the Registrar is required to make the records available for inspection and review within 45 days.

FERPA allows disclosure of educational records or components thereof under certain conditions. Students desiring additional information regarding FERPA may review the ERAU Worldwide FERPA Notification in ERNIE or contact the Registrar's Office.

# Grades

## Grading System

A uniform system of grading and calculation of grade point average will be used throughout the University. College-specific, supplemental grading policies must be approved by the Senior Vice President for Academic Affairs and Provost. The following grade identifiers are used on student grade reports and transcripts to indicate quality of academic work performed by students:

**Undergraduate** indicators below are used on grade reports and transcripts.

| Letter Grade | Student Performance | Grade Points Per Credit Hour |
|---|---|---|
| A | Superior | 4 |
| B | Above Average | 3 |
| C | Average | 2 |
| D | Below Average | 1 |
| F | Failure | 0 |
| FX | Failure due to course non-attendance/never attended (notated on official transcript as "F" grade) | 0 |
| WF | Withdrawal from the University Failing | 0 |
| W | Withdrawal from a course | N/A |
| AU | Audit | N/A |
| I | Passing but incomplete | N/A |
| P | Passing grade (credit) | N/A |
| S | Satisfactory (noncredit) | N/A |
| U | Unsatisfactory | N/A |
| EXP | Exchange Course Pass | N/A |
| EXU | Exchange Course Unsatisfactory | N/A |
| T | Transfer credit (not included in GPA/ CGPA) | N/A |
| N | No grade submitted by instructor | N/A |
| X | Credit by means other than course equivalency exam | N/A |
| XP | Credit by course-equivalency exam | N/A |
| NC | No credit awarded | N/A |

**Graduate** indicators below are used on grade reports and transcripts.

| Letter Grade | Student Performance | Grade Points Per Credit Hour |
|---|---|---|
| A | Excellent | 4 |
| B | Satisfactory | 3 |
| C | Conditional/Passing | 2 |
| F | Failure | 0 |
| FX | Failure due to course non-attendance/never attended (notated on official transcript as "F" grade) | 0 |
| WF | Withdrawal from the University (Failing) | 0 |
| U | Unsatisfactory | N/A |
| AU | Audit | N/A |
| I | Incomplete (Passing) | N/A |
| N | No Grade Submitted by Instructor (also used for xx690C when a student fails or completes a GRP) | N/A |
| S | Satisfactory (applies to grading of the Graduate Internship, GRP, or Thesis) | N/A |
| T | Credit Accepted by Transfer | N/A |
| W | Withdrawal from a course | N/A |

Faculty will post grades within one week of assignment due date, test/quiz date, etc. unless otherwise disclosed by the faculty member prior to the stated grading period lapsing. Timelines for Doctoral dissertations can be found of the applicable degree program page.

## Grades

Final grades are issued at the end of each term. Students can access their grades immediately after they are posted by the faculty, via ERAU Online Services (Log in to ERNIE, click on the Services link in the upper right, click on Campus Solutions in left menu, then Campus Solutions Student Center.)

The University is prohibited by federal law (FERPA) from releasing grade information without the express written authorization of the student. Students may grant online auxiliary access to any designated individuals via the student information system. Auxiliary access is "view only" and does not permit the person who has been granted auxiliary access to act as an agent of the student, or to act upon the student's behalf.

## Grade Appeals

Students who wish to appeal the final course grade must first communicate with the instructor to discuss and attempt to resolve the issue. The meeting must be arranged as soon as possible after final course grades have been issued.

The grounds for appeal may include suspected mathematical errors in computing the final grade or interpretation of the weighing of course performance elements. Except for the most unusual of circumstances, appeals challenging the academic judgment of the faculty are not acceptable.

If the dispute cannot be resolved within 30 days between the student and instructor, the student may initiate a written appeal to the designee of the appropriate academic college. Review and final ruling for unresolved grade appeal cases resides in the office of the College Dean, who will communicate the final decision to the Office of the Registrar.

Academic Advising is notified of final grade appeal rulings at the conclusion of the process, who will advise the student as to next steps.

Late grade change requests are only considered for up to one year after the conclusion of the class in question, via petition with supporting documentation. Military exception requests with cause, such as active duty deployment, may be reviewed via petition with supporting documentation. Students must be in active status with ERAU to have cases considered. Students who have graduated, enrolled in

other institutions, been suspended or dismissed, or otherwise broken their continuing student status, are not eligible for late grade change consideration.

## Changes of Grade

A change of grade is an administrative action, initiated by an instructor, that modifies a student's grade from the grade originally assigned. Changes of grades occur for assorted reasons, including conversion of a temporary grade to a final grade, correction of clerical or calculation errors, reassessment of a student's work, re-evaluation after preauthorized completion of course-related activities, and academic dishonesty. Changes of grade are not permitted after a degree is conferred. Change of grade procedures and deadlines are stipulated in the Academic Catalog.

# Graduation

## Graduation Requirements

Undergraduate students are required to complete at least 25% of semester credit hours through ERAU instruction to achieve residency. Per state regulations, for undergrad degree completion, all Virginia Campus students are required to complete a minimum of 30% coursework at Embry-Riddle Aeronautical University in order to achieve residency. Students pursuing any undergraduate degree must earn a minimum cumulative grade point average (CGPA) of 2.00 for all courses completed at the undergraduate level at the University. Certificate of completion seeking students must complete program requirements as specified.

Graduate students are required to complete all graduate course work with Embry-Riddle with a maximum of 12 credit hours of transfer work permitted for most programs. Students pursuing any graduate degree must earn a minimum cumulative grade point average (CGPA) of 3.00 for all courses completed at the graduate level at the University.

All students must complete the general graduation requirements as prescribed by the University, as well as all degree requirements specified in the degree program being pursued. Graduation requirements are not subject to petition or waiver.

Students must initiate an application for graduation online by accessing Campus Solutions, selecting "Academic Advising," and then "Apply for Graduation" from the column of choices. A qualified student will not be graduated by ERAU until a graduation application has been received and processed by the University, and the graduation fee has been remitted. Undergraduate students must be within 12 credit hours of program completion before submitting a graduation application; masters students must be within 6 credit hours of program completion before submitting a graduation application. Graduation applications are canceled after one year if all program requirements are not met. Graduation application fees are non-refundable.

## Graduation Honors

### Undergraduate Students:

Graduation honors status recognizes degree-seeking students who have demonstrated excellent performance throughout their academic careers. Statuses are only awarded to students who complete bachelor's degree programs. In order to be eligible, the student must have completed at least 45 credit hours in residence at ERAU. The level of graduation honors will be based on the cumulative grade point average for all undergraduate courses taken at Embry-Riddle at the time the degree is conferred. The honors level will appear on the student's diploma and academic transcript with the degree information.

Graduation honors (baccalaureate only) will be awarded in accordance with the following criteria:

| Honors Level | CGPA |
|---|---|
| Summa cum laude | 3.900-4.000 |
| Magna cum laude | 3.700-3.899 |
| Cum laude | 3.500-3.699 |

### Graduate Students:

Graduate students are recognized through inclusion of the notation "With Distinction" on diplomas and transcripts. To be eligible, students must have completed their graduate studies with a CGPA of 4.00, based on grades received in **all** ERAU graduate coursework.

## Diplomas

Diplomas are issued upon successful fulfillment of all academic and financial requirements. Diplomas will be mailed to the student at the address specified on the graduation application. Diplomas will not be forwarded if the address is incorrect but will be returned to the Office of the Registrar.

Diplomas are mailed to graduates weekly, and are not distributed at the graduation ceremony. In addition to the paper diploma, Worldwide offers a digital diploma to students, generally within two weeks of degree conferral, and at no additional cost.

Reprint Diplomas: Both paper and digital diplomas reprint requests, for degrees conferred in prior years, will bear the signatures of the current University Administration, and may not match the signatures on the original diploma.

## Graduation Ceremony

Any eligible student may participate in any of Worldwide's global graduation ceremonies held annually in Daytona Beach and Pensacola, Florida; Germany; Japan; San Diego, California; Seattle, Washington; Dallas, Texas; and Norfolk, Virginia.

Eligible students may also choose to attend the formal graduation ceremony held at the residential campus in Prescott, AZ. Worldwide students are generally not permitted to participate in the Daytona Beach residential campus student ceremony, and are encouraged to participate in a Worldwide ceremony, in any location that is convenient for them.

Students must apply for graduation and place a regalia order prior to the deadlines listed on the Worldwide Graduation website. The cost of regalia for any Worldwide student who attends a graduation ceremony in any location, is paid by the student. Regalia is shipped to the address specified by the student. The cap and gown fee is in addition to the graduation fee. Students who wish to participate in the Prescott ceremony must notify the Worldwide Office of the Registrar of their intent via the graduation application. Students may be subject to additional graduation fees for participation in the Prescott ceremony.

### Undergraduate Students:

Undergraduate students must be within 12 credit hours of degree completion to participate in a ceremony. Any applicable honors status will not be awarded or recognized in a program or ceremony unless the candidate is degree complete. Students who participate in a graduation ceremony prior to degree completion are not permitted to wear honor cords, regardless of their in-progress GPA. Honor cords are awarded to graduation ceremony participants at the time of the ceremony.

### Graduate Students:

Graduate students must be degree complete to participate in a ceremony. Distinction medallions are awarded to graduation ceremony participants at the time of the ceremony.

Please consult the Upcoming Ceremonies webpage for all Worldwide graduation ceremony schedules.

Graduation ceremony application deadline dates, subject to change, are updated continually on the graduation websites.

# Classroom Rules and Regulations

## Classroom Facilities

Classes are held at a variety of locations on military installations and at civilian sites. You should confirm where your class will be held and ensure there are no access restrictions when registering for a course.

## Class Attendance

Regular attendance and punctuality are expected in all classes. ERAU does not dictate an institutional attendance policy. Worldwide faculty members determine the attendance policy that is appropriate for their individual class, and must share the criteria for attendance/participation with their students. Student physical attendance is required for classroom based face-to-face instruction, EagleVision Classroom, and/or any modality that has a classroom element with specific meeting days and times.

- Students utilizing VA benefits should refer to the VA Student Handbook.
- International students should refer to the US Department of Homeland Security website.

Real-time, virtual attendance is required in EagleVision Home courses. Watching playbacks is not considered class attendance. Students enrolled in an EagleVision Home or Hybrid Flex course must complete the Technology Compliance Agreement prior to the start of the term. Failure to complete this form may result in a student being administratively dropped. For students taking classes via online or asynchronous modalities, attendance may include criteria such as class participation, postings in discussion threads and responses to classmate postings in discussion threads. Faculty may weigh these elements as they deem appropriate to calculate final grades. Faculty will record the last date of attendance for each student in each class.

**Academic Calendar** (Holidays that Embry-Riddle Aeronautical University – Worldwide is closed, no classes will be held)

- Christmas Eve/Christmas Day/New Year's Day
- Martin Luther King, Jr. Day
- President's Day
- Memorial Day
- Juneteenth
- Independence Day
- Labor Day
- Veterans Day
- Thanksgiving

## Student Class Participation

Students enrolled in any class modality are expected to log in to their courses through Canvas beginning the first day of the term and frequently throughout the term, up to and including the last day of the term.

On the first day of the term, students are expected to log in to review course materials, including the syllabus, as well as any announcements from the instructors. Instructors may post updates during the term. Posting on discussion threads, responding to other students' posts, and other criteria may be counted for participation in any or all modalities. Logging-in on the last day of the term for review of final assignments, and to review any final changes/announcements from the instructor is also expected. Individual state regulation requires specific site locations to document student class activity, independent of any attendance criteria determined by course instructional staff. Activity reporting in response to individual state regulations is not considered in grade calculations for any course.

## Flexible Classroom Instruction

Class times vary according to local students' needs. At many teaching locations, classes meet once a week in the evenings; however, other scheduling arrangements, such as meeting weekends or twice a week, are not uncommon.

To enhance learning in the regular classroom, some courses are offered through a blend of classroom and online delivery. While the majority of the instruction occurs in the classroom, a portion of the course takes place online through activities such as guided discussion, group projects, and online assignments. Students have expressed high praise for the flexibility, reflection, and interaction that this instruction affords.

## Classroom Rules

For classes held on military installations and at most civilian sites, the general rule is eating, drinking, or tobacco use in the classroom is not permitted. Please abide by rules posted in the classroom, conveyed by the instructor, or communicated by your local site staff. Students are expected to follow all appropriately issued directives from administration in the case of a health safety emergency (e.g.: face covering requirements, other personal protective equipment requirements, required procedures intended to avoid close contact between individuals, required temperature or other wellness check procedures, required enhanced ID checks and procedures, etc.).

Bringing children, guests, or pets to class is not permitted. Specific questions related to service animals on site can be directed to the Worldwide Student Accessibility Services Office at wwsas@erau.edu or 386-226-6092.

## Classroom Security

Because classroom security conditions vary from location to location, students should be aware of their surroundings at all times. Please check with your local site staff for any known security issues in the area. All security or safety issues and/or incidents should be reported immediately to your instructor or the site location staff. Worldwide Emergency Preparedness Plans are posted in ERNIE. Information pertaining to the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics may be found on the ERAU-Worldwide website.

## Late Policy

Each instructor is entitled to post and enforce their own late policy.

## Leave of Absence Policy

Embry-Riddle Aeronautical University does not have a leave of absence policy. The Dean of Students Office provides support with emergency situations and the verification of these events in a confidential manner through the submission of an absence verification form.

# Title IX

**Title IX of the Education Amendments of 1972 ("Title IX")**

The Title IX Office provides information resources, grievance options, and trainings for students, faculty, and staff in support of the university's commitment to excellence in ethical and responsible behavior.

Embry-Riddle is committed to creating and maintaining an inclusive community in which students, faculty, and staff can work together in an atmosphere free from all forms of discrimination. Embry-Riddle is strongly opposed to discrimination and harassment, and such behavior is prohibited by university policy. Embry-Riddle does not discriminate on the basis of sex, gender identity, gender expression, sexual orientation, or pregnancy status in its admissions policies, educational programs, financial aid, employment, or other school administered programs.

The Title IX Office oversees compliance of the Title IX Sexual Harassment and University Sexual Misconduct policies. Policy violations can include sex/gender discrimination, pregnancy discrimination, sexual harassment, or sexual violence, such as rape, sexual assault, relationship / dating violence, sexual misconduct, and stalking.

Anyone may report a concern or complaint to the Title IX Office or Title IX Coordinator.

- University Title IX Website: https://erau.edu/leadership/title-ix
- University Title IX Coordinator: Autumn Meyers, 386-241-6012, meyerspa@erau.edu, Student Union Ste. 324, 1 Aerospace Boulevard, Daytona Beach, Florida 32114

# Center for Career and Professional Development

## Center for Career and Professional Development

The **Worldwide Center for Career and Professional Development** (WWCCPD) Center provides "lifetime career support," including career preparation assistance and access to advanced technology to promote career success. With advanced technology, career resources and methodologies supported by the National Association of Colleges and Employers (NACE) and the National Career Development Association (NCDA), our dedicated team of career advisors assist non-residential students and alumni in the development of professional skills to complement Embry-Riddle's world-class academic programs.

Students are highly encouraged to connect with the Career Center immediately upon matriculation to: 1) develop a personal career strategy; 2) schedule an orientation of available career resources; and 3) activate a student **Handshake** profile (the university's career services platform). Although job placement services are not available, Embry-Riddle's top-ranked recognition annually as an exceptional higher education institution is attributable to student academic excellence and alumni career achievements. Our leadership, faculty and staff are committed to supporting student participation in co-op/internships (**COIN Program**), STEM conferences and academic presentations to enhance and gain valuable industry experience.

Embry-Riddle also hosts multiple in-person and virtual **Industry/Career Expo** events connecting students and alumni with top industry employers. In addition, WWCCPD and the WW Student Government Association sponsor the **C.A.R.E.E.R. Ready Club** which provides student/employer networking opportunities via employer site visits and virtual sessions outside of the academic classroom environment.

For additional info, contact the Worldwide Career Center at:

Email: wwcarser@erau.edu

Phone: 386.226.6092

Website: https://worldwide.erau.edu/career-services

LinkedIn: https://www.linkedin.com/groups/5190837/

# Dean of Students

The Worldwide Dean of Students Office advocates and provides oversight of student development and services. In addition to the adjudication of non-academic student conduct violations, the Dean of Students Office also listens to student concerns, clarifies policies and procedures and strives to resolve student issues.

The Dean of Students Office is comprised of the following student services: management and oversight of Student Grievances, Student Accessibility Services, Student Government Association (SGA), Clubs/ Organizations, Alpha Sigma Lambda National Honor Society, Study Abroad, Counseling Support, Ombudsman, Student Conduct, Students of Concern, and Absence Verification.

Additional information can be found on the Worldwide Dean of Students website in ERNIE.

Dean of Students Contact Information:
Email: wwdos@erau.edu
Phone: 386-323-8775 or 888-292-5727

- Orientation
- Social Networking and Study Abroad
- Student Accessibility Services
- Student Grievance
- Student Ombudsman
- Student Conduct
- California Student Information
- Nevada Student Information
- Criminal Convictions and Violations
- Alumni Engagement
- Surveys
- Veteran Student Services

## Orientation

Students are encouraged to complete Orientation in advance of enrolling in their first course upon admission, readmission or permanently transferring to the Worldwide Campus. The Orientation provides students with exposure to and the opportunity to navigate the Learning Management System (Canvas) used to support courses. Students will learn tips for success, expectations, available resources and points of contact for assistance.

## Social Networking and Study Abroad

### eUnion

The Dean of Students Office provides Worldwide students with the opportunity to enhance their academic learning experiences through the development of, exposure to, and participation in social, cultural, and intellectual clubs/organizations. Students are encouraged and expected to connect on the Worldwide Virtual Community - eUnion, and participate in our various clubs/organizations.

### Study Abroad

Studying Abroad embraces and provides the unquestionable benefits of cultural exposure through international travel in today's increasing globalization. Embry-Riddle offers its students a wealth of opportunities to study abroad with unique experiences that enrich their academic, professional, and personal lives. Students who meet the qualification criteria have unique opportunities to take a variety of two-to-six week summer programs worldwide. In addition, students may be able to participate in a semester or year-long student exchange program through partner schools that will be directly applicable to their degree programs at Embry-Riddle. Study Abroad programs are arranged through the Office of Study Abroad & Global Engagement (SAGE). Available opportunities are posted on studyabroad.erau.edu. Email questions to goglobal@erau.edu and begin planning your study abroad experience today!

## Student Accessibility Services

Embry-Riddle Aeronautical University recognizes its responsibility under the mandates of Section 504 of the Rehabilitation Act of 1973 and Title III of the Americans with Disabilities Act of 1990 to provide equal access to its programs and services for students with a documented disability. To assure nondiscrimination, the University is prepared to make reasonable accommodations to promote students' effective participation in their academic and co-curricular objectives.

Student Accessibility Services for Worldwide students are coordinated through the Worldwide Dean of Students Office and needs are addressed on an individual basis. The Worldwide Student Accessibility Services Office will identify resources, examine and clarify academic issues, and develop a strategy to deliver optimum student service. All information is confidential and not for inclusion in a student's University records.

Students interested in learning more about our Student Accessibility Services are encouraged to visit the Student Accessibility Services website via ERNIE at ernie.erau.edu.

In order to register or request accommodations, students should contact Worldwide Student Accessibility Services either by telephone (386-226-6092) or by e-mail (wwsas@erau.edu).

## Student Grievance

It is the policy of Embry-Riddle Aeronautical University to administer its educational programs both on and off campus in a manner that is fair, equitable, academically sound and in accordance with the appropriate regulations and criteria of its governing board, accrediting association, and federal and state laws and regulations. To this end, Worldwide students are provided an opportunity to express any complaints, grievances, or disputes.

Students are encouraged to first address any issues with the faculty or staff member for which the grievance is based. If unresolved, the student should complete the Grievance (Complaint) form. The Dean of Students Office is the senior-most authority concerning student grievances; they will review the grievance and ensure that it is forwarded to the appropriate department or college if necessary for their review and action. The department or college will communicate back to the Dean of Students Office their decision, or recommended action. The Dean of Students Office will communicate with the student and provide further guidance, if appropriate.

A student may register a grievance, however, no official actions will be considered beyond the statute of limitations, which is 30 days after the incident. A timely resolution of student grievances is a top priority of ERAU-Worldwide. The Dean of Students Office will strive for a resolution to a student grievance within 30 days of receipt.

The institution does not offer an appeal on a final outcome from the institution's formal grievance process. If a satisfactory resolution cannot be reached through the Institution, please see the State Authorization page for your State's specific process for filing a grievance. Students attending on-site courses at an ERAU location in the State of Florida, please contact the below office for assistance.

Office of Articulation
Department of Education
articulation@fldoe.org
850-245-0427

Students will not be subject to adverse action by the Institution as a result of filing a grievance. At any time, students may contact the Student Ombudsman to gain advice and specific direction in seeking a resolution.

## Distance Education Student Grievance Process

Out-of-state distance education students participating under the National Council for State Authorization Reciprocity Agreements (NC-SARA) (http://nc-sara.org/), who have completed the internal institutional grievance process and the applicable state grievance process, may appeal non-instructional complaints to the FL-SARA PRDEC Council. For additional information on the complaint process, please visit the FL-SARA Complaint Process page https://www.fldoe.org/sara/student-concerns.stml.

The State of California is not a member of NC-SARA. AS such, residents of this state may not appeal through these means and should consult their home state grievance process.

## State of Georgia Grievance Process

If you have a home address in the State of Georgia and a satisfactory resolution cannot be reached through the institution, you may contact NPEC for further assistance. To file a complaint with the state, contact the Georgia Nonpublic Postsecondary Education Commission.

Georgia Nonpublic Postsecondary Education Commission
2082 East Exchange Place, Suite 220
Tucker, GA 30084
Phone: (770) 414-3300
Fax: (770) 414-3309

# Student Ombudsman

The Worldwide Student Ombudsman is available to listen to concerns, clarify issues and offer assistance in defining options by referring students to the appropriate services within the Worldwide Campus. The Ombudsman is a confidential source of information and assistance to students concerning university policies and procedures. The Ombudsman may also make recommendations to the appropriate authorities regarding changes to processes.

## How the Ombudsman can help you

The Ombudsman provides confidential and informal assistance to the student body and is able to:

- Discuss any university-related issue
- Determine what attempts have already been made to resolve the issue
- Define university policies and procedures.
- Listen, clarify issues and offer assistance in defining options
- Refer students to the appropriate student services within the campus such as:
  - Local campus staff
  - Colleges
  - Admissions
  - Financial Aid
  - Veterans' Affairs
  - Student Affairs
  - Career Services
- Define and offer options for resolution; it is the student's responsibility to take action.
- Identify and report trends, while maintaining the confidentiality of individual communications.
- Communication with the Ombudsman is confidential unless permission is granted from the student or the Ombudsman feels there appears to be imminent risk of serious harm to self or others.

## When the Ombudsman does not get involved

- When you want someone to represent you in a University grievance procedure. The Ombudsman will discuss the process and clarify the options available before and after the proceedings.
- When you have a disagreement or problem not related to the University.
- When you want legal advice or legal representation. The Ombudsman can advise you of your rights within the University but will not provide legal advice or represent you in a legal matter.

## Additional Information

For additional information regarding the Worldwide Student Ombudsman, and up to date contact information, please visit the Worldwide Student Ombudsman website in ERNIE.

# Student Conduct

**Preamble-** Embry-Riddle Aeronautical University-Worldwide is resolute in supporting and successfully executing the university's values. The Student Code of Conduct ensures all people behave and are treated in a manner which is ethical, respectful, responsible and professional. Additionally, it safeguards a culturally diverse, inclusive, and supportive environment for all.

**Introduction-** The Dean of Students Office is dedicated to uphold the Student Code of Conduct and will hold applicants, enrolled or continuing students responsible and accountable for an infraction of any of the following concepts, values or behaviors.

> **Applicants**: May be denied admissions or have their application administratively cancelled
> **Enrolled or Continuing Students**: Subject to disciplinary action processed through the Dean of Students Office

**Note**: Discontinued students with an unresolved alleged violation will not be allowed to register for a future semester until the matter has been adjudicated through the disciplinary process. This defines those students who have a pending alleged violation and failed to enroll within one year of their last class and desire to reapply to the university.

1. **Abusive, Threatening or Bullying Behavior** - Any conduct that threatens or endangers the health and/or safety of a member of the University community (including oneself) on or off University property; any place that the University conducts business, or at a University sponsored or supervised activity. Behavior including but not limited to threats, intimidation, defiance, profanity, discrimination, harassment, coercion, bullying, cyberbullying, blackmail, sexual misconduct, and/or stalking.
   a. **Verbal:** Includes, but not limited to communications made in person, over the phone, voicemail, or other auditory means.
   b. **Physical:** Includes but not limited to assault, battery, fighting, alcohol poisoning, false imprisonment, prohibiting a person from freely entering or departing a room, car, event through physical force or presence or otherwise confining a person and any unwanted physical contact between individuals or attempts of physical threat.
   c. **Written:** Includes but not limited to instant messaging, internet usage, email, cell phone (texting, etc.), social networking sites (all including the Virtual Community), letters, signs, chalkboards, whiteboards, discussion boards, memes and videos.
   d. **Retaliation:** Action taken against another member of the community who has been identified as a reporter (complainant), victim or University representative alleging misconduct.
   e. **Implied:** Includes but not limited to gestures, taunting comments, intimidation, or any behaviors that are deemed to create a threatening or uncomfortable environment.

f. **Harassment:** Harassment also includes willful, intentional or a persistent act that knowingly and maliciously harms or annoys another individual. **Bullying**, **intimidating** and **stalking** will be considered forms of harassment and an Abusive/Threatening Behavior violation. Note that actions that are unwanted or unwelcomed can be considered a form of harassment.

g. **Sexual Misconduct:** Includes but is not limited to, sexual harassment, sexual discrimination, non-consensual sexual contact, nonconsensual sexual intercourse, sexual exploitation, stalking, dating violence, domestic violence, intimate partner violence

2. **Improper Language:** Any language deemed disrespectful, unprofessional, aggressive or inappropriate in the learning environment.
3. **Alcohol/Drugs/Tobacco Use:** Use and/or possession of alcohol or tobacco on University owned property is prohibited, with the exception of approved designated areas or events. Policies may differ regarding tobacco usage on military installations and on property that ERAU leases. It is advisable to check directly with those facilities. Illegal drugs are prohibited at all university owned or leased properties. Disruptive or destructive behavior associated with, or as a consequence of, drinking or the use of drugs is not an acceptable form of conduct. Being under the influence of alcohol or drugs does not excuse students from negative behaviors and/or violations of the code of conduct, policies, state and federal laws. Students should review the Alcohol and Drug Policy.
4. **Computer Use & Security Violations (including attempted violations):** Any misuse of computing facilities, software, hardware; unauthorized use of another individual's computer account; misuse of one's own computer account; or any violation of the policies for using University computers, equipment or computing network resources at ERAU or through the ERAU system.
5. **Criminal Violation:** Violation of any State or Federal Criminal Code while on or off University owned or leased property. A student accused, arrested or convicted of any misdemeanor, felony or sexual offense must notify the Dean of Students Office within 24 hours after their release from jail and/or a judgement.
6. **Disorderly Conduct:** Include but not limited to excessively loud, lewd, indecent, obscene, disruptive or disrespectful conduct on University property or in connection with any and all University activity. Inciting others to be disruptive or disrespectful constitutes disorderly conduct.
7. **False Information:** Knowingly providing false information or withholding information.
8. **False Representation & Forgery:** Includes but is not limited to students sharing log in information with another individual (someone logging into another students account that does not belong to them). Additionally includes, students and student organizations forging, altering, falsifying, destroying, misuse, or unauthorized use of reproduction of a University document, the signature or computer login of university personnel, record or identification; or using Embry-Riddle stationary, business cards, or logo.
9. **Military Installations**: Students must adhere to the Department of Defense and base regulations and requirements, as applicable, concerning standards of conduct on the installation and access to the base. The university must report all disruptive behavior to the United States Government, and students may be barred from access to a military installation.
10. **Theft:** Theft or attempted theft, unauthorized possession, misuse or wrongful appropriation of property, vandalism or malicious destruction, or sale of property not belonging to oneself.
11. **Unauthorized Entry or Use:** Unauthorized entry or attempted entry or use of University facilities and/or equipment, including unauthorized possession, duplication, or use of University keys, access codes, or unauthorized access to information, property, or person.
12. **Vandalism:** Includes but not limited to the misuse, attempted or destruction of University owned or leased equipment, building, or emergency equipment.
13. **Weapons Possession:** The possession of weapons or weapon replicas on or in proximity to a University property or activity is strictly prohibited. This includes but is not limited to firearms, BB guns, air guns, knives, swords, machetes, blow darts, spears, compound bows/arrows, tasers, brass knuckles, sling shots, martial arts devices, dangerous chemicals, incendiary devices or other explosive substances, including fireworks, or any device capable of firing or launching a projectile or other objects classified or used as weapons with potential for danger or harm
14. **Other:** Any other just cause, including behavior deemed inappropriate, unethical, or not conducive to the learning environment.

## Important Notes

*Because the safety of our students and employees is paramount, all employees and students have an affirmative duty to immediately report to local or military police agencies should a student or other employee exhibit behavior at any University-sponsored activity that is deemed to threaten or endanger the health or safety of others.

**All employees and students have an affirmative duty to immediately report to local or military police agencies the presence of dangerous weapons on any premises owned or controlled by ERAU.

## Sanctions

A student found responsible for violations under the Student Code of Conduct will be subject to disciplinary action. The sanctions are not imposed sequentially and relate to the severity of the violation.

Disciplinary sanctions may be imposed for violations under the Student Code of Conduct. All disciplinary sanctions are noted in the student's non-academic student file and may be kept indefinitely, including those of suspended or dismissed students.

1. **Education Program:** Student required to write an apology letter and/or paper, and complete an educational mini-course or any educational program deemed appropriate by the Dean of Students Office. A hold on course enrollment may be imposed until completion of educational program sanction.
2. **Restrictions**: Student restricted from holding executive roles and/or leadership positions, and restricted from participation in university activities and/or programs within the university for a specific period. This may be temporary or permanent.
3. **Warning:** A disciplinary warning is a verbal or written notice given to a student whose behavior is in violation of University policy.
4. **Probation:** University Conduct Probation is an intermediate sanction imposed for a specific period. The probationary period allows a student to demonstrate acceptable behavior in order to continue enrollment at Embry-Riddle. Guidelines for a student's behavior may be included as conditions of the probation. If an offense is committed during the probation period, actions may be instituted that result in suspension or dismissal.
5. **Suspension:** Suspension is an involuntary separation of the student from the University for a specific period. Readmission to the University may be granted after the suspension period or after conditions have been satisfactorily met.
6. **Dismissal:** Dismissal is the involuntary and permanent separation of the student from the University. Note: An exception or alternation may be made for special circumstances by the Dean of Students on a case-by-case basis.

Note: The sanctions of Suspension and Dismissal are the most severe sanctions rendered and are determined by a committee through a unanimous vote. Their decision is final and not open to appeal.

# California Student Information

The information below is provided for ERAU students assigned to a Worldwide campus in the state of California:

- California Campus Locations
- Facility and Equipment Information
- Housing Information
- Estimated Cost of Attendance
- Student Tuition Recovery Fund Disclosures

Embry-Riddle Aeronautical University is a private institution that is approved to operate by the California Bureau for Private Postsecondary Education. This approval to operate means that our institution is in compliance with all state standards set forth in the CEC and 5, CCR. This approval does not imply that the Bureau endorse any of our Institutions programs nor means that our Institution exceeds the minimum state standards set forth.

As a prospective student, you are encouraged to review the catalog prior to signing an enrollment agreement. You are also encouraged to review the School Performance Fact Sheet, which must be provided to you prior to signing an enrollment agreement.

Any questions a student may have regarding this institution that have not been satisfactorily answered may be directed to the Bureau for Private Postsecondary Education:

Bureau for Private Postsecondary Education
1747 North Market, Suite 225, Sacramento, CA 95834
Phone: 916-574-8900
Toll Free: 888-370-7589
Fax: 916-263-1897
https://www.bppe.ca.gov/

A student or any member of the public may file a complaint about this institution with the Bureau for Private Postsecondary Education by calling 916-574-8900 or 888-370-7589 (toll free) or by completing a complaint form, which can be obtained on the bureau's website https://www.bppe.ca.gov/enforcement/complaint.shtml.

## SCHOOL PERFORMANCE FACT SHEETS

Embry-Riddle Aeronautical University provides School Performance Fact Sheets to prospective students on each of its degree and certificate offerings in accordance with regulations established by the California Bureau for Private Postsecondary Education. These Fact Sheets provide specific information for each of the degree programs offered to campus-based students at their respective locations. This information includes the number of students enrolled, number of degree completions, students' performance with respect to relevant, job placements within the career fields for which the program was designed, and wage and salary information that has been provided by local graduates.

Current and prospective students can access these Fact Sheets on https://worldwide.erau.edu/locations/state-authorization/california-disclosures at any time to see the most up-to-date information.

## STUDENT RECORDS

Student transcripts and records are maintained indefinitely.

## STUDENT'S RIGHT TO CANCEL

A student who withdraws from a course either before the term begins or within the seven day add/drop period once the term begins will receive a refund of all money paid to the university, less the $50.00 application fee. If a student withdraws from a course after the seven day add/drop period had ended, the institution shall provide a pro rata refund of nonfederal student financial aid program moneys paid for institutional charges to students who have completed 60 percent or less of the period of attendance. If a student wishes to withdraw from a course they need to contact their academic advisor in writing to initiate this process.

A student has the right to cancel the enrollment agreement and obtain a refund of charges paid through attendance at the first class session, or the seventh day after enrollment, whichever is later.

## DISTANCE EDUCATION CANCELLATION POLICY

A student who withdraws from a course either before the term begins or within the add/drop period once the term begins will receive a refund of all money paid to the university, less the $50.00 application fee. If a student withdraws from a course after the add/drop period had ended, the institution shall provide a pro rata refund of nonfederal student financial aid program moneys paid for institutional charges to students who have completed 60 percent or less of the period of attendance. If a student wishes to withdraw from a course they need to contact their academic advisor in writing to initiate this process.

For distance education students, cancellation is effective on the date written notice of the cancellation is sent. The Institution shall make the refund pursuant to section 71750. If the Institution sent the first lesson and materials before an effective cancellation notice was received, the Institution shall make a refund within 45 days after the student's return of the materials. A student shall have the right to cancel the agreement and receive a full refund pursuant to section 71750 before the first lesson and materials are received.

The Office of Student Assistance and Relief is available to support prospective students, current students, or past students of private postsecondary educational institutions in making informed decisions, understanding their rights, and navigating available services and relief options. The office may be reached by calling (888) 370-7589 or by visiting www.bppe.ca.gov.

# California Campus Locations

The campus addresses listed below are where both administrative processes are handled, as well as, where classes are held:

### Beale

9th FSS/FSDE, 17849 16th Street, Beale AFB, CA 95903
Tel: 530-788-0900
http://worldwide.erau.edu/locations/beale/

### Camp Pendleton

**Office Address**: Camp Pendleton Campus, Bldg 1331 Joint Education Center, Camp Pendleton, CA 92055
**Classroom Address**: Building 23195, MCAS Camp Pendleton, CA 92055
Tel: 760-385-4423/760-385-0152
http://worldwide.erau.edu/locations/camp-pendleton/

### Edwards AFB

140 Methusa Road, Building 2453, Edwards AFB, CA 93524-1400
Tel: 661-258-1264
http://worldwide.erau.edu/locations/high-desert-edwards/

### Inland Empire (March AFB)

1351 Graeber Street, Building 2313, March AFB, CA, 92518
Tel: 951-653-4074
http://worldwide.erau.edu/locations/inland-empire/

### Inland Empire – Riverside Airport

6951 Flight Road, Suite 214, Riverside, CA 92518
Tel: 951-653-4074
http://worldwide.erau.edu/locations/inland-empire-riverside-airport/

### Los Angeles

5001 Airport Plaza Drive, Suite 150, Long Beach, CA 90815
Tel: 562-627-5870
http://worldwide.erau.edu/locations/los-angeles/

### Oceanside

3609 Ocean Ranch Boulevard, Suite 200, Oceanside, CA 92056
Tel: 760-529-9162
http://worldwide.erau.edu/locations/oceanside/

### San Diego

8799 Balboa Avenue, Suite 125, San Diego, CA 92123
Tel: 858-576-4375
http://worldwide.erau.edu/locations/san-diego/

### San Francisco Bay Area

7677 Oakport Street, Suite 820, Oakland, CA 94621
Tel: 510-636-2424
http://worldwide.erau.edu/locations/san-francisco/

### Travis

530 Hickam Avenue, Building 249, Suite 30, Travis AFB, CA 94535
Tel: 707-437-5464
http://worldwide.erau.edu/locations/travis/

## Facility and Equipment Information

### Resources and Equipment available to all California students:

Online academic resources include full access to the Hunt Library, with 125 research databases, 136 research guides, and tens of thousands of online journals; as well as online resources available through the ERAU-Prescott Hazy Library. Online Training resources are also included in complimentary ERAU-affiliated access to LinkedIn Learning seminars; an EAGLET Communication Lab; and individual online tutoring through Tutor.com, for 40 undergraduate and 12 graduate ERAU – Worldwide courses; the Khan Academy through khanacademy.org which includes a library of free courses and study resources so students can take to brush up their skills; and the use of ERAU-licensed MATLAB Mathematics and Engineering Matrix Laboratory.

**Beale Campus**

9th FSS/FSDE
17849 16th Street
Beale AFB, CA 95903

The Beale Campus has one standard classroom which seats 24 students, and a secondary classroom equipped with a computer lab of 12 computers, or can seat 20 traditional students. Both classrooms are equipped with our EagleVision web-based, audio-visual conferencing technologies, supported by Business Class internet services, with unlimited data transfer. There is one administrative office, with two staff workstations, and a student workstation with printer, copier, and facsimile access.

Public amenities include the 7500 square-foot, Hub Zemke Library, open 9:00 AM – 7:00 PM, Monday – Thursday, and 9:00 AM – 4:00 PM on Fridays. Library resources include a quiet room for reading & study, 14 public access computers, seating for 54, and open-source Wi-Fi: Check-out of materials is restricted to DoD-affiliated patrons, while on-site use of resources is open to the public. Additionally, public access is also available to the Beale AFB, College Level Examination Program (CLEP/DANTES) testing center which is operated by the Yuba College – Beale Center.

The education building also has a large shared lobby area, with vending machines, television and a shaded patio. There is on-site parking for 76 cars, six motorcycles, and two handicap-licensed vehicles. Across from the shaded patio, the Beale AFB bowling alley has a snack bar with grill.

**Camp Pendleton Campus**

Office: Bldg 1331 Joint Education Center
Camp Pendleton, CA 92055
Classroom: Building 23195 MCAS
Camp Pendleton, CA 92055

The Camp Pendleton Campus is located in the Marine Corps Base Pendleton Education Center. This campus has one dedicated classroom that holds up to 25 students, as well as one shared classroom which is available during the day, and is equipped with 25 laptops and monitors. There are two administrative offices, and a covered, outdoor break area with vending machines. There is adequate on-site parking.

**Edwards AFB Campus**

140 Methusa Road Building 2453
Edwards AFB, CA 93524-1400

The Edwards AFB Campus is located on Edwards Air Force Base in the Education Center. Campus is equipped with 3 classrooms that seat between 14 and 20 students each. A shared computer lab (20 seats) is available if reserved in advance through Base Education Office. This campus has one office, with three divided workspaces. There is a shared breakroom with a sink, refrigerator, microwave, and vending machines. Shared parking lots are available on either side of the building.

**Inland Empire (March AFB) Campus**

1351 Graeber Street
Building 2313
March AFB, CA 92518

The Inland Empire (March AFB) Campus is located on March Air Force Base, and is equipped with one standard classroom that seats 16, and is being upgraded to include EagleVision capabilities. There are two offices and a dedicated student computer workstation as well as a common/lounge space. There is shared parking with approximately 50 parking spaces.

**Inland Empire – Riverside Airport Campus**

6951 Flight Road
Suite 214
Riverside, CA 92518

The Inland Empire - Riverside Airport Campus is equipped with one standard classroom that seats 25, and is equipped with EagleVision web-based, audio-visual conferencing technologies. There is one administrative office. There is shared parking with approximately 50 parking spaces.

**Los Angeles Campus**

5001 Airport Plaza Drive
Suite 150
Long Beach, CA 90815

The Los Angeles Campus has seven fully equipped classrooms, each with instructor podiums, projectors/screens, web conferencing technology and seat between 20 and 30 students. This campus also has one computer lab with 24 computer workstations as well as two additional student workstations in the office area. There is a well-furnished student lounge, complete with couches, tables, and standard kitchen amenities.
There are three administrative offices and two cubicles, as well as a conference room. This location has a spacious lobby/reception area and approximately 50 parking spaces, as well as a parking garage.

**Oceanside Campus**

3609 Ocean Ranch Boulevard
Suite 200
Oceanside, CA 92056

The Oceanside Campus has three dedicated classrooms that holds up to 30 students each. The computer lab is equipped with 22 computer workstations, and the Microsoft classroom is equipped with 28 Microsoft Surface computers and monitors. There is one administrative office, and a student lounge with several vending machines. There is adequate on-site parking.

**Palmdale**

40015 Sierra Highway
Suite B-110
Palmdale, CA 93550

The Palmdale Campus is equipped with two classrooms that seat between 10 and 20 students. Additionally, the campus has one computer lab with 18 computer workstations. This location has two offices and a designated reception area with seating, and a breakroom with sink, refrigerator, microwave, restrooms, and utility closet for storage and cable equipment. Shared parking lot with other tenants in front of suite.

**San Diego Campus**

8799 Balboa Avenue
Suite 125
San Diego, CA 92123

The San Diego Campus has 6 classrooms, holding anywhere from 18-39 students. Classrooms are equipped with EagleVision web-based, audio-visual conferencing technologies. This campus is also equipped with a 20-seat computer lab available to students. There are three administrative offices on site, along with a lobby, separate student and staff break rooms, and a common area student workstation. There is a shared parking structure located behind the building.

**San Francisco Bay Area Campus**

7677 Oakport Street
Suite 820
Oakland, CA 94621

The San Francisco Bay Area Campus has 3 classrooms that seat between 12 and 16 students. There are two administrative offices, as well as a lobby/lounge area. The Campus is located on the 8th floor of a high-rise building in a business park close to the Oakland Airport. The building has ample free secured parking for any University guests, students and staff.

**Travis Campus**

530 Hickam Avenue
Building 249, Suite 30
Travis AFB, CA 94535

The Travis Campus has three standard classrooms which can seat 30 students each, with two of those classrooms fully equipped with EagleVision web-based, audio-visual conferencing technologies, supported by Business Class 150 internet services, with unlimited data transfer. There is also one government computer lab, seating 24, available with authorization from Educational Services Officer.

Classrooms are also offered to students who wish to take their placement exams/skills assessments here at the campus or would like a quiet place to study. Food and beverages are allowed in the classrooms and are provided by the campus for special occasions like webinars, campus events, etc.
Public access is also available to the Travis AFB, College Level Examination Program (CLEP/DANTES) testing center which is operated by the University of Maryland University College – Travis Center.

Next to the office, there is a public, 24/7 lounge that is shared amongst the Education center for students with vending machines, TV, reading materials, outlets, and free Wi-Fi from the Education Office. There is also a large open grassy, courtyard-common area in front of the Travis Campus and Education Building with various park benches and trees, for use by all. Public parking is available in two locations – a larger parking lot is located beyond the courtyard area and a smaller, but significant number of angled spaces are available along Hickam Avenue.

# Housing Information

Embry-Riddle Aeronautical University – Worldwide does not offer any form of student housing at its locations. The University has no dormitory facilities under its control; specific housing cost information for the counties in which ERAU California Campuses reside, is available via the U.S. Housing and Urban Development (HUD) department's Fair Market Rents (FMR) program. As per the site, the following information by county show the estimated range for housing expenses for a one-bedroom to a four-bedroom home as follows:
Embry-Riddle Aeronautical University does not have any formal program in place or responsibility to find or assist students in finding housing.

## Fair Market Rent

| Area Name | Range |
|---|---|
| Beale (Yuba County) | $1,195 - $2,556 |
| Camp Pendleton (San Diego County) | $1,040 - $7,030 |
| Edwards AFB (Kern County) | $1,058 - $2,317 |
| Palmdale (Los Angeles County) | $1,600 - $5,620 |
| Inland Empire-March AFB (Riverside County) | $1,776 - $3,745 |
| Los Angeles (Los Angeles County) | $1,600 - $5,620 |
| San Francisco Bay Area (Alameda County) | $1,937 - $4,077 |
| Oceanside (San Diego County) | $1,040 - $7,030 |
| Inland Empire-Riverside Airport (Riverside County) | $1,776 - $3,745 |
| San Diego (San Diego County) | $1,040 - $7,030 |
| Travis (Solano County) | $1,724 - $3,663 |

# Estimated Cost of Attendance

**Estimated Schedule of Charges**

Embry-Riddle Aeronautical University collects tuition on a per-class basis. Courses are generally 9 weeks long. Your tuition must be paid in full, or arrangements must be made and approved by the University, before each class. The charges for your next scheduled course will constitute total charges for the current period of enrollment, and will include the appropriate rate for the course based on the rates and fees listed. That cost will consist of the tuition rate, multiplied by the number of credits for the course, plus any fees. The charges for each of those rates and fees are listed below.

## Associate of Science Programs

| Program Name | Schedule of Total Charges for a Period of Attendance (1 Course)* | Schedule of Total Charges for a Period of Attendance (2 Courses)* | CIVILIAN Estimated Schedule of Total Charges for the Entire Educational Program** | MILITARY Estimated Schedule of Total Charges for the Entire Educational Program** |
|---|---|---|---|---|
| AS Aeronautics, AS Aviation Business Administration, AS Aviation Maintenance, AS Technical Management, AS Uncrewed and Autonomous Systems, AS Emergency Management | Civilian: $1,641.00, Military: $825.00 | Civilian: $3,207.00, Military: $1,575.00 | Est. Tuition: $31,320.00 Est. Textbooks: $3,230.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $34,750.00 | Est. Tuition: $15,000.00 Est. Textbooks: $3,230.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $18,430.00 |
| AS Engineering Fundamentals | Civilian: $1,641.00, Military: $825.00 | Civilian: $3,207.00, Military: $1,575.00 | Est. Tuition: $32,886.00 Est. Textbooks: $3,392.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $36,478.00 | Est. Tuition: $15,750.00 Est. Textbooks: $3,392.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $19,342.00 |

## Bachelor of Science Programs

| Program Name | Schedule of Total Charges for a Period of Attendance (1 Course)* | Schedule of Total Charges for a Period of Attendance (2 Courses)* | CIVILIAN Estimated Schedule of Total Charges for the Entire Educational Program** | MILITARY Estimated Schedule of Total Charges for the Entire Educational Program** |
|---|---|---|---|---|
| BS Aeronautics, BS Aviation Business Administration, BS Aviation Maintenance, BS Aviation Safety, BS Business Analytics, BS Communication, BS Data Science, BS Emergency Services, BS Human Factors Psychology, BS Interdisciplinary Studies, BS Logistics & Supply Chain Management, BS Pilot Operations, BS Project Management, BS Technical Management, BS Uncrewed and Autonomous Systems | Civilian: $1,641.00, Military: $825.00 | Civilian: $3,207.00, Military: $1,575.00 | Est. Tuition: $62,640.00 Est. Textbooks: $6,460.00 Est. SGA Fee: $100.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $69,350.00 | Est. Tuition: $30,000 Est. Textbooks: $6,460.00 Est. SGA Fee: $100.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $36,710.00 |
| BS Engineering, BS Homeland Security | Civilian: $1,641.00, Military: $825.00 | Civilian: $3,207.00, Military: $1,575.00 | Est. Tuition: $64,206.00 Est. Textbooks: $6,622.00 Est. SGA Fee: $100.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $71,078.00 | Est. Tuition: $30,750.00 Est. Textbooks: $6,622.00 Est. SGA Fee: $100.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $37,622.00 |
| BS Engineering Technology | Civilian: $1,641.00, Military: $825.00 | Civilian: $3,207.00, Military: $1,575.00 | Est. Tuition: $63,684.00 Est. Textbooks: $6,568.00 Est. SGA Fee: $100.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $70,502.00 | Est. Tuition: $30,500.00 Est. Textbooks: $6,568.00 Est. SGA Fee: $100.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $37,318.00 |
| BS Safety Management, BS Software Engineering | Civilian: $1,641.00, Military: $825.00 | Civilian: $3,207.00, Military: $1,575.00 | Est. Tuition: $63,162.00 Est. Textbooks: $6,514.00 Est. SGA Fee: $100.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $69,926.00 | Est. Tuition: $30,250.00 Est. Textbooks: $6,514.00 Est. SGA Fee: $100.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $37,014.00 |

## Master and Master of Science Programs

| Program Name | Schedule of Total Charges for a Period of Attendance (1 Course)* | Schedule of Total Charges for a Period of Attendance (2 Courses)* | CIVILIAN Estimated Schedule of Total Charges for the Entire Educational Program** | MILITARY Estimated Schedule of Total Charges for the Entire Educational Program** |
|---|---|---|---|---|
| M Aviation Cybersecurity, M Aviation Maintenance, MS Aeronautics, MS Airline Management, MS Airport and Air Mobility Management, MS Aviation and Aerospace Sustainability, MS Human Security & Resilience, MS Leadership, MS Logistics and Supply Chain Management, MS Occupational Safety Management, MS Project Management | Civilian: $2,679.00, Military: $2,256.00 | Civilian: $5,283.00, Military: $4,437.00 | Est. Tuition: $26,040.00 Est. Textbooks: $1,615.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $27,855.00 | Est. Tuition: $21,810.00 Est. Textbooks: $1,615.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $23,625.00 |
| MS Emergency Services | Civilian: $2,679.00, Military: $2,256.00 | Civilian: $5,283.00, Military: $4,437.00 | Est. Tuition: $28,644.00 Est. Textbooks: $1,777.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $30,621.00 | Est. Tuition: $23,991.00 Est. Textbooks: $1,777.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $25,968.00 |
| M Business Administration in Aviation, MS Aviation Safety, MS Engineering Management, MS Management | Civilian: $2,679.00, Military: $2,256.00 | Civilian: $5,283.00, Military: $4,437.00 | Est. Tuition: $31,248.00 Est. Textbooks: $1,938.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $33,386.00 | Est. Tuition: $26,172.00 Est. Textbooks: $1,938.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $28,310.00 |
| M Space Operations, MS Aerospace Engineering, MS Airworthiness Engineering, MS Space Systems, MS Systems Engineering | Civilian: $2,679.00, Military: $2,679.00 | Civilian: $5,283.00, Military: $5,283.00 | Est. Tuition: $26,040.00 Est. Textbooks: $1,615.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $27,855.00 | Est. Tuition: $26,040.00 Est. Textbooks: $1,615.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $27,855.00 |
| MS Human Factors, MS Management Information Systems | Civilian: $2,679.00, Military: $2,256.00 | Civilian: $5,283.00, Military: $4,437.00 | Est. Tuition: $26,040.00/ $28,644.00 Est. Textbooks: $1,615.00/$1,777.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $27,855.00/ $30,596.00 | Est. Tuition: $21,810.00/ $23,991.00 Est. Textbooks: $1,615/$1,777.00 Est. SGA Fee: $50.00 App Fee: $50.00 Grad Fee: $100.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $23,625.00/$25,943.00 |

## Certificate Programs

| Program Name | Schedule of Total Charges for a Period of Attendance (1 Course)* | Schedule of Total Charges for a Period of Attendance (2 Courses)* | CIVILIAN Estimated Schedule of Total Charges for the Entire Educational Program** | MILITARY Estimated Schedule of Total Charges for the Entire Educational Program** |
|---|---|---|---|---|
| Undergraduate Certificates: Aviation Maintenance Technology Part 65, Uncrewed Systems Technology Certificate, Emergency Management Leadership Certificate | Civilian: $1,641.00, Military: $825.00 | Civilian: $3,207.00.00, Military: $1,575.00 | Est. Tuition: $9,396.00 Est. Textbooks: $969.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $10,440.00 | Est. Tuition: $4,500.00 Est. Textbooks: $969.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $5,544.00 |
| Undergraduate Certificates: Airport Baggage Handling Systems Implementation, Artificial Intelligence, Ethics, and Creativity, Crisis, Risk and Resilience Communication, Occupational Safety and Health | Civilian: $1,641.00, Military: $825.00 | Civilian: $3,207.00, Military: $1,575.00 | Est. Tuition: $6,264.00 Est. Books: $646.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $7,085.00 | Est. Tuition: $3,000.00 Est. Books: $646.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $3,821.00 |

| | | | | |
|---|---|---|---|---|
| Engineering Fundamentals Certificate | Civilian: $1,641.00, Military: $825.00 | Civilian: $3,207.00.00, Military: $1,575.00 | Est. Tuition: $10,962.00 Est. Textbooks: $1,131.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $12,168.00 | Est. Tuition: $5,250.00 Est. Textbooks: $1,131.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $6,456.00 |
| Partnership Graduate Certificate: International Society of Transport Aircraft Trading | Civilian & Military: $1,811.00 | Civilian & Military: $3,547.00 | Est. Tuition: $5,208 Est. Textbooks: N/A Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $5.00 Est. Total: $5,283.00 | Est. Tuition: $5,208 Est. Textbooks: N/A Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $5.00 Est. Total: $5,283.00 |
| Graduate Certificates: Avaiation and Aerospace Sustainability, Aviation Safety, Business Intelligence and Analytics, Finance, Human Factors, Human Resources, International Business, Leadership, Marketing, Occupational Safety Management, Project Management | Civilian: $2,679.00, Military: $2,256.00 | Civilian: $5,283.00, Military: $4,437.00 | Est. Tuition: $10,416.00 Est. Textbooks: $646.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $11,137.00 | Est. Tuition: $8,724.00 Est. Textbooks: $646.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $9,445.00 |
| Graduate Certificate: Airline Management (IATA) | Civilian & Military: $3,075.00 | Civilian & Military: $6,075.00 | Est. Tuition: $12,000 Est. Textbooks: $646.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $5.00 Est. Total: $12,721.00 | Est. Tuition: $12,000 Est. Textbooks: $646.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $5.00 Est. Total: $12,721.00 |
| Graduate Certificates: Airworthiness Engineering & Systems Engineering | Civilian & Military: $2,679.00 | Civilian & Military: $5,283.00 | Est. Tuition: $10,416.00 Est. Books: $646.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $11,137.00 | Est. Tuition: $10,416.00 Est. Books: $646.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $11,137.00 |
| Graduate Certificate: Human Security and Resilience | Civilian: $2,679.00, Military: $2,256.00 | Civilian: $5,283.00, Military: $4,437.00 | Est. Tuition: $13,020.00 Est. Books: $646.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $13,741.00 | Est. Tuition: $10,095.00 Est. Books: $646.00 Est. SGA Fee: $25.00 App Fee: $50.00 ***Est. CA STRF: $0.00 - $15.00 Est. Total: $11,626.00 |

Detailed information on tuition and fees are published on the web at https://worldwide.erau.edu/admissions/cost-tuition/.

*The Schedule of Charges for a Period of Attendance includes the nonrefundable $50.00 admissions application fee, a $25.00 per enrolled year Student Government Associate (SGA) fee and is based off of the current tuition rates. This information is subject to change with annual tuition rate increases.

**The Estimated Schedule Total Charges for the Entire Educational Program includes the nonrefundable $50.00 application fee, $100.00 graduation fee, an estimated cost of textbooks, and a $25.00 per enrolled year SGA fee, and is based off the current tuition rates. The total SGA fees assessed are estimated for a full time student who completes on time, this fee may be higher if a program is not completed on time. The tuition and textbook rates are subject to change with standard textbook and tuition pricing increases.

*** California Student Tuition Recovery Fund (STRF). This assessment is based on the amount of institutional charges charged to the student and is an estimate. The final amount will be based on the actual amount charged to the student. The amount of the STRF assessment is set by California regulation 5 CCR § 76120. STRF fees are nonrefundable. Currently the assessment is based on $0.00 per $1,000.00 of institutional charges rounded to the nearest $1,000.00.

**NON-MANDATORY FEES AND CHARGES THAT MAY BE APPLIED BASED ON THE SERVICES REQUESTED BY THE STUDENT**

- Payment Plan Fee $20.00 Nonrefundable
- Late Payment Fee $25.00 Nonrefundable
- Transcript Fee $15.00 Nonrefundable
- Duplicate Diploma Fee $65.00 Nonrefundable
- Previously Earned Diploma Fee $65.00 Nonrefundable

# Student Tuition Recovery Fund Disclosures

The State of California established the Student Tuition Recovery Fund (STRF) to relieve or mitigate economic loss suffered by a student in an educational program at a qualifying institution, who is or was a California resident while enrolled, or was enrolled in a residency program, if the student enrolled in the institution, prepaid tuition, and suffered an economic loss. Unless relieved of the obligation to do so, you must pay the state-imposed assessment for the STRF, or it must be paid on your behalf, if you are a student in an educational program, who is a California resident, or are enrolled in a residency program, and prepay all or part of your tuition.

Students are not eligible for protection from the STRF and not required to pay the STRF assessment, if you are not a California resident, or not enrolled in a residency program.

It is important that you keep copies of your enrollment agreement, financial aid documents, receipts, or any other information that documents the amount paid to the school. Questions regarding the STRF may be directed to the Bureau for Private Postsecondary Education, 1747 North Market Blvd., Suite 225, Sacramento, CA 95834, (916) 574-8900 or (888) 370-7589.

To be eligible for STRF, you must be a California resident or are enrolled in a residency program, prepaid tuition, paid or deemed to have paid the STRF assessment, and suffered an economic loss as a result of any of the following:

1. The institution, a location of the institution, or an educational program offered by the institution was closed or discontinued, and you did not choose to participate in a teach-out plan approved by the Bureau or did not complete a chosen teach-out plan approved by the Bureau.
2. You were enrolled at an institution or a location of the institution within the 120 day period before the closure of the institution or location of the institution, or were enrolled in an educational program within the 120 day period before the program was discontinued.
3. You were enrolled at an institution or a location of the institution more than 120 days before the closure of the institution or location of the institution, in an educational program offered by the institution as to which the Bureau determined there was a significant decline in the quality or value of the program more than 120 days before closure.
4. The institution has been ordered to pay a refund by the Bureau but has failed to do so.
5. The institution has failed to pay or reimburse loan proceeds under a federal student loan program as required by law, or has failed to pay or reimburse proceeds received by the institution in excess of tuition and other costs.
6. You have been awarded restitution, a refund, or other monetary award by an arbitrator or court, based on a violation of this chapter by an institution or representative of an institution, but have been unable to collect the award from the institution.
7. You sought legal counsel that resulted in the cancellation of one or more of your student loans and have an invoice for services rendered and evidence of the cancellation of the student loan or loans.

To qualify for STRF reimbursement, the application must be received within four (4) years from the date of the action or event that made the student eligible for recovery from STRF. A student whose loan is revived by a loan holder or debt collector after a period of noncollection may, at any time, file a written application for recovery from STRF for the debt that would have otherwise been eligible for recovery. If it has been more than four (4) years since the action or event that made the student eligible, the student must have filed a written application for recovery within the original four (4) year period, unless the period has been extended by another act of law.

No claim can be paid to any student without a social security number or a taxpayer identification number.

*Dean of Students*

# Nevada Student Information

## NEVADA STUDENT INDEMNIFICATION

NRS 394.553 Account for Student Indemnification.

1. The Account for Student Indemnification is hereby created in the State General Fund. The existence of the Account does not create a right in any person to receive money from the Account. The Administrator shall administer the Account in accordance with regulations adopted by the Commission.
2. Except as otherwise limited by subsection 3, the money in the Account may be used to indemnify any student or enrollee who has suffered damage as a result of:
   a. The discontinuance of operation of a postsecondary educational institution licensed in this state; or
   b. The violation by such an institution of any provision of NRS 394.383 to 394.560, inclusive, or the regulations adopted pursuant thereto.
3. If a student or enrollee is entitled to indemnification from a surety bond pursuant to NRS 394.480, the bond must be used to indemnify the student or enrollee before any money in the Account may be used for indemnification.
4. In addition to the expenditures made for indemnification pursuant to subsection 2, the Administrator may use the money in the Account to pay extraordinary expenses incurred to investigate claims for indemnification or resulting from the discontinuance of the operation of a post-secondary educational institution licensed in this state. Money expended pursuant to this subsection must not exceed, for each institution for which indemnification is made, 15 percent of the total amount expended for indemnification pursuant to subsection 2 or $10,000, whichever is less.
5. No expenditure may be made from the Account if the expenditure would cause the balance in the Account to fall below $10,000.
6. Interest and income earned on the money in the Account, after deducting any applicable charges, must be credited to the Account.
7. The money in the Account does not lapse to the State General Fund at the end of any fiscal year.

## NEVADA FACILITY INFORMATION

Las Vegas Campus
99 FSS/FSDE
4475 England Avenue, Suite 315
Nellis AFB, NV 89191

The Las Vegas campus is located on Nellis AFB. The campus has two standard classrooms which can seat 18 students each. Both classrooms are equipped with our EagleVision web-based, audio-visual conferencing technologies. There is one administrative office which includes one staff and one student workstation with a printer. There is adequate on-site parking.

# Criminal Convictions and Violations

Unless specifically exempted from disclosure by law or order of court, students and applicants have an affirmative duty to immediately disclose any criminal convictions or charges against them for violent offenses, offenses against minors, and/or offenses that are punishable as a felony, as well as any drug related convictions, or any arrests.

The presence on campus or on any property where Embry-Riddle Aeronautical University conducts business (to include parking lots associated with doing business at ERAU), of students or applicants who commit serious violations of University rules, regulations, and procedures, or have unacceptable character, academic or behavioral record, criminal record, or other aspects may be inconsistent with the safety and other business and academic interests of the University.

Accordingly, the University may, in the University's sole discretion, deny an applicant admission, temporarily or permanently bar an applicant or student from all or any part of University-owned or University-controlled property (to include parking lots at our WW campuses).

The University may also impose reasonable conditions upon any student or applicant who violates University rules, regulations, and procedures, or whose character, academic or behavioral record, or criminal record is determined by the University to pose an unreasonable risk to the interests of the University, its students, employees, or visitors.

No adverse action based on conduct shall under normal circumstances be taken against admitted students until the student has been afforded due process consistent with applicable policies and procedures. Nonetheless, the University reserves the right to take immediate reasonable action to protect the health or safety of people or property.

The applicable rules and regulations may be modified or updated from time to time, and shall be binding as of the date published. Students and applicants are bound by the terms in effect at the time of any event or occurrence. The electronic version of applicable rules, regulations, and procedures shall be the official current version.

Applicants and students should report information directly to Student Affairs at wwstuaff@erau.edu and to their home campus location.

# Alumni Engagement

As a student at Embry-Riddle, you now belong to a group known as Future Alumni. The Office of Alumni Engagement serves both alumni and current students to provide valuable opportunities for networking, programming, events, and access to the experience and knowledge offered by fellow Eagles. As Future Alumni, you are encouraged to take part in these opportunities and connect with alumni.

**Benefits:**

**Alumni Events** – The Office of Alumni Engagement offers a full calendar of virtual events that you are invited to attend. These events are geared towards different regions, networks and affinity groups, which allow students and alumni to interact and connect. To see a complete list, go to the Upcoming Events page.

**Career Services** – Career Services is a resource for students and alumni as you navigate establishing your career. They host multiple career fairs for students to participate in as well as webinars that cover topics such as networking, LinkedIn tips and tricks and the internship experience. They also utilize Handshake, an online career management tool, where alumni and employers post job and internship opportunities.

**Mentorship** – Connect with an alumni mentor that can help you throughout your time on campus and assist with the transition from student to alumnus. Mentors can provide information about your career field, internships, job opportunities and networking advice.

**Class Notes** are the significant milestones in the lives and careers of Embry-Riddle alumni. Read through these Class Notes https://alumni.erau.edu/stay-connected/class-notes to see the jobs alumni have, promotions, accolades and family updates.

**Scholarships** - Embry-Riddle endowed and term scholarships are funds that are generously donated to help students pay for their education. Completing the application does not guarantee you will receive a scholarship. If you are selected for a scholarship, it will be paid in the Fall and Spring semesters of the following academic year.

**Eagle Entrepreneurs Business Directory** – If you are looking for a certain type of business or service, use the business directory to find what you need while supporting an Eagle-owned business at the same time.

To learn more about the Office of Alumni Engagement visit our website.

***WW College of Aviation & School of Engineering***

Linda A. Rowell, MBA
*Associate Director, Alumni Engagement*
rowelll@erau.edu

***WW College of Arts & Sciences***

Courtney Allen, M.A.
*Associate Director, Alumni Engagement*
Allenc42@erau.edu

***WW College of Business***

Amanda Rodgers
*Associate Director of Alumni Engagement and Communication*
rodgersa@erau.edu

# Surveys

Student surveys provide essential information the University needs for maintaining accreditation, ensuring compliance with federal and state regulations and assessing the effectiveness of Embry-Riddle academic programs and services. Three basic types of student surveys are administered to most or all students: end-of-course evaluations, alumni surveys, and student satisfaction surveys which are typically administered as part of the University's participation in national surveys. Your participation in such surveys is strongly encouraged.

The end-of-course evaluations are completed at or near the end of each course. An alumni survey called the Career Destination Survey is sent to all graduates the month after a degree is conferred. Additionally, we survey graduates approximately one year and 3-4 years after graduation. Student satisfaction surveys are conducted annually in conjunction with our participation in national student surveys such as: the Student Satisfaction Inventory, the Adult Student Priorities Survey, the Priorities Survey for Online Learners among others.

Additionally, some degree programs or departments will survey certain students periodically for the purposes of planning and assessment. The survey information you provide is essential for continuous quality improvement and increased institutional effectiveness.

# Veteran Student Services

Embry-Riddle degree programs are approved by the appropriate State Approving Agency for enrollment of persons eligible to receive education benefits from the Department of Veterans Affairs (VA).

Students must be admitted into an approved degree or certificate program to be eligible to receive benefits. Admission procedures for veterans and other eligible persons are the same as those for other students.

The VA will be appropriately notified of unsatisfactory progress. The student must submit a written request to reinstate education benefits. The request must include proof of academic counseling and the conditions for continued enrollment or re-entrance. The VA will determine eligibility for reinstatement of benefits, based in part on the school's recommendations.

Veterans' progress will be measured according to University standards as published in the catalog, and the rules and regulations of the VA apply. The criteria used to evaluate progress are subject to change. Application and interpretation of the criteria are solely at the discretion of Embry-Riddle. Students using VA Education Benefits to pursue a certificate program who do not maintain a minimum GPA of 2.0 are permitted one probationary term to raise their GPA before VA benefits are terminated.

Students are responsible for notifying the Veterans Certifying Official of any change in their enrollment or change in personal information affecting their eligibility. Students also must remain in compliance with University and Department of Veterans Affairs requirements.

Students may receive education benefits only for courses that are required for their designated degree or certificate program. Students who receive

VA benefits are subject to strict academic regulations and should be aware of how auditing courses, repeating a course, changing degree programs or enrollment status, and other actions may affect their eligibility to receive benefits.

## Air University Associate-to-Baccalaureate Cooperative (AU-ABC)

Embry-Riddle Aeronautical University, Worldwide has partnered with the Community College of the Air Force (CCAF) to offer active duty Air Force, Space Force, Air Force Reserve, and Air National Guard members who have completed an AAS degree in specified, approved CCAF degree programs which map to specified, approved ERAU-WW degree programs which are eligible for participation in AU-ABC. Please see our AU-ABC landing page for more information.

## General Education Mobile (GEM)

Embry-Riddle Aeronautical University, Worldwide has partnered with the Community College of the Air Force (CCAF) to provide online general education courses for active duty Air Force, Space Force, Air Force Reserve, and Air National Guard members who want to complete the CCAF Associate in Applied Science (AAS) degree requirements through the General Education Mobile (GEM) Program. As a GEM partner, we offer online courses to meet all five general education disciplines required in a nine week format to complete CCAF's 15 semester hours of general education — Oral Communication, Written Communication, Mathematics, Social Science, and Humanities. Please see our GEM landing page for more information.

## Complaint Policy for Students Receiving VA Education Benefits

Any complaint against the school should be routed through the VA GI Bill® Feedback System by going to the following link: http://www.benefits.va.gov/GIBILL/Feedback.asp. The VA will then follow up through the appropriate channels to investigate the complaint and resolve it satisfactorily.

GI Bill® is a registered trademark of the U.S. Department of Veterans Affairs (VA). More information about education benefits offered by VA is available at the official U.S. government Web site at http://www.benefits.va.gov/gibill.

## Mississippi State Grievance Policy

The Mississippi State Approving Agency (SAA), is the approving authority of education and training programs for Mississippi. Our office investigates complaints of GI Bill beneficiaries. While most complaints should initially follow the school grievance policy, if the situation cannot be resolved at the school, the beneficiary should contact our office via email at saa@msva.ms.gov.

## Virginia State Grievance Policy

The Virginia State Approving Agency (SAA), is the approving authority of education and training programs for Virginia. Our Office investigates complaints of GI Bill Beneficiaries. While most complaints should follow the school grievance policy, if the situation cannot be resolved at the school, the beneficiary should contact our office via email saa@dvs.virignia.gov.

## Standards of Progress Policy

A veteran and/or eligible person must make satisfactory progress toward an approved educational objective leading to employment. Veteran and/or an eligible person's "Standard of Progress" will be determined utilizing the Satisfactory Academic Progress (SAP) university policy consisting of a specific overall grade point average, pace, program length, maximum time for completion, attendance, and/or conduct.

## Veterans Pending Payment Compliance

In accordance with Title 38 US Code 3679 subsection (e), this school adopts the following additional provisions for any students using U.S. Department of Veterans Affairs (VA) Post 9/11 G.I. Bill (Ch. 33) or Veteran Readiness and Employment (Ch. 31) while payment to the institution is pending from the VA. This school will not:

- Prevent the student's enrollment
- Assess a late penalty fee to the student
- Require the student to secure alternative or additional funding
- Deny the student access to any resources (access to classes, libraries, or other institutional facilities) available to other students who have satisfied their tuition and fee bills to the institution
- Require that a covered individual borrow additional funds to meet their financial obligation to the institution

However, to qualify for this provision, such students will be required to:

- Provide the enrolling institution with a copy of their VA Certificate of Eligibility (COE) - A "Certificate of Eligibility" can also include a "Statement of Benefits" obtained from the U.S. Department of Veterans Affairs' (VA) website; eBenefits; or a CH 31 Payment Authorization form, for chapter 31.

## Compliance with PL 116-315

Embry-Riddle Aeronautical University complies with Chapter 36 of Title 38 U.S.C. § 3672(b)(2)(A) and 3675(b)(4) which requires accredited institutions to be eligible for and participate in the Federal Student Aid program under Title IV of the Higher Education Act of 1965 (HEA) to be eligible to receive GI Bill funds.

Embry-Riddle Aeronautical University complies with Public Law 116-315, Section 1018. VA beneficiaries are provided a College Financing Plan displaying the variety of costs and financial aid options for their chosen educational program. For additional information, contact the financial aid office or the School Certifying Official.

## Alabama Campuses Program Offerings:

**Programs offered at Fort Rucker, AL, Redstone Arsenal, AL, and Mobile, AL:** AS Aeronautics, AS Aviation Business Administration, AS Aviation Maintenance, AS Engineering Fundamentals, AS Technical Management, BS Aeronautics, BS Aviation Business Administration, BS Aviation Maintenance, BS Business Analytics, BS Communication, BS Emergency Services, BS Engineering, BS Engineering Technology, BS Homeland Security, BS interdisciplinary Studies, BS Logistics and Supply Chain Management, BS Project Management, BS Safety Management, BS Technical Management, BS Uncrewed and Autonomous Systems Applications, MS Aeronautics, MS Aerospace Engineering, MS Aviation and Aerospace Engineering, MS Aviation and Aerospace Sustainability, Master of Aviation Maintenance, Master of Business Administration in Aviation, MS cybersecurity Management & Security, MS Engineering Management, MS Human Factors, MS Human Security & Resilience, MS Information Security and Assurance, MS Leadership, MS Logistics and Supply Chain Management, MS Management, MS Management Information Systems, MS Occupational Safety Management, MS Project Management, Master of Systems Engineering, MS Uncrewed and Autonomous Systems, Certificate Aviation Maintenance Technology Part 65.

**Programs Offered at Mobile-Brookley, AL**: Certificate Aviation Maintenance Technology Part 65, AS Aeronautics, AS Aviation Business Administration, AS Aviation Maintenance, AS Engineering Fundamentals, AS Technical Management, BS Aeronautics, BS Aviation Business Administration, BS Communication, BS Emergency Services, BS Engineering, BS Engineering Technology, BS Homeland Security, BS Interdisciplinary Studies, BS Logistics and Supply Chain Management, BS Project Management, BS Safety Management, BS Technical Management, BS Uncrewed and Autonomous Systems Applications, MS Aeronautics, MS Aerospace Engineering, MS Aviation and Aerospace Sustainability, Master of Aviation Maintenance, Master of Business Administration in Aviation, MS Cybersecurity Management & Policy, MS Engineering Management, MS Human Factors, MS Human Security & Resilience, MS Information Security & Assurance, MS Leadership, MS Logistics and Supply Chain Management, MS Management, MS

Management Information Systems, MS Occupational Safety Management, MS Project Management, Master of Systems Engineering, MS Uncrewed and Autonomous Systems.

## Contact

For further information concerning approved programs of study and the application process, eligible persons should contact the Worldwide Military & Veteran Student Services Office in Daytona Beach, Florida.

**Worldwide Military & Veteran Student Services**
Embry-Riddle Aeronautical University
1 Aerospace Blvd.
Daytona Beach, FL 32114-3900
Telephone: 1-855-785-0001
Fax: 386-323-8816
Email: wwva@erau.edu

For additional information concerning Veterans Education Benefits administered by the Department of Veterans Affairs, go to www.gibill.va.gov.

**Colorado Main Campus:** Embry-Riddle Aeronautical University, 1661 O'Connell Blvd. Building 1012, Room 237-238, Fort Carson, CO 80913

**Romania Campus:** Embry-Riddle Aeronautical University, Mihail Kogalniceanu Strada Tudor Vladimirescu, 907195, Romania

**Other ERAU Worldwide Locations:** http://worldwide.erau.edu/locations

# Specialized Academic Opportunities

## Specialized Academic Opportunities

Embry-Riddle Worldwide provides select specialized academic opportunities to students during their degree program for focused academic, career or career advancement preparation.

## Co-op/Internship (COIN) Program

Embry-Riddle's Co-op/Internship (COIN) Program serves as a crucial link between theoretical classroom learning and practical application in various industries. Participation in the program is exclusive to degree-seeking students and requires alignment with the student's academic degree program to qualify for University credit. Employment that is part of a student's current job is ineligible for co-op/internship credit, and not all degree programs may permit the application of open electives gained from the COIN program.

However, if a co-op/internship aligns with the degree program curriculum and meets specific course requirements, it may be considered for course substitution, subject to approval by the relevant College authority. All course substitution requests must be approved before the commencement of a qualifying Co-op/Internship. In some cases, students may receive University credit beyond degree requirements if the co-op/internship meets credit standards but does not directly apply to the acquired knowledge and skills in the industry.

For undergraduate students, eligibility requires current full-time enrollment with a cumulative GPA of 2.5+ and the completion of 30 college credit hours. Transfer students must have at least 12 credit hours with Embry-Riddle. Undergraduates can earn a maximum of 12 semester credit hours through the COIN Program, with no more than three consecutive terms of co-op/internship experience considered.

Graduate students must be current full-time students with a cumulative GPA of 3.0+ and the completion of nine (9) credit hours at Embry-Riddle. They are eligible for a maximum of three (3) semester credit hours at the graduate level through the COIN Program.

*Due to state authorization requirements, co-op/Internships must be conducted in approved states only.

Internship Grading: https://catalog.erau.edu/worldwide/student-services-academic-affairs/credit/

### International Students

For international students on an F1 visa, compliance with the aforementioned requirements is required in addition to the following conditions:

International students on an F1 visa must secure approval from the Principal Designated School Official (PDSO). Upon approval, the PDSO will update the student's I-20 to include the start/end dates of the training experience and the permissible weekly hours (part or full-time). The I-20 will be designated as Curricular Practical Training (CPT).

Co-op/internship opportunities for international students must be integral to the student's field of study and pursued solely for academic credit, not for "experience only" purposes. The Student and Exchange Visitor Program (SEVP) does not impose a set limit on the duration of Curricular Practical Training (CPT); however, engaging in full-time CPT for 12 months or more renders the student ineligible for post-completion Optional Practical Training (OPT). Engaging in part-time CPT (20 hours or less) does not impact eligibility for post-completion OPT according to SEVP regulations.

## Embry-Riddle Worldwide Honors Program

*The Honors Program at Embry-Riddle Worldwide is highly selective, offering students an enriched educational experience while also giving them opportunities to enhance their virtual campus community and contribute to real-world community life for others. The program enrolls top students who are committed to positive, tangible change, while developing their communication, analytical, research and problem-solving skills, laying the foundations for life-long learning, leadership, and service. Honors Program students enroll in several general education seminars focused on relevant, stimulating, interdisciplinary topics that encourage critical and creative thinking. Honors classes are small, and the faculty are carefully selected. In addition, students may petition to add an honors designation, or "honorize" select sections of common courses in which they are enrolling by completing an additional research- and discovery-based assignment with demonstrating application of appropriate methods of inquiry. The Honors Program emphasizes close involvement with selected faculty, research opportunities, and individually tailored projects. The program also adds to virtual campus life through interaction and co-curricular opportunities. Graduates of the Honors Program are models of academic excellence and student leadership.*

Housed in the College of Arts & Sciences, the Worldwide Honors Program is open to all eligible undergraduate Worldwide students from the College of Aviation, the College of Business, and the College of Arts & Sciences, regardless of major. Students will be able to graduate with an "Honors Program" designation on their degree transcript and can wear a special cord at commencement ceremonies. Their status as an Honors Program graduate will be noted in the commencement program.

Students have multiple paths to gain entry into the program:

**Admission into the program**

Interested students will be required to submit a current c.v. and a brief application essay (about 500 words) explaining why they are a good candidate for this advanced academic experience to Honors Program Chair Dr. Timothy A. Smith, smitht1@erau.edu.

**Direct admission**

- Students coming directly from high school require at least a 3.75 unweighted GPA from high school.
- Current students with a current ERAU cumulative GPA of 3.5
- Students with a transfer GPA of 3.5
- Students transferring from the Daytona Beach Campus who were in the Honors Program are automatically eligible. Daytona Beach Campus honors seminars and honors contracted courses are fully transferable into the Worldwide Honors Program.

**Admission by petition**

- Students in a recognized honor society would be approved to take HONR 150. If the student earns at least a B, they are eligible for admission.
- Students could also provide a written recommendation from an instructor to be approved for HONR 150. If the student earns at least a B, they are eligible for admission.
- Students can request to be interviewed by the Honors Program Director to be approved for HONR 150. If the student earns at least a B, they are eligible for admission.
- Students transferring from another university who were in an honors program may submit a request to the Honors Program Director.

**Program Requirements**

The Worldwide Honors Program has a requirement of 24 hours plus non-credit requirements, including the following:

*Summer Seminars (9 hours)*

Three seminar classes are required. These seminars, offered in summer, are special topics courses and will be taught by tenured faculty.

HONR 150 (3 hours)—will also count as lower-level humanities general education requirement

HONR 250 (3 hours)—will also count as lower-level social sciences general education requirement

HONR 350 (3 hours)—will also count as upper-level social sciences or humanities general education requirement (depending on topic)

*Honors-Designated Courses (12 hours)*

Students will individually contract with instructors to "honorize" **four 300- or 400-level program or elective courses (12 hours).** Honorizing a course involves an agreement between a student and instructor on a set of additional requirements which will allow the student to demonstrate advanced knowledge in the subject area. Honorized courses will appear with an "Honors Program" course notation on the student's transcript, via a transcript note. Students must submit the contract to honorize the course —signed by the instructor—to the Honors Program Director for approval prior to the term start date. The project/paper/experience that elevates the course to an "honors" class should be clearly indicated. The Honors Program Director will notify the Worldwide Office of the Registrar at the point of student completion in the program to approve the notation on the diploma.

The Honors Program Director will work with a designated faculty point of contact at each Embry-Riddle Worldwide college to co-ordinate course honorizations.

*Non-credit Requirements*

Students must be active in the Program by participating in at least one honors event per academic year. Those events may include but are not limited to:

- Attendance of an honor society event of which the honors student is a member
- Participation in an ERAU study abroad program
- Student researcher role in a grant where the student works in a group with other students
- Participation in an Embry-Riddle Worldwide C.A.R.E.E.R. Ready Club event
- Prestigious award or fellowship (through the Office of Prestigious Award & Fellowships)
- Participation in an activity of the Virtual Collaboratory for Security and Resilience Education, Research & Engagement
- Other events as approved by the Honors Program Director

Additionally, Honors Program students will be enrolled in a moderated online interactive space where they will be able to engage in virtual events and social opportunities with other students in the program.

Satisfaction of these requirements will be documented by the faculty/ staff member in charge of the chosen activity and reported to the Honors Program Director.

*Community Service Requirement*

- Students will work in groups to develop a community-based project to foster positive change, overseen by the Honors Program Director or a designee.

*Honors Culminating Scholastic Experience (3 hours)*

Students will enroll in HONR 400 for their Honors Culminating Experience. This individually designed experience in lieu of a thesis allows the student to focus on a specific area of interest and demonstrate advanced mastery of a subject matter as well as competency for defensible analysis. Students will submit a capstone research paper, an electronic research portfolio, or a documented research-focused internship as well as a piece of reflective writing that demonstrates critical analysis of the experience. The deliverable of the Honors Culminating Experience will be virtually presented to Honors Program peers and other interested students and faculty prior to graduation. The Honors Culminating Experience process will be organized and supervised by the Honors Program Director or a designee.

**Continuing in the Honors Program**

To remain in good standing in the Honors Program, students must maintain a 3.50 CGPA. If the student falls below this requirement, the student will be placed on "Honors probation," after which the student will have two terms to raise the CGPA to the minimum standard. Failure to do so will result in removal from the Honors Program. Academic progress and continuing eligibility will be monitored and enforced by the Honors Program Director.

## Honors Summer Seminars

Accept an academic challenge in one of our Honors Summer Seminars. Taught by senior faculty, honors seminars offer a deeper and more detailed exploration of course topics, and a more engaged and interactive format than other similar classes, providing early student research opportunities. Honors seminars (prefixed HONR) can be used to satisfy general education requirements and (if a student applies and is admitted) Embry-Riddle Worldwide Honors Program requirements.

## Undergraduate Research Scholars Program

Embry-Riddle strives to create a culture of knowledge discovery through research and scholarship. Students who aspire to engage in sustained research activities over the course of their undergraduate career are invited to apply for admittance into the Undergraduate Research Scholars Program. Requirements include: two or more terms/semesters of research under the supervision of a mentor; completion of research training; research dissemination; and reflection. Successful completion of the program will result in a Research Scholar notation on the student's official academic transcript.

To learn more about the program and application process, contact the Research Scholars Program, Worldwide (RSP, WW) and Pathways to Student Success, Worldwide (PATHWAYS, WW). Interested students must apply for the program no later than the first day of the term of which they anticipate graduating. Applications will not be accepted after a student's undergraduate degree has been conferred.

# Degrees & Programs

## Associates Degrees

- A.S. in Aeronautics
- A.S. in Aviation Business Administration
- A.S. in Aviation Maintenance
- A.S. in Emergency Management
- A.S. in Engineering Fundamentals
- A.S. in Technical Management
- A.S. in Uncrewed and Autonomous Systems

## Bachelor's Degrees

- B.S. in Aeronautics
- B.S. in Aviation Business Administration
- B.S. in Aviation Maintenance
- B.S. in Aviation Safety
- B.S. in Business Analytics
- B.S. in Communication
- B.S. in Data Science
- B.S. in Emergency Services
- B.S. in Engineering
- B.S. in Engineering Technology
- B.S. in Homeland Security
- B.S. in Human Factors Psychology
- B.S. in Interdisciplinary Studies
- B.S. in Logistics and Supply Chain Management
- B.S. in Pilot Operations
- B.S. in Project Management
- B.S. in Safety Management
- B.S. in Software Engineering
- B.S. in Technical Management
- B.S. in Uncrewed and Autonomous Systems

## Combined Program Pathways

- B.S. in Aeronautics/M.S. in Aeronautics
- B.S. in Aeronautics/M.S. in Aviation and Aerospace Sustainability
- B.S. in Aviation Maintenance/Master of Aviation Maintenance
- B.S. in Aviation Safety/M.S. in Aviation Safety
- B.S. in Communication/M.S. in Human Security and Resilience
- B.S. in Emergency Services/M.S. in Emergency Services
- B.S. in Homeland Security/M.S. in Human Security and Resilience
- B.S. in Human Factors Psychology/M.S. in Human Factors
- B.S. in Interdisciplinary Studies/M.S. in Human Security and Resilience
- B.S. in Pilot Operations/M.S. in Aeronautics
- B.S. in Safety Management/M.S. in Occupational Safety Management
- B.S. in Uncrewed and Autonomous Systems/M.S. in Uncrewed and Autonomous Systems

## Master's Degrees

- M.S. in Aeronautics
- M.S. in Aerospace Engineering
- M.S. in Airline Management
- M.S. in Airport and Air Mobility Management
- M.S. in Airworthiness Engineering
- M.S. in Aviation and Aerospace Sustainability
- Master of Aviation Cybersecurity
- Master of Aviation Maintenance
- M.S. in Aviation Safety
- M.B.A. in Aviation
- M.S. in Emergency Services
- M.S. in Engineering Management
- M.S. in Human Factors
- M.S. in Human Security and Resilience
- M.S. in Leadership
- M.S. in Logistics and Supply Chain Management
- M.S. in Management
- M.S. in Management Information Systems
- M.S. in Occupational Safety Management
- M.S. in Project Management
- Master of Space Operations
- M.S. in Space Systems
- M.S. in Systems Engineering
- M.S. in Uncrewed and Autonomous Systems

## Certificates

### Undergraduate

- Airport Baggage Handling Systems Implementation
- Artificial Intelligence, Ethics, and Creativity
- Aviation Maintenance Technology Part 65
- Crisis, Risk and Resilience Communication
- Emergency Management Leadership
- Engineering Fundamentals
- Occupational Safety and Health
- Uncrewed Systems Technology

### Graduate

- Aviation and Aerospace Sustainability
- Airworthiness Engineering
- Aviation Safety
- Business Intelligence and Analytics
- Finance
- Human Factors
- Human Resources
- Human Security and Resilience
- International Business
- Leadership
- Marketing
- Occupational Safety Management
- Project Management
- Systems Engineering

## Partnership Certificates

- Airline Management
- International Society of Transport Aircraft Trading (ISTAT)

*None of the degree or certificate programs offered by Embry-Riddle are subject to mandatory professional licensure.

# Minor Courses of Study

## Minor Courses of Study

Students pursuing undergraduate degrees cannot take minors that are in the same field as their majors. Students are prohibited from declaring a minor for an associate degree.

- Air Cargo Management
- Airport Baggage Handling Systems Implementation
- Airport Management
- Air Traffic Management
- Applied Data Science
- Applied Meteorology
- Artificial Intelligence, Ethics, and Creativity
- Aviation Management
- Aviation Maintenance Operations
- Aviation Safety
- Aviation, Technology, and Society
- Communication
- Crisis, Risk, and Resilience Communication
- Cybersecurity Application and Management
- Economics
- Emergency Services
- Engineering Sciences
- Environmental Science
- Helicopter Operations and Safety
- Homeland Security
- Human Factors
- Human Resources
- Humanistic STEM
- Industrial/Organizational Psychology
- International Relations
- Leadership
- Logistics Management
- Management
- Management Information Systems
- Marketing
- Mathematics
- Military Science
- Military Studies
- Occupational Safety and Health
- Project Management
- Psychology
- Research Foundations
- Science Literacy
- Security and Intelligence
- Small Uncrewed Aircraft Systems (sUAS) Operation
- Space Policy, History, and Culture
- Space Studies
- Technical Management
- Uncrewed and Autonomous Systems

# College of Aviation

Dr. Bettina Mrusek, Dean

The mission of the College of Aviation is to develop and provide graduate and undergraduate academic programs that enable students to excel in the multi-disciplinary field of aerospace; in the aeronautics industry, in the military, and in the local, state and federal government organizations connected to aerospace programs.

The mission also includes assessing program outcomes and using these assessments to update courses and programs.

For Faculty lists and other information view the College of Aviation website.

## Degrees

### Associates

- A.S. in Aeronautics
- A.S. in Aviation Maintenance
- A.S. in Uncrewed and Autonomous Systems

### Bachelors

- B.S. in Aeronautics
- B.S. in Aviation Maintenance
- B.S. in Aviation Safety
- B.S. in Pilot Operations
- B.S. in Uncrewed and Autonomous Systems

### Combined Program Pathways

- B.S. in Aeronautics/M.S. in Aeronautics
- B.S. in Aeronautics/M.S. in Aviation and Aerospace Sustainability
- B.S. in Aviation Maintenance/Master of Aviation Maintenance
- B.S. in Aviation Safety/M.S. in Aviation Safety
- B.S. in Pilot Operations/M.S. in Aeronautics
- B.S. in Uncrewed and Autonomous Systems/M.S. in Uncrewed and Autonomous Systems

### Masters

- M.S. in Aeronautics
- M.S. in Aviation and Aerospace Sustainability
- Master of Aviation Cybersecurity
- Master of Aviation Maintenance
- M.S. in Aviation Safety
- Master of Space Operations
- M.S. in Space Systems
- M.S. in Uncrewed and Autonomous Systems

### Minor Courses of Study

- Air Traffic Management
- Applied Meteorology
- Aviation Maintenance Operations
- Aviation Safety
- Cybersecurity Application and Management
- Helicopter Operations and Safety
- Small Uncrewed Aircraft Systems (sUAS) Operation
- Space Studies
- Uncrewed and Autonomous Systems

### Certificates

#### Undergraduate

- Aviation Maintenance Technology Part 65
- Uncrewed Systems Technology

#### Graduate

- Aviation and Aerospace Sustainability
- Aviation Safety

## A.S. in Aeronautics

Whether you want to break into the aviation industry, or advance your current position and earnings potential, the Associate in Science in Aeronautics degree opens the door to new opportunities in the dynamic aviation/aerospace industry.

Aeronautics curriculum is closely mapped to the needs and demands of the aviation/aerospace industry and to general education guidelines.

You will be exposed to a multidisciplinary program with courses of study in uncrewed systems, human factors, security, aviation safety, occupational safety and health, air traffic control, aircraft maintenance, and aeronautical science. Within that broad base, electives and minors allow you to tailor your degree to your particular interests and career goals.

### Aviation Area of Concentration

The Aviation Area of Concentration is the degree area where credit for prior aviation learning is noted or where students can take courses to learn about aviation. Many students bring in all or part of this credit based on prior aviation training or experience. However, shortages in the minimum credit required can be made up by taking courses in the following aviation-related disciplines: Aeronautical Science, Aviation Maintenance, Aviation History, and aviation/aerospace related coursework in Safety, Security, Transportation, Engineering, and Uncrewed Systems.

#### Sources of prior learning credit include:

1. Transfer credit earned at accredited degree-granting colleges and universities.
2. The recommendations published by the American Council on Education for U.S. Military training and experience, as well as training conducted by other government agencies and private organizations.
3. Prior-learning credit established by the University for certain aviation certificates, licenses, and ratings as they relate to this degree.

### Duplicate Credit

Many Embry-Riddle courses are designed to teach the same skills and knowledge that Aeronautics students have acquired through experience and training. Students who complete courses in the same aviation specialty for which they were granted Aviation Area of Concentration credit would be duplicating coverage of the same subject matter. Credit for completion of such courses will not be applied to degree requirements.

Take your future to new heights! Join a program that propels you toward success in the dynamic world of aviation and aerospace.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

### Student Learning Outcomes

**Students will:**

- Apply advanced concepts of aviation, aerospace and aeronautical science to solve problems in the aviation/aerospace industry.
- Show evidence of the basic concepts in national and international legislation and law as they pertain to the aviation, aerospace, and aeronautics industries.

- Show evidence of knowledge and understanding of management activities as they apply to aviation/aerospace operations in written and numerical ways where ever appropriate.
- Show evidence of basic concepts in aviation safety related to the aviation, aerospace, and aeronautics industry.

## DEGREE REQUIREMENTS

### General Education

| General Education | |
|---|---|
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, Social Sciences, Physical and Life Science, Mathematics, and Computer Science may be chosen from as listed, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | |
| **Communication Theory and Skills** | |
| Any Communication Theory and Skills above ENGL 106 | 9 |
| **Humanities** | |
| Lower-Level Humanities (Any Lower or Upper Level Humanities) | 3 |
| Upper-Level Humanities (Any Upper Level Humanities) | 3 |
| **Social Sciences** | |
| Any Social Science | 6 |
| **Physical and Life Science** | |
| Any Physical Science/Physics | 6 |
| **Mathematics** | |
| Any College Algebra or Higher Math Series | 6 |
| **Computer Science** | |
| Any Computer Science | 3 |
| **Total Credits** | **36** |

### Core/Major

| Aviation Area of Concentration | | 9 |
|---|---|---|
| Make up shortages with non-duplicating courses from the following disciplines: Aeronautical Science, Aviation Maintenance, and related aviation/aerospace coursework in Transportation, Safety, Security, History, Engineering, and Uncrewed Systems. | | |
| **Program Support** | | **9** |
| ASCI 202 | Introduction to Aeronautical Science | 3 |
| ASCI 254 | Aviation Legislation | 3 |
| STAT 211 | Statistics with Aviation Applications | 3 |

### Electives

| Open Electives (Upper or Lower Level) | 6 |
|---|---|
| **Total Degree Requirements** | **60** |

# A.S. in Aviation Maintenance

Education is the key to getting more out of life — whether you're looking for a higher salary, greater job satisfaction, or a soaring sense of personal pride. If you work in the aircraft maintenance field and are ready for advancement, Embry-Riddle can help. Our Associate in Science in Aviation Maintenance degree lets you build on the skills you already possess while laying the foundation for greater accomplishments.

If you hold an FAA Airframe & Powerplant Maintenance Certificate, you may be awarded up to 18 credit hours toward the associate degree or up to 39 credit hours toward the bachelor's degree. Students may also earn maintenance credit as part of the overall curriculum.

Plus, you'll gain a solid core of courses in general education, which prepares graduates for success in any industry, not just aviation.

In the aviation industry, the most crucial task is to keep the planes flying safely. That's why people with aircraft maintenance skills and knowledge will continue to be in high demand by aviation and aeronautical employers.

In today's competitive workforce, however, it takes something extra to move up the career ladder. Aviation professionals can get that edge with an Associate in Science in Aviation Maintenance degree from Embry-Riddle Aeronautical University — Worldwide.

Upon successful completion of all six Aviation Maintenance Technology Part 65 core courses the student may apply for the Embry Riddle Aviation Maintenance Technology (AMT) Part 65 Certification.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

### Student Learning Outcomes

**Students will:**

- Show evidence of synthesis-level knowledge to define and solve problems in professional and personal environments.
- Show evidence of using digitally-enabled technology and analysis techniques to interpret data and solve problems.
- Show evidence of conducting research, gathering information from primary and secondary sources, and documenting sources in their writing.
- Show evidence of communicating concepts in written, digital, and oral forms for technical and non-technical information.
- Analyze scientific evidence about the physical world and its relation to human values and interests.
- Analyze historical events, cultural artifacts, and philosophical concepts.
- Show evidence of skills for enhancing life quality through lifelong learning activities in their career and personal life.
- Apply aviation maintenance fundamentals, accepted practices, and global regulations in the industry.

## DEGREE REQUIREMENTS

### General Education

| General Education | |
|---|---|
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, Social Sciences, Physical and Life Science, Mathematics, and Computer Science may be chosen from as listed, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | |
| **Communication Theory and Skills** | |
| Any Communication Theory and Skills above ENGL 106 | 9 |
| **Humanities** | |
| Lower-Level Humanities (Any Lower or Upper Level Humanities) | 3 |
| Upper-Level Humanities (Any Upper Level Humanities) | 3 |
| **Social Sciences** | |
| Any Social Science | 6 |
| **Physical and Life Science** | |
| Any Physical Science/Physics | 6 |
| **Mathematics** | |
| Any College Algebra or Higher Math Series | 6 |
| **Computer Science** | |
| Any Computer Science | 3 |
| **Total Credits** | **36** |

### Core/Major

| Aviation Maintenance Core Courses | | |
|---|---|---|
| AMNT 240 | General Aeronautics and Applications | 3 |

| | | |
|---|---|---|
| AMNT 260 | Aircraft Electrical Systems Theory | 3 |
| AMNT 270 | Airframe Structures and Applications | 3 |
| AMNT 271 | Airframe Systems and Applications | 3 |
| AMNT 280 | Reciprocating Engine Theory and Applications | 3 |
| AMNT 281 | Turbine Engine Theory and Applications | 3 |
| **Total Credits** | | **18** |

| | | |
|---|---|---|
| **Program Support** | | |
| ASCI 202 | Introduction to Aeronautical Science | 3 |
| STAT 211 | Statistics with Aviation Applications | 3 |
| **Total Credits** | | **6** |

| | |
|---|---|
| **Total Degree Requirements** | **60** |

# A.S. in Uncrewed and Autonomous Systems

Career opportunities: With the broader application of uncrewed systems across industries, there is a growing demand for professionals with expertise in this field.

Cutting-edge technology: Uncrewed systems is a rapidly growing field that is constantly evolving, and a degree in this area will keep you up-to-date with the latest advancements in technology.

Multidisciplinary skills: A degree in uncrewed systems requires a combination of skills from various fields, such as computer science, electrical engineering, aerodynamics, and robotics, making it a well-rounded education.

Diverse applications: Uncrewed systems are used in a variety of fields, including military, agriculture, environmental monitoring, and search and rescue, providing graduates with a wide range of job opportunities.

Potential for high salaries: Given the high demand for professionals in this field, those with a degree in uncrewed systems can expect competitive salaries.

There are several reasons why you may **consider pursuing an associate degree** at Embry Riddle Worldwide Campus, including:

Cost-effective: Associate degrees are generally less expensive and take less time to complete compared to a bachelor's degree, making it a cost-effective option for those who want to start their careers quickly.

Professional advantage: An associate degree from the world's leading aviation and aerospace university can lead to entry-level jobs in several professional categories and organizations within Uncrewed Systems industries, and all other sectors who utilize these systems now and in the future.

Proficiency and Expertise: Associate degree programs offer hands-on learning experiences and real-world skills that can be instantly applied in the workplace.

Transfer options: Many associate degrees offer transfer options to a four-year institution, allowing students to further their education if they choose to do so.

Overall, an associate degree in Uncrewed Systems will provide a solid foundation for an immediate career, a robust cornerstone for future educational opportunities and will offer many unique advantages making it a worthwhile investment and a rewarding professional option.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Recognize the fundamentals of uncrewed systems and uncrewed systems operations.
- Identify different task requirements under varying operational circumstances in order to select appropriate solutions during mission planning and execution.
- Analyze managerial aspects and their application to different uncrewed systems applications.
- Identify performance criteria and solve basic operational problem.

## DEGREE REQUIREMENTS

### General Education

| | |
|---|---|
| **General Education** | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, Social Sciences, Physical and Life Science, mathematics, and Computer Science may be chosen from as listed, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | |
| **Communication Theory and Skills** | |
| Any Communication Theory and Skills above ENGL 106 | 9 |
| **Humanities** | |
| Lower-Level Humanities (Any Lower or Upper Level Humanities) | 3 |
| Upper-Level Humanities (Any Upper Level Humanities) | 3 |
| **Social Science** | |
| Any Social Science | 6 |
| **Physical and Life Science** | |
| Any Physical Science/Physics | 6 |
| **Mathematics** | |
| Any College Algebra or higher Math Series | 6 |
| **Computer Science** | |
| Any Computer Science | 3 |
| **Total Credits** | **36** |

### Core/Major

| | | |
|---|---|---|
| ASCI 202 | Introduction to Aeronautical Science | 3 |
| UNSY 315 | Uncrewed Aircraft Systems and Operations | 3 |
| UNSY 318 | Uncrewed Aircraft Systems Robotics | 3 |
| BSAS 320 | Human Factors in Aviation Safety | 3 |
| UNSY 313 | Uncrewed Maritime Systems and Applications | 3 |
| UNSY 331 | Uncrewed Systems Legal and Regulatory Compliance | 3 |
| UNSY 205 | Applied Physics for Uncrewed Systems | 3 |
| UNSY 316 | Operational and Business Aspects of Uncrewed Aircraft Systems | 3 |
| **Total Credits** | | **24** |
| **Total Degree Requirements** | | **60** |

# B.S. in Aeronautics

Whether you want to advance your current position and earnings potential, launch into an aviation career, or open your career up to new opportunities, the Bachelor of Science in Aeronautics (BSA) opens the door to new opportunities in the dynamic aviation/aerospace industry.

Aeronautics curriculum is closely mapped to the needs and demands of the aviation/aerospace industry and to general education guidelines. The BSA is a multidisciplinary program with courses of study in uncrewed systems, human factors, security, aviation safety, occupational safety and health, air traffic control, aircraft maintenance, and aeronautical science. Within that broad base, electives and minors allow you to tailor your degree to your particular interests and career goals.

It does not have to take long, either. You can receive transfer credit, advance standing, and Federal Aviation Administration (FAA) or military

ratings and certifications, which may lead to receiving your degree in a shorter time.

Students are also eligible to engage in cooperative study/internships and may elect to seek out those enriching opportunities.

The Bachelor of Science in Aeronautics is accredited by the Aviation Accreditation Board International (AABI)

Graduates from the Worldwide BSA degree program are not eligible to apply for an airline transport pilot (ATP)-Restricted privileges certificate under Title 14 part 61.160.

## Minor Courses of Study

One key and essential element of this degree is the ability to enhance and strengthen your academic program by adding any Minor Course of Study. Students may use courses from a minor and place them into Aviation Area of Concentration, Professional Development Electives and/or Open Electives (all as appropriate). Students are strongly encouraged to add a Minor to their degree. Students can enhance their aeronautics degree with a minor providing them with targeted sector expertise that they can broaden their career prospects and deepen their understanding of the industry.

### Available Minors: https://catalog.erau.edu/worldwide/minors/

## Aviation Area of Concentration

The Aviation Area of Concentration is the degree area where credit for prior aviation learning is housed or where students can take aeronautical science courses. Many students bring in all or part of this credit based on prior aviation training or experience or add a Minor Course of Study. However, shortages in the minimum credit required can be made up by taking courses in the following aviation-related disciplines: Aeronautical Science, Aviation Maintenance, Aviation History, and aviation/aerospace related coursework in Safety, Security, Transportation, Engineering, and Uncrewed Systems.

### Sources of prior learning credit include the following:

1. Transfer credit earned at accredited degree-granting colleges and universities.
2. The recommendations published by the American Council on Education for U.S. Military training and experience, as well as training conducted by other government agencies and private organizations.
3. Prior-learning credit established by the University for certain aviation certificates, licenses, and ratings as they relate to this degree.

## Duplicate Credit

Many Embry-Riddle courses are designed to teach the same skills and knowledge that Aeronautics students have acquired through experience and training. Students who complete courses in the same aviation specialty for which they were granted Aviation Area of Concentration credit would be duplicating coverage of the same subject matter. Credit for completion of such courses will not be applied to degree requirements.

Take your future to new heights! Join a program that propels you toward success in the dynamic world of aviation and aerospace.

**B.S. in Aeronautics students who wish to continue on to a master's degree may enroll in the BSA to MSA Combined Program Pathways.**

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Show evidence of the basic concepts in national and international legislation and law as they pertain to the aviation, aerospace, and aeronautics industries.
- Show evidence of sound, ethical, management principles within standard aviation, aerospace, and aeronautics operations.
- Show evidence of basic concepts in aviation safety as they pertain to the aviation, aerospace, and aeronautics industry.
- Apply advanced concepts of aviation, aerospace and aeronautical science to solve problems in the aviation/aerospace industry.
- Communicate concepts in written, digital, and oral forms for technical and non-technical audiences.
- Synthesize and apply knowledge to define and solve problems in professional and personal environments.
- Analyze historical events, cultures, cultural artifacts, social issues, and philosophical concepts.
- Conduct meaningful research, gathering information from primary and secondary sources, and incorporating and documenting source material in their writing.
- Use digitally-enabled technology and mathematical analysis to interpret data, draw valid conclusions, and solve mathematical and economic problems.
- Work effectively with others on diverse teams to produce quality written documents, oral presentations, and/or meaningful projects, assist in organizing shared tasks, contribute actively to groups, and resolve conflicts.
- Select, use, manage, and evaluate technologies, understand their functions, constraints, trade-offs, and societal impact, and apply or integrate these technologies in solving practical problems.

# DEGREE REQUIREMENTS

## General Education

| | |
|---|---|
| **General Education** | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, Social Sciences, Physical and Life Science, Mathematics, and Computer Science may be chosen from as listed, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | |
| **Communication Theory and Skills** | |
| Any Communication Theory and Skills above ENGL 106 | 9 |
| **Humanities** | |
| Lower-Level Humanities (Any Lower or Upper Level Humanities) | 3 |
| Upper-Level Humanities (Any Upper Level Humanities) | 3 |
| **Social Sciences** | |
| Any Social Science | 6 |
| **Physical and Life Science** | |
| Any Physical Science/Physics | 6 |
| **Mathematics** | |
| Any College Algebra or Higher Math Series | 6 |
| **Computer Science** | |
| Any Computer Science | 3 |
| **Total Credits** | **36** |

## Core/Major

| | | |
|---|---|---|
| **Aviation Area of Concentration** | | **18** |
| Make up shortages with non-duplicating courses from the following disciplines: Aeronautical Science, Aviation Maintenance, and related aviation/aerospace coursework in Transportation, Safety, Security, History, Engineering, and Uncrewed Systems. | | |
| **Program Support** | | **24** |
| ASCI 202 | Introduction to Aeronautical Science | 3 |
| ASCI 254 | Aviation Legislation | 3 |
| ASCI 404 | Applications in Aviation & Aerospace Law | 3 |
| STAT 211 | Statistics with Aviation Applications | 3 |

| | | |
|---|---|---|
| MGMT 201 | Principles of Management | 3 |
| ACCT 210 | Financial Accounting | 3 |
| BSAS 210 | Introduction to Aerospace Safety | 3 |
| UNSY 315 | Uncrewed Aircraft Systems and Operations | 3 |
| **Professional Development Core** | | **12** |
| ASCI 491 | Operational Applications in Aeronautics | 3 |
| SCTY 400 | Aviation Security | 3 |
| LGMT 420 | Management of Production and Operations | 3 |
| BSAS 409 | Aviation Safety | 3 |

## Electives

| | |
|---|---|
| **Professional Development Electives (Upper Level)** | **21** |
| Select from courses in available Minor Courses of Study or as accepted in these related disciplines, and Technology. | |
| **Open Electives (Upper or Lower Level)** | **9** |
| **Total Degree Requirements** | **120** |

## Plan of Study (BSA)

### Year One

| **Term 1** | | **Credits** |
|---|---|---|
| | Communication Theory and Skills above ENGL 106 | 3 |
| | College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Communication Theory and Skills above ENGL 106 | 3 |
| | College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Humanities LL | 3 |
| | Physical Science/Physics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Social Science | 3 |
| | Computer Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Communication Theory/Skills above ENGL 106 | 3 |
| ASCI 202 | Introduction to Aeronautical Science | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Two

| **Term 1** | | **Credits** |
|---|---|---|
| ASCI 254 | Aviation Legislation | 3 |
| | Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| MGMT 201 | Principles of Management | 3 |
| | Physical Science/Physics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| ACCT 210 | Financial Accounting | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| BSAS 210 | Introduction to Aerospace Safety | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| STAT 211 | Statistics with Aviation Applications | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Three

| **Term 1** | | **Credits** |
|---|---|---|
| | Aviation Area of Concentration | 3 |
| UNSY 315 | Uncrewed Aircraft Systems and Operations | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Aviation Area of Concentration | 3 |
| | Humanities UL | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Aviation Area of Concentration | 3 |
| LGMT 420 | Management of Production and Operations | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Aviation Area of Concentration | 3 |
| SCTY 400 | Aviation Security | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Aviation Area of Concentration | 3 |
| | Aviation Area of Concentration | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Four

| **Term 1** | | **Credits** |
|---|---|---|
| BSAS 409 | Aviation Safety | 3 |
| ASCI 404 | Applications in Aviation & Aerospace Law | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Professional Development Elective | 3 |
| | Professional Development Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Professional Development Elective | 3 |
| | Professional Development Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Professional Development Elective | 3 |
| | Professional Development Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Professional Development Elective | 3 |
| ASCI 491 | Operational Applications in Aeronautics | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |
| **Total Degree Requirements** | | **120** |

Combined Program Pathways provides academically talented students an opportunity for students to complete a bachelor's and a master's degree in an accelerated timeframe. ERAU recognizes that academically qualified undergraduate students may benefit from the advanced rigor and challenge of taking graduate-level coursework prior to completing the undergraduate degree and being accepted into a graduate studies program. There are two BSA Combined Program Pathways:

### B.S. in Aeronautics to M.S. in Aeronautics

This program is for students who are committed to continuing their education through the Master's degree. This fast-paced program allows qualifying students the opportunity to complete both the Bachelor of Science in Aeronautics (BSA) and the Master of Science in Aeronautics (MSA) in five academic years.

Students who are accepted in the BSA-MSA combined pathway program, will spend three academic years in undergraduate-level study and then, during their senior year, will be allowed to take up to three graduate-level courses from the MSA to replace an equal number of elective courses in the BSA degree. Before selecting the three courses to be taken, students must confer with an advisor to ensure that the courses selected are suitable (a grade of B or better must be achieved). Upon completion of the BSA requirements, students will be enrolled in the MSA and can complete their degree in one year. In any graduate course taken by an undergraduate student, a grade of B or better must be earned. If a grade of C or F is earned in any of the courses taken in lieu of the elective courses in the BSA degree, the student will be removed from the program, have credit awarded to the BSA degree only, and may continue to complete the BSA degree.

As a minimum, the applicant must have at least a 3.00 GPA and earned a minimum of 75 credit hours toward the degree. Students initiate program acceptance through their Academic Advisor or Campus Advisor; to help ensure program criteria are met. Student Advisor will complete the request for processing into the program.

### B.S. in Aeronautics to M.S. in Aviation and Aerospace Sustainability

This program is for students who are committed to continuing their education through the Aviation and Aerospace Sustainability Master's degree. This fast-paced program provides allows qualifying students the opportunity to complete both the Bachelor of Science in Aeronautics (BSA) and the Master of Science in Aviation and Aerospace Sustainability (MSAAS) in five academic years.

Students who are accepted in the BSA-MSAAS combined pathway program, will spend three academic years in undergraduate-level study and then, during their senior year, will be allowed to take up to three graduate-level courses from the MSAAS to replace an equal number of elective courses in the BSA degree. Before selecting the three courses to be taken, students must confer with an advisor to ensure that the courses selected are suitable (a grade of B or better must be achieved). Upon completion of the BSA requirements, students will be enrolled in the MSAAS and can complete their degree in one year. In any graduate course taken by an undergraduate student, a grade of B or better must be earned. If a grade of C or F is earned in any of the courses taken in lieu of the elective courses in the BSA degree, the student will be removed from the program, have credit awarded to the BSA degree only, and may continue to complete the BSA degree.

As a minimum, the applicant must have at least a 3.00 GPA and earned a minimum of 75 credit hours toward the degree. Students initiate program acceptance through their Academic Advisor or Campus Advisor; to help ensure program criteria are met. Student Advisor will complete the request for processing into the program.

## B.S. in Aviation Maintenance

Education is the key to getting more out of life — whether you're looking for a higher salary, greater job satisfaction, or a soaring sense of personal pride. If you work in the aircraft maintenance field and are ready for advancement, Embry-Riddle can help. Our Bachelor of Science in Aviation Maintenance (BSAVM) degree lets you build on the skills you already possess while laying the foundation for greater accomplishments.

If you hold an FAA Airframe & Powerplant Maintenance Certificate, you may be awarded up to 18 credit hours toward the associate degree or up to 39 credit hours toward the bachelor's degree. Students may also earn maintenance credit as part of the overall curriculum.

Students are also eligible to engage in cooperative study/internships and may elect to seek out those enriching opportunities.

In addition to gaining critical skills needed to succeed in an aviation maintenance career, students will specialize in one of three maintenance functions: Engineering, Management or Safety. Plus, students gain a solid core of courses in general education, which prepares graduates for success in any industry, not just aviation.

In the aviation industry, the most crucial task is to keep the planes flying safely. That's why people with aircraft maintenance skills and knowledge will continue to be in high demand by aviation and aeronautical employers. In today's competitive workforce, however, it takes something extra to move up the career ladder. Aviation professionals can get that edge with a Bachelor of Science in Aviation Maintenance from Embry-Riddle Aeronautical University — Worldwide.

Although the program is geared toward aviation and aerospace, its curriculum prepares graduates for success with companies in any industry. The total degree requirements are 120 credit hours.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

### Student Learning Outcomes

**Students will:**

- Solve problems within professional and personal environments.
- Use digitally-enabled technology and analysis techniques to interpret data for the purpose of drawing valid conclusions and solving associated problems.
- Show evidence of conducting meaningful research, gathering information from primary and secondary sources, and documenting source material in their writing.
- Communicate concepts in written, digital, and oral forms for technical and non-technical information.
- Analyze scientific evidence related to the physical world and its interrelationship with human values and interests.
- Analyze historical events, cultural artifacts, and philosophical concepts.
- Show evidence of skills needed to enrich life through activities that enhance and promote lifelong learning in their career and personal life.
- Apply the fundamentals of aviation maintenance, commonly accepted practices, and global regulations in the aviation maintenance industry.
- Demonstrate proficiency in maintenance operations management functions for all types of aerial vehicles.
- Demonstrate comprehension and application of basic concepts of ground and flight safety in the aviation maintenance industry.

# DEGREE REQUIREMENTS

## General Education

| | |
|---|---|
| **General Education** | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, Social Sciences, Physical and Life Science, Mathematics, and Computer Science may be chosen from as listed, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | |
| **Communication Theory and Skills** | |
| Any Communication Theory and Skills above ENGL 106 | 9 |
| *Students pursuing the Engineering Specialization must take ENGL 221 | |
| **Humanities** | |
| Lower-Level Humanities (Any Lower or Upper Level Humanities) | 3 |
| Upper-Level Humanities (Any Upper Level Humanities) | 3 |
| **Social Sciences** | |
| Any Social Science | 6 |
| **Physical and Life Science** | |
| Any Physical Science/Physics | 6 |
| *Students pursuing the Engineering Specialization must take PHYS 150 and PHYS 160 | |
| **Mathematics** | |
| Any College Algebra or Higher Math Series | 6 |
| *Students pursuing the Engineering Specialization must take MATH 142 and MATH 241 for a total of 7 credits | |
| **Computer Science** | |
| Any Computer Science | 3 |
| **Total Credits** | **36** |

*Students pursuing the Engineering Specialization will earn 37 credits towards their General Education.

## Core/Major

| | | |
|---|---|---|
| **Aviation Maintenance Courses** | | |
| AMNT 240 | General Aeronautics and Applications | 3 |
| AMNT 260 | Aircraft Electrical Systems Theory | 3 |
| AMNT 270 | Airframe Structures and Applications | 3 |
| AMNT 271 | Airframe Systems and Applications | 3 |
| AMNT 280 | Reciprocating Engine Theory and Applications | 3 |
| AMNT 281 | Turbine Engine Theory and Applications | 3 |
| **Total Credits** | | **18** |
| | | |
| **Program Core** | | |
| AMNT 265 | Aeronautical Electronics for Aviation Maintenance Technicians | 3 |
| ASCI 404 | Applications in Aviation & Aerospace Law | 3 |
| AMNT 416 | Aviation Maintenance Management: A Global Perspective | 3 |
| AMNT 429 | Advanced Technologies in Design and Production of Aircraft Structures and Systems | 3 |
| AMNT 424 | Maintenance Repair and Overhaul in Aviation | 3 |
| AMNT 290 | Introduction to Aerospace Composites | 3 |
| AMNT 272 | Fundamentals of Aircraft Avionics | 3 |
| AMNT 491 | Operational Applications in Aviation Maintenance | 3 |
| ASCI 202 | Introduction to Aeronautical Science | 3 |
| MGMT 201 | Principles of Management | 3 |
| STAT 211 | Statistics with Aviation Applications | 3 |
| **Total Credits** | | **33** |

## Choose one Specialization

1. Engineering specialization
2. Management specialization
3. Safety specialization

### Engineering Specialization

In aviation maintenance, technicians often work closely with engineers when troubleshooting or making changes to aircraft design. The Engineering specialization provides students of Aviation Maintenance an integrated understanding of the theories and practical applications of engineering concepts, AC/CD circuit behavior, metal and composite properties, forces, and solid mechanics.

| | | |
|---|---|---|
| **Engineering Specialization Courses** | | **33** |
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| CHEM 110 | General Chemistry I | 3 |
| ENGR 101 | Introduction to Engineering | 3 |
| ETEC 315 | Circuits for Engineering Technology | 3 |
| ETEC 316 | Circuits Laboratory for Engineering Technology | 1 |
| ESCI 201 | Statics | 3 |
| ESCI 202 | Solid Mechanics | 3 |
| CESC 220 | Digital Circuit Design | 3 |
| CESC 222 | Digital Circuit Design Laboratory | 1 |
| ETEC 310 | Material Science for Engineering Technology | 3 |
| ESCI 204 | Dynamics | 3 |
| ENGR 115 | Introduction to Computing for Engineers | 3 |
| **Total Credits** | | **33** |
| | | |
| **Total Degree Requirements** | | **121** |

### Management Specialization:

In aviation maintenance, there is a continual need for the comprehensive management of maintenance programs. The Management specialization provides students of Aviation Maintenance an integrated understanding of the theories, concepts, and practical applications of logistics, procurement, production, life cycle analysis, and project management.

| | | |
|---|---|---|
| **Management Specialization Courses** | | **18** |
| UNSY 316 | Operational and Business Aspects of Uncrewed Aircraft Systems | 3 |
| AMNT 322 | Aircraft Inspection and Scheduled Maintenance Programs | 3 |
| HRMD 324 | Aviation Labor Relations | 3 |
| LGMT 411 | Logistics Management for Aviation/Aerospace | 3 |
| PMGT 325 | Concepts and Practices of Project Management | 3 |
| Upper-Level Management Electives | | 3 |
| **Electives** | | **15** |
| Choose other electives from the following subject areas: Aviation Maintenance, Aeronautical Science, Management, Leadership, Safety, Computer Science, and Engineering Technology. At least 3 credit hours must be Upper-Level. | | |
| **Total Credits** | | **33** |
| | | |
| **Total Degree Requirements** | | **120** |

### Safety Specialization:

In aviation maintenance, there is a recognized need for safety professionals. The Safety specialization provides students of Aviation Maintenance an opportunity to complement their practical experience with a study of aviation safety, focusing on the theories and concepts of human factors, mechanical and structural factors, system safety, and maintenance-related safety practices.

| | | |
|---|---|---|
| **Safety Specialization Courses** | | **18** |
| BSAS 320 | Human Factors in Aviation Safety | 3 |
| BSAS 335 | Mechanical and Structural Factors in Aviation Safety | 3 |
| SFTY 341 | Occupational Safety and Health Program Management | 3 |
| BSAS 409 | Aviation Safety | 3 |
| SFTY 415 | Human Reliability and Safety Analysis | 3 |
| Upper-Level Safety Electives | | 3 |
| **Electives** | | **15** |
| Choose other electives from the following subject areas: Aviation Maintenance, Aeronautical Science, Management, Leadership, Safety, Computer Science, and Engineering Technology. At least 3 credit hours must be Upper-Level. | | |
| **Total Credits** | | **33** |
| | | |
| **Total Degree Requirements** | | **120** |

## Plan of Study (BSAVM) - Engineering Specialization

### Year One

| **Term 1** | | **Credits** |
|---|---|---|
| | Communication Theory/Skills above ENGL 106 | 3 |
| MATH 142 | Trigonometry | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ENGL 123 | English Composition | 3 |
| MATH 241 | Calculus and Analytical Geometry I | 4 |
| | **Credits Subtotal** | **7.0** |
| **Term 3** | | |
| | Humanities LL | 3 |
| PHYS 150 | Physics I for Engineers | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Social Science | 3 |
| | Computer Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| ENGL 221 | Technical Report Writing | 3 |
| ASCI 202 | Introduction to Aeronautical Science | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **31.0** |

### Year Two

| **Term 1** | | **Credits** |
|---|---|---|
| AMNT 265 | Aeronautical Electronics for Aviation Maintenance Technicians | 3 |
| | Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| AMNT 240 | General Aeronautics and Applications | 3 |
| AMNT 260 | Aircraft Electrical Systems Theory | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| AMNT 270 | Airframe Structures and Applications | 3 |
| AMNT 271 | Airframe Systems and Applications | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| AMNT 280 | Reciprocating Engine Theory and Applications | 3 |
| AMNT 281 | Turbine Engine Theory and Applications | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| MGMT 201 | Principles of Management | 3 |
| | **Credits Subtotal** | **7.0** |
| | **Credits Total:** | **31.0** |

### Year Three

| **Term 1** | | **Credits** |
|---|---|---|
| STAT 211 | Statistics with Aviation Applications | 3 |
| ASCI 404 | Applications in Aviation & Aerospace Law | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| AMNT 272 | Fundamentals of Aircraft Avionics | 3 |
| | Humanities UL | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| AMNT 290 | Introduction to Aerospace Composites | 3 |
| AMNT 429 | Advanced Technologies in Design and Production of Aircraft Structures and Systems | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| AMNT 424 | Maintenance Repair and Overhaul in Aviation | 3 |
| AMNT 416 | Aviation Maintenance Management: A Global Perspective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| PHYS 160 | Physics II for Engineers | 3 |
| ENGR 101 | Introduction to Engineering | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Four

| **Term 1** | | **Credits** |
|---|---|---|
| AMNT 491 | Operational Applications in Aviation Maintenance | 3 |
| CHEM 110 | General Chemistry I | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ENGR 115 | Introduction to Computing for Engineers | 3 |
| CESC 220 | Digital Circuit Design | 3 |
| CESC 222 | Digital Circuit Design Laboratory | 1 |
| | **Credits Subtotal** | **7.0** |
| **Term 3** | | |
| ESCI 201 | Statics | 3 |
| ETEC 315 | Circuits for Engineering Technology | 3 |
| ETEC 316 | Circuits Laboratory for Engineering Technology | 1 |
| | **Credits Subtotal** | **7.0** |
| **Term 4** | | |
| ESCI 202 | Solid Mechanics | 3 |
| ESCI 204 | Dynamics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| ETEC 310 | Material Science for Engineering Technology | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **29.0** |
| **Total Degree Requirements** | | **121** |

## Plan of Study (BSAVM) - Management Specialization

### Year One

| Term 1 | | Credits |
|---|---|---|
| | Communication Theory/Skills above ENGL 106 | 3 |
| | College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Communication Theory/Skills above ENGL 106 | 3 |
| | College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Humanities LL | 3 |
| | Physical Science/Physics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Social Science | 3 |
| | Computer Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Communication Theory/Skills above ENGL 106 | 3 |
| ASCI 202 | Introduction to Aeronautical Science | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Two

| Term 1 | | Credits |
|---|---|---|
| AMNT 265 | Aeronautical Electronics for Aviation Maintenance Technicians | 3 |
| | Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| AMNT 240 | General Aeronautics and Applications | 3 |
| AMNT 260 | Aircraft Electrical Systems Theory | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| AMNT 270 | Airframe Structures and Applications | 3 |
| AMNT 271 | Airframe Systems and Applications | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| AMNT 280 | Reciprocating Engine Theory and Applications | 3 |
| AMNT 281 | Turbine Engine Theory and Applications | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Physical Science/Physics | 3 |
| MGMT 201 | Principles of Management | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Three

| Term 1 | | Credits |
|---|---|---|
| STAT 211 | Statistics with Aviation Applications | 3 |
| ASCI 404 | Applications in Aviation & Aerospace Law | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| AMNT 272 | Fundamentals of Aircraft Avionics | 3 |
| | Humanities UL | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| AMNT 290 | Introduction to Aerospace Composites | 3 |
| AMNT 429 | Advanced Technologies in Design and Production of Aircraft Structures and Systems | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| AMNT 424 | Maintenance Repair and Overhaul in Aviation | 3 |
| AMNT 416 | Aviation Maintenance Management: A Global Perspective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Aviation Maintenance Elective | 3 |
| | Aviation Maintenance Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Four

| Term 1 | | Credits |
|---|---|---|
| AMNT 491 | Operational Applications in Aviation Maintenance | 3 |
| | Aviation Maintenance Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| UNSY 316 | Operational and Business Aspects of Uncrewed Aircraft Systems | 3 |
| AMNT 322 | Aircraft Inspection and Scheduled Maintenance Programs | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| HRMD 324 | Aviation Labor Relations | 3 |
| LGMT 411 | Logistics Management for Aviation/Aerospace | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| PMGT 325 | Concepts and Practices of Project Management | 3 |
| | Aviation Maintenance Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | (MGMT) Upper Level Elective | 3 |
| | Aviation Maintenance Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

| | |
|---|---|
| **Total Degree Requirements** | **120** |

## Plan of Study (BSAVM) - Safety Specialization

### Year One

| Term 1 | | Credits |
|---|---|---|
| | Communication Theory/Skills above ENGL 106 | 3 |
| | College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Communication Theory/Skills above ENGL 106 | 3 |
| | College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |

| | | |
|---|---|---|
| **Term 3** | | |
| | Humanities LL | 3 |
| | Physical Science/Physics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Social Science | 3 |
| | Computer Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Communication Theory/Skills above ENGL 106 | 3 |
| ASCI 202 | Introduction to Aeronautical Science | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Two

| **Term 1** | | **Credits** |
|---|---|---|
| AMNT 265 | Aeronautical Electronics for Aviation Maintenance Technicians | 3 |
| | Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| AMNT 240 | General Aeronautics and Applications | 3 |
| AMNT 260 | Aircraft Electrical Systems Theory | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| AMNT 270 | Airframe Structures and Applications | 3 |
| AMNT 271 | Airframe Systems and Applications | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| AMNT 280 | Reciprocating Engine Theory and Applications | 3 |
| AMNT 281 | Turbine Engine Theory and Applications | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Physical Science/Physics | 3 |
| MGMT 201 | Principles of Management | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Three

| **Term 1** | | **Credits** |
|---|---|---|
| STAT 211 | Statistics with Aviation Applications | 3 |
| ASCI 404 | Applications in Aviation & Aerospace Law | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| AMNT 272 | Fundamentals of Aircraft Avionics | 3 |
| | Humanities UL | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| AMNT 290 | Introduction to Aerospace Composites | 3 |
| AMNT 429 | Advanced Technologies in Design and Production of Aircraft Structures and Systems | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| AMNT 424 | Maintenance Repair and Overhaul in Aviation | 3 |
| AMNT 416 | Aviation Maintenance Management: A Global Perspective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Upper Level Safety Elective | 3 |
| | Aviation Maintenance Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Four

| **Term 1** | | **Credits** |
|---|---|---|
| | Aviation Maintenance Elective | 3 |
| | Aviation Maintenance Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| BSAS 320 | Human Factors in Aviation Safety | 3 |
| BSAS 335 | Mechanical and Structural Factors in Aviation Safety | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| SFTY 341 | Occupational Safety and Health Program Management | 3 |
| BSAS 409 | Aviation Safety | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| SFTY 415 | Human Reliability and Safety Analysis | 3 |
| | Aviation Maintenance Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| AMNT 491 | Operational Applications in Aviation Maintenance | 3 |
| | Aviation Maintenance Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |
| **Total Degree Requirements** | | **120** |

## B.S. in Aviation Maintenance to Master of Aviation Maintenance

This program is for students who are committed to continuing their education through the Master's degree. This fast-paced program allows qualifying students the opportunity to complete both the Bachelor of Science in Aviation Maintenance (BSAVM) and the Master of Aviation Maintenance (MAM) in five academic years.

Students who are accepted in the BSAVM-MAM combined pathway program, will spend three academic years in undergraduate-level study and then, during their senior year, will be allowed to take up to three graduate-level courses from the MAM to replace an equal number of elective courses in the BSAVM degree. Before selecting the three courses to be taken, students must confer with an advisor to ensure that the courses selected are suitable (a grade of B or better must be achieved). Upon completion of the BSAVM requirements, students will be enrolled in the MAM and can complete their degree in one year. In any graduate course taken by an undergraduate student, a grade of B or better must be earned. If a grade of C or F is earned in any of the courses taken in lieu of the elective courses in the BSAVM degree, the student will be removed from the program, have credit awarded to the BSAVM degree only, and may continue to complete the BSAVM degree.

As a minimum, the applicant must have at least a 3.00 GPA and earned a minimum of 75 credit hours toward the degree. Students initiate program acceptance through their Academic Advisor or Campus Advisor; to help ensure program criteria are met. Student Advisor will complete the request for processing into the program.

# B.S. in Aviation Safety

The future of the aviation industry depends upon maintaining the trust of the traveling public in a rapidly changing environment. Recognizing the importance of managing risk in this dynamic ecosystem, Embry-Riddle continues to invest in aviation safety establishing the Boeing Center for Aviation and Aerospace Safety as well as providing students will educational opportunities and the undergraduate and master's degree levels. ERAU is the world-renowned leader in aviation and aerospace education, has deep connections with the defense and aerospace industries and is well-positioned to lead the way for our students in these industries and across private and public aviation and transportation safety sectors.

The BSAVS curriculum consists of 40 courses (120 credit hours) including general education, core classes, and program support. The curriculum introduces domains integral to aviation operations, including maintenance, air traffic control, airport operations, and flight operations. Next it addresses critical categories specifically related to safety, including weather, accident investigation, human factors and safety management systems. Finally, it introduces new areas of emphasis that are increasingly important in aviation safety, including uncrewed and autonomous systems, data science and crisis communications. Most importantly, all this material is constructed within and upon the student developing an essential understanding of safety leadership and ethics. The curriculum distinguishes ERAU from its competitors and provides students with the skills and abilities industry regards most highly.

BSAVS students who wish to continue their education to a master's degree and fulfill requirements may enroll in the BSAVS to MSAVS Combined Program Pathways.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Identify the essential components of air transportation that impact aviation safety.
- Select, use and manage the tools, techniques and programs that promote and enhance aviation safety.
- Interpret safety-related data to make informed decisions and recommendations that enhance aviation safety.
- Explain the tenets of ethical responsibility as it applies to aviation safety.

## DEGREE REQUIREMENTS

## General Education

| | |
|---|---|
| **General Education** | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, Social Sciences, Physical and Life Science, Mathematics, and Computer Science may be chosen from as listed, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | |
| **Communication Theory and Skills** | |
| Any Communication Theory and Skills above ENGL 106 | 9 |
| **Humanities** | |
| Lower-Level Humanities (Any Lower or Upper-Level Humanities) | 3 |
| Upper-Level Humanities (Any Upper-Level Humanities) | 3 |
| **Social Sciences** | |
| Any Social Science | 6 |
| **Physical and Life Science** | |
| Any Physical Science/Physics | 6 |
| **Mathematics** | |
| Any College Algebra or Higher Math Series | 6 |
| **Computer Science** | |
| Any Computer Science | 3 |
| **Total Credits** | **36** |

## Core/Major

| | | |
|---|---|---|
| **Program Core** | | |
| AMNT 424 | Maintenance Repair and Overhaul in Aviation | 3 |
| ASCI 202 | Introduction to Aeronautical Science | 3 |
| ASCI 254 | Aviation Legislation | 3 |
| ASCI 301 | Introduction to Air Traffic Control | 3 |
| ASCI 426 | Airport Management in ATM | 3 |
| BSAS 210 | Introduction to Aerospace Safety | 3 |
| HUMN 430 | Ethics in Aviation | 3 |
| BSAS 320 | Human Factors in Aviation Safety | 3 |
| BSAS 330 | Aircraft Accident Investigation | 3 |
| BSAS 335 | Mechanical and Structural Factors in Aviation Safety | 3 |
| BSAS 345 | Aviation Safety Program Management | 3 |
| BSAS 350 | Aircraft Crash and Emergency Management | 3 |
| BSAS 409 | Aviation Safety | 3 |
| SFTY 311 | Fundamentals of Occupational Safety and Health | 3 |
| SFTY 321 | Ergonomics | 3 |
| SFTY 426 | System Safety Management | 3 |
| UNSY 315 | Uncrewed Aircraft Systems and Operations | 3 |
| UNSY 431 | Uncrewed Systems Human Factors Considerations | 3 |
| WEAX 301 | Aviation Weather | 3 |
| ASCI 491 | Operational Applications in Aeronautics | 3 |
| **Total Credits** | | **60** |

| | | |
|---|---|---|
| **Program Support** | | |
| COMD 460 | Crisis Communication | 3 |
| CSCI 123 | Introduction to Computing for Data Analysis | 3 |
| CSCI 251 | Introduction to Programming for Data Science | 3 |
| DSCI 201 | Introduction to Data Science Applications | 3 |
| DSCI 310 | Data Storytelling | 3 |
| MMIS 320 | Business Information Systems | 3 |
| STAT 211 | Statistics with Aviation Applications | 3 |
| MGMT 201 | Principles of Management | 3 |
| **Total Credits** | | **24** |

| | |
|---|---|
| **Total Degree Requirements** | **120** |

## Plan of Study (BSAVS)

### Year One

| | | |
|---|---|---|
| **Term 1** | | **Credits** |
| | Communication Theory and Skills above ENGL 106 | 3 |
| | College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Communication Theory and Skills above ENGL 106 | 3 |
| | College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Humanities LL | 3 |

| | | |
|---|---|---|
| | Physical Science/Physics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Social Science | 3 |
| | Computer Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Communication Theory and Skills above ENGL 106 | 3 |
| | Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Two

| **Term 1** | | **Credits** |
|---|---|---|
| ASCI 202 | Introduction to Aeronautical Science | 3 |
| | Physical Science/Physics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| BSAS 210 | Introduction to Aerospace Safety | 3 |
| WEAX 301 | Aviation Weather | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| ASCI 301 | Introduction to Air Traffic Control | 3 |
| | Humanities Upper-Level (HUMN) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| SFTY 311 | Fundamentals of Occupational Safety and Health | 3 |
| SFTY 321 | Ergonomics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| BSAS 320 | Human Factors in Aviation Safety | 3 |
| BSAS 330 | Aircraft Accident Investigation | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Three

| **Term 1** | | **Credits** |
|---|---|---|
| BSAS 335 | Mechanical and Structural Factors in Aviation Safety | 3 |
| BSAS 345 | Aviation Safety Program Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| BSAS 350 | Aircraft Crash and Emergency Management | 3 |
| BSAS 409 | Aviation Safety | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| SFTY 426 | System Safety Management | 3 |
| AMNT 424 | Maintenance Repair and Overhaul in Aviation | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| UNSY 315 | Uncrewed Aircraft Systems and Operations | 3 |
| ASCI 426 | Airport Management in ATM | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| ASCI 254 | Aviation Legislation | 3 |
| UNSY 431 | Uncrewed Systems Human Factors Considerations | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Four

| **Term 1** | | **Credits** |
|---|---|---|
| STAT 211 | Statistics with Aviation Applications | 3 |
| COMD 460 | Crisis Communication | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| CSCI 123 | Introduction to Computing for Data Analysis | 3 |
| CSCI 251 | Introduction to Programming for Data Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| DSCI 201 | Introduction to Data Science Applications | 3 |
| DSCI 310 | Data Storytelling | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| MMIS 320 | Business Information Systems | 3 |
| MGMT 201 | Principles of Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| HUMN 430 | Ethics in Aviation | 3 |
| ASCI 491 | Operational Applications in Aeronautics | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

| | |
|---|---|
| **Total Degree Requirements** | **120** |

## B.S. in Aviation Safety to M.S. in Aviation Safety

This program is for exceptional students who are committed to continuing their education through the Master's degree. This fast-paced program allows qualifying students the opportunity to complete both the Bachelor of Science in Aviation Safety (BSAVS) and the M.S. in Aviation Safety Master of Science in Aviation Safety (MSAVS) in five academic years.

After spending three academic years in undergraduate-level study, BSAVS students who are accepted in the BSAVS-MSAVS program option will be allowed to take up to three (3) MSAVS courses to replace an equal number of remaining BSAVS courses during their senior year. Before selecting the courses to be taken, students must confer with an advisor to ensure that the courses selected meet the program requirements. A grade level average of B or better must be maintained for selected MSAVS courses while enrolled in the BSAVS to MSAVS program.

Students who fail in any of their selected MSAVS courses or fail to maintain a grade average of B or better while still completing BSAVS degree requirements will be removed from the program option, have credit awarded to the BSAVS degree only, and may continue to complete their undergraduate degree program.

This elite program will challenge students and further develop their knowledge, skills, abilities, and attitudes in the concepts of aviation and aerospace safety while integrating their gained experience. Students will learn the theory and application of system safety and human performance, as well as the practical management of safety programs, safety data analysis, and accident investigation. They will hone critical thinking, teamwork, and communication skills while learning from experts in the field and collaborating with students from around the world. Subject areas include industrial and ground safety and emergency management as well as flight operations safety. This program will prepare students for careers in operations or safety with traditional employers such as major airlines, or with new entrants in unmanned systems or commercial space. Students

will have the option to access Prescott campus facilities such as the crash investigation lab.

As a minimum to be considered for acceptance to the BSAVS-MSAVS option, applicant students must hold at least a 3.00 GPA, completed at least 75 credit hours of the BSAVS program requirements to apply and demonstrated superior academic capability.

Students initiate program acceptance through their Academic Advisor or Campus Advisor; to help ensure program criteria are met. Student Advisor will complete the request for processing into the program.

# B.S. in Pilot Operations

The Bachelor of Science in Pilot Operations (BSPO) provides graduates of the program the necessary knowledge, skills, and abilities to secure meaningful careers as pilots in the aviation industry.

This degree has been designed specifically to support pilots. As demand for pilots grows in the aviation industry, promotability and leadership in the profession will be decided by those possessing critical advanced knowledge, research skills and industry-related educational accomplishment. The BSPO provides an opportunity for pilot professionals to leverage their experience and credentials in a way that can create a valuable competitive advantage in this dynamic industry.

Enrollment into the BSPO will be limited to students who have a minimum of an FAA Private Pilot's License, an ICAO equivalent rating, or military pilots. Students who are working on their initial license and have not completed and passed their private pilot check ride will not be qualified for the BSPO.

The BSPO awards college credit for current certifications and is offered fully online with additional options for other learning modalities. The BSPO degree takes a balanced approach with integrated and interdisciplinary curriculum rooted in areas of 1) technical understanding, 2) aviation safety, 3) leadership, and 4) Aviation Legislation and Law:

- 1) Technical understanding: The student will demonstrate knowledge and understanding of the essential operating systems of aircraft as they relate to fundamental pilot operations. Topics include aerodynamics, flight physiology, electrical systems, airframe systems, avionics, engine theory, meteorology, and aviation weather.
- 2) Aviation safety: The student will demonstrate an understanding and application of the scientific principles and programs related to aviation safety as they correlate with aircraft operations. Topics include human factors, aircraft accident investigation, and aviation safety program management.
- 3) Leadership: The student will engage to present an understanding and application of basic management concepts to achieve greater leadership opportunities within aviation flight organizations. Topics include airport management, corporate and business aviation, and management principles.
- 4) Aviation Legislation and Law: The student will apply fundamental concepts in National and International Legislation and Law as they pertain to the aviation industry. Topics include Aviation Legislation, regulations and licensure pursuant to Commercial/Private Instrument Pilot Operations and Global Legal constructs.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Demonstrate knowledge of the essential operating systems of aircraft as they relate to fundamental pilot operations.
- Apply scientific principles and programs related to aviation safety as they correlate with aircraft operations.
- Develop foundational management knowledge and skills needed to achieve greater leadership opportunities within aviation flight organizations.
- Apply fundamental concepts in national and international legislation and law as they pertain to the aviation industry.

## DEGREE REQUIREMENTS

## General Education

| General Education | |
|---|---|
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, Social Sciences, Physical and Life Science, Mathematics, and Computer Science may be chosen from as listed, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | |
| **Communication Theory and Skills** | |
| Any Communication Theory and Skills above ENGL 106 | 9 |
| **Humanities** | |
| Lower-Level Humanities (Any Lower or Upper Level Humanities) | 3 |
| Upper-Level Humanities (Any Upper Level Humanities) | 3 |
| **Social Sciences** | |
| Any Social Science | 6 |
| **Physical Science** | |
| Physical Science | 6 |
| **Mathematics** | |
| Any College Algebra or Higher Math Series | 6 |
| **Computer Science** | |
| Any Computer Science | 3 |
| **Total Credits** | **36** |

## Core/Major

| BSPO Core | | |
|---|---|---|
| ASCI 121L | Airmen Knowledge Test Preparation | 1 |
| ASCI 121 | Private Pilot Operations | 5 |
| ASCI 222 | Instrument Pilot Operations | 3 |
| ASCI 333 | Commercial Pilot Operations | 3 |
| ASCI 254 | Aviation Legislation | 3 |
| ASCI 301 | Introduction to Air Traffic Control | 3 |
| ASCI 309 | Aerodynamics | 3 |
| ASCI 357 | Flight Physiology | 3 |
| ASCI 412 | Corporate and Business Aviation | 3 |
| ASCI 426 | Airport Management in ATM | 3 |
| ASCI 491 | Operational Applications in Aeronautics | 3 |
| AMNT 260 | Aircraft Electrical Systems Theory | 3 |
| AMNT 271 | Airframe Systems and Applications | 3 |
| AMNT 272 | Fundamentals of Aircraft Avionics | 3 |
| AMNT 281 | Turbine Engine Theory and Applications | 3 |
| AMNT 416 | Aviation Maintenance Management: A Global Perspective | 3 |
| MGMT 201 | Principles of Management | 3 |
| BSAS 320 | Human Factors in Aviation Safety | 3 |
| BSAS 330 | Aircraft Accident Investigation | 3 |
| BSAS 335 | Mechanical and Structural Factors in Aviation Safety | 3 |
| BSAS 409 | Aviation Safety | 3 |
| BSAS 345 | Aviation Safety Program Management | 3 |
| WEAX 201 | Meteorology I | 3 |
| WEAX 301 | Aviation Weather | 3 |
| **Total Credits** | | **72** |

## Electives

| | |
|---|---|
| **Open Electives** | **12** |
| **Total Degree Requirements** | **120** |

## Plan of Study (BSPO)

### Year One

| Term 1 | | Credits |
|---|---|---|
| | Communication Theory and Skills above ENGL 106 | 3 |
| | College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Communication Theory and Skills above ENGL 106 | 3 |
| | College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Communication Theory and Skills above ENGL 106 | 3 |
| | Computer Science Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Humanities LL | 3 |
| | Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Social Science | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Two

| Term 1 | | Credits |
|---|---|---|
| | Physical Science/Physics | 3 |
| | Physical Science/Physics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ASCI 121 | Private Pilot Operations | 5 |
| ASCI 121L | Airmen Knowledge Test Preparation | 1 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| ASCI 222 | Instrument Pilot Operations | 3 |
| ASCI 254 | Aviation Legislation | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| AMNT 260 | Aircraft Electrical Systems Theory | 3 |
| AMNT 271 | Airframe Systems and Applications | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| AMNT 272 | Fundamentals of Aircraft Avionics | 3 |
| AMNT 281 | Turbine Engine Theory and Applications | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Three

| Term 1 | | Credits |
|---|---|---|
| MGMT 201 | Principles of Management | 3 |
| WEAX 201 | Meteorology I | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Humanities UL | 3 |
| ASCI 333 | Commercial Pilot Operations | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| ASCI 301 | Introduction to Air Traffic Control | 3 |
| ASCI 309 | Aerodynamics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| BSAS 320 | Human Factors in Aviation Safety | 3 |
| BSAS 330 | Aircraft Accident Investigation | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| BSAS 335 | Mechanical and Structural Factors in Aviation Safety | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Four

| Term 1 | | Credits |
|---|---|---|
| ASCI 357 | Flight Physiology | 3 |
| ASCI 412 | Corporate and Business Aviation | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| AMNT 416 | Aviation Maintenance Management: A Global Perspective | 3 |
| BSAS 345 | Aviation Safety Program Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| BSAS 409 | Aviation Safety | 3 |
| WEAX 301 | Aviation Weather | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| ASCI 426 | Airport Management in ATM | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| ASCI 491 | Operational Applications in Aeronautics | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

| | |
|---|---|
| **Total Degree Requirements** | **120** |

## B.S. in Pilot Operations to M.S. in Aeronautics

This program is for students who are committed to continuing their education through the Master's degree. This fast-paced program allows qualifying students the opportunity to complete both the Bachelor of Science in Pilot Operations (BSPO) and the Master of Science in Aeronautics (MSA) in five academic years. While a bachelor's degree will afford the student qualifications toward entry-level and management positions in aviation, the addition of a master's degree will enable

graduates opportunities for enhanced global leadership and larger income potential.

Students who are accepted in the BSPO-MSA combined pathway program must complete a minimum of 75 credit hours toward the BSPO degree; all core courses must be taken. Students must confer with an advisor to ensure that the courses selected are suitable (a grade of B or better must be achieved). Upon completion of the BSPO requirements, students will be enrolled in the MSA and can complete their degree in one year. In any graduate course taken by an undergraduate student, a grade of B or better must be earned. If a grade of C or F is earned in any of the courses taken in lieu of the elective courses in the BSPO degree, the student will be removed from the program, have credit awarded to the BSPO degree only, and may continue to complete the BSPO degree.

As a minimum, the applicant must have at least a 3.00 GPA. Students initiate program acceptance through their Academic Advisor or Campus Advisor; to help ensure program criteria are met. Student Advisor will complete the request for processing into the program.

# B.S. in Uncrewed and Autonomous Systems

Once the domain of military and government agencies, uncrewed systems have entered the civilian and commercial sectors and are transforming the world as we know it. From the driverless cars roaming our streets over the uncrewed aircraft soaring through our skies to the robotic rovers operating on distant planetary bodies, leading enterprises all over the world rely on uncrewed systems for critical aspects of their operations.

The Bachelor of Science in Uncrewed and Autonomous Systems (BSUAS) focuses on the growth, innovative development, and effective use of uncrewed system technology across the respective domains (air, space, ground, and maritime), with a strong concentration on the Air Domain. The focused curriculum addresses major challenges within the industry, including business models and applications, autonomy, airspace integration, communications, education and training, propulsion and power, and regulation.

BSUAS graduates will be prepared to support, develop, and apply the advanced technologies necessary to support the growing and dynamic needs of the industry. They will also be qualified to help guide the policies and regulations that govern this emerging field.

Students are also eligible to engage in cooperative study/internships and may elect to seek out those enriching opportunities.

**BSUAS students who wish to continue their education to a master's degree and fulfill requirements may enroll in the BSUAS to MSUAS Combined Program Pathways.**

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Apply the fundamentals of uncrewed systems, including the technological, economical, legal, social, political, and environmental aspects of uncrewed systems operations.
- Explain uncrewed systems elements, configurations, and operational criteria supporting different applications within various environments.
- Apply performance criteria to solve basic operational problems such as task oriented asset and payload selection.
- Demonstrate appropriate selection and application of research to support program objectives and solving of identified problems specific to their course subject matter.
- Investigate managerial aspects and how they apply to different uncrewed systems applications and administrative functions between various organizations.
- Examine task requirements under varying operational circumstances to identify solutions during mission planning and execution to support employment of the platform, its sensors, and/or its payload.
- Apply operational knowledge and skills towards the design, development, and validation of uncrewed and autonomous systems and applications.

## DEGREE REQUIREMENTS

### General Education

| General Education | |
|---|---|
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, Social Sciences, Physical and Life Science, Mathematics, and Computer Science may be chosen from as listed, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | |
| **Communication Theory and Skills** | |
| Any Communication Theory and Skills above ENGL 106 | 9 |
| **Humanities** | |
| Lower-Level Humanities (Any Lower or Upper Level Humanities) | 3 |
| Upper-Level Humanities (Any Upper Level Humanities) | 3 |
| **Social Sciences** | |
| Any Social Science | 6 |
| **Physical and Life Science** | |
| Any Physical Science/Physics | 6 |
| **Mathematics** | |
| Any College Algebra or Higher Math Series | 6 |
| **Computer Science** | |
| Any Computer Science | 3 |
| **Total Credits** | **36** |

### Core/Major

| Program Core | | |
|---|---|---|
| ASCI 301 | Introduction to Air Traffic Control | 3 |
| ASCI 309 | Aerodynamics | 3 |
| ASCI 403 | Air Traffic Management | 3 |
| UNSY 205 | Applied Physics for Uncrewed Systems | 3 |
| UNSY 307 | Uncrewed Systems Networking | 3 |
| UNSY 311 | Uncrewed Ground Systems and Applications | 3 |
| UNSY 313 | Uncrewed Maritime Systems and Applications | 3 |
| UNSY 315 | Uncrewed Aircraft Systems and Operations | 3 |
| UNSY 316 | Operational and Business Aspects of Uncrewed Aircraft Systems | 3 |
| UNSY 318 | Uncrewed Aircraft Systems Robotics | 3 |
| UNSY 319 | Cybersecurity and Countermeasure Considerations | 3 |
| UNSY 325 | Uncrewed Systems Testing and Inspection | 3 |
| UNSY 329 | Uncrewed Systems Computation and Programming | 3 |
| UNSY 331 | Uncrewed Systems Legal and Regulatory Compliance | 3 |
| UNSY 405 | Uncrewed Systems Operational Environments and Conditions | 3 |
| UNSY 410 | Uncrewed Systems Sensing Technology | 3 |
| UNSY 415 | Uncrewed Space Systems and Application | 3 |
| UNSY 421 | Uncrewed Systems Mission Planning | 3 |
| UNSY 431 | Uncrewed Systems Human Factors Considerations | 3 |
| UNSY 491 | Operational Applications in Uncrewed Systems | 3 |
| STAT 211 | Statistics with Aviation Applications | 3 |

| | | |
|---|---|---|
| SCTY 400 | Aviation Security | 3 |
| **Total Credits** | | **66** |

## Minor or Open Electives:

The recommended Minor option for the BSUAS is the Minor in Small Uncrewed Aircraft Systems (sUAS) Operation. It prepares for an FAA Remote Pilot Certificate, hands-on training and offers an industry certification with the AUVSI Trusted Operator Program (TOP).

Part of this Minor is a mandatory two-day residency program with associated practical training and travel requirements at student expense . Each student must have their own sUAS to fly during the course. Please contact the advising team and program coordinators for details. Students must be physically located in the U.S. during UNSY 435 and 440

Students in the BSUAS degree program may choose an alternative to the sUAS-Ops minor according to their respective catalog and credit requirements with guidance of the program coordinators.

| | |
|---|---|
| **Open Electives** | **18** |

## -OR-

| | |
|---|---|
| **Minor Course of Study** | **18** |
| Choose Any Minor Course of Study (Except Uncrewed Autonomous Systems) | |

### Available Minors: https://catalog.erau.edu/worldwide/minors/

| | |
|---|---|
| **Total Degree Requirements** ** | **120** |

## Plan of Study (BSUAS)

### Year One

| **Term 1** | | **Credits** |
|---|---|---|
| | Any Communication Theory and Skills above ENGL 106 | 3 |
| | Any College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Any Communication Theory and Skills above ENGL 106 | 3 |
| | Any College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Any Communication Theory and Skills above ENGL 106 | 3 |
| | Computer Science Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Lower-Level Humanities | 3 |
| | Any Physical Science/Physics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| STAT 211 | Statistics with Aviation Applications | 3 |
| | Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Two

| **Term 1** | | **Credits** |
|---|---|---|
| UNSY 316 | Operational and Business Aspects of Uncrewed Aircraft Systems | 3 |
| | Any Physical Science/Physics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| UNSY 205 | Applied Physics for Uncrewed Systems | 3 |
| | Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| UNSY 307 | Uncrewed Systems Networking | 3 |
| | Minor or Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| UNSY 315 | Uncrewed Aircraft Systems and Operations | 3 |
| | Upper-Level Humanities (Any Upper Level Humanities) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| UNSY 311 | Uncrewed Ground Systems and Applications | 3 |
| UNSY 405 | Uncrewed Systems Operational Environments and Conditions | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Three

| **Term 1** | | **Credits** |
|---|---|---|
| UNSY 313 | Uncrewed Maritime Systems and Applications | 3 |
| ASCI 309 | Aerodynamics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| UNSY 415 | Uncrewed Space Systems and Application | 3 |
| UNSY 319 | Cybersecurity and Countermeasure Considerations | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| UNSY 318 | Uncrewed Aircraft Systems Robotics | 3 |
| UNSY 331 | Uncrewed Systems Legal and Regulatory Compliance | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| UNSY 410 | Uncrewed Systems Sensing Technology | 3 |
| | Specified Elective (from list) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| UNSY 431 | Uncrewed Systems Human Factors Considerations | 3 |
| | Minor or Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Four

| **Term 1** | | **Credits** |
|---|---|---|
| | Specified Elective (from list) | 3 |
| | Minor or Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Specified Elective (from list) | 3 |
| | Minor or Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Specified Elective (from list) | 3 |

| | | |
|---|---|---|
| | Minor or Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Specified Elective (from list) | 3 |
| | Minor or Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| UNSY 491 | Operational Applications in Uncrewed Systems | 3 |
| | Specified Elective (from list) | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

| | |
|---|---|
| **Total Degree Requirements** | **120** |

### B.S. in Uncrewed and Autonomous Systems to M.S. in Uncrewed and Autonomous Systems

This program is for exceptional students who are committed to continuing their education through the Master's degree. This fast-paced program allows qualifying students the opportunity to complete both the Bachelor of Science in Uncrewed and Autonomous Systems (BSUAS) and the Master of Science in Uncrewed and Autonomous Systems (MSUAS) in five academic years.

After spending three academic years in undergraduate-level study, BSUAS students who are accepted in the BSUAS-MSUAS program option will be allowed to take up to three (3) MSUAS courses to replace an equal number of remaining BSUAS courses during their senior year. The selected courses can only replace BSUAS minor requirement or additional electives in each respective BSUAS track and may not replace program core or track support courses. Before selecting the courses to be taken, students must confer with an advisor to ensure that the courses selected are suitable and align with their selected MSUAS area of concentration. A grade level average of B or better must be maintained for selected MSUAS courses while enrolled in the BSUAS-MSUAS program. Any final BSUAS credit hour requirements not accomplished through MSUAS course selection will have to be satisfied through upper level undergraduate electives. Upon successful BSUAS program requirement completion, students will be automatically enrolled in the MSUAS program and their chosen area of concentration and can complete their degree within one year.

Students who fail in any of their selected MSUAS courses or fail to maintain a grade average of B or better while still completing BSUAS degree requirements will be removed from the program option, have credit awarded to the BSUAS degree only, and may continue to complete their BSUAS degree program. In this case, published BSUAS minor requirements and/or upper level electives can be used to fulfill remaining BSUAS credit requirements.

This special program will challenge students and develop their knowledge, skills, abilities, and attitudes in the concepts of uncrewed systems while integrating their gained experience in uncrewed systems applications. As a minimum to be considered for acceptance to this BSUAS-MSUAS option, applicant students must hold at least a 3.00 GPA, completed at least 75 credit hours of the BSUAS program requirements to apply and demonstrated superior academic capability.

Students initiate program acceptance through their Academic Advisor or Campus Advisor; to help ensure program criteria are met. Student Advisor will complete the request for processing into the program.

## Combined Program Pathways College of Aviation

Combined programs offer well-qualified students the opportunity to start a Master's degree while still completing their Bachelor's degree and allow for the crossing of disciplines. Students earn B.S. once all requirements for that degree are met while still working on completing their M.S.

- B.S. in Aeronautics/M.S. in Aeronautics
- B.S. in Aeronautics/M.S. in Aviation and Aerospace Sustainability
- B.S. in Aviation Maintenance/Master of Aviation Maintenance
- B.S. in Aviation Safety/M.S. in Aviation Safety
- B.S. in Pilot Operations/M.S. in Aeronautics
- B.S. in Uncrewed and Autonomous Systems/M.S. in Uncrewed and Autonomous Systems

## M.S. in Aeronautics

The MSA degree is designed to provide the student with a broad aviation/aerospace background and technical knowledge in the 7 course core curriculum and the opportunity to select from nine different 3 course specializations to pursue their chosen career path in the aviation field.

The MSA program consists of 30 credits. Students must complete the MSA core requirements consisting of 21 credits, and complete the 9 credits that make up the selected specialization in one of the following: Aviation Safety, Human Factors, Space Operations, Uncrewed Systems, or Small Uncrewed Aircraft Systems, Sustainability, Maintenance, Aviation Cybersecurity, and Research.

View information for B.S. in Aeronautics (BSA) and B.S. in Pilot Operations (BSPO) students who wish to continue on to the M.S. in Aeronautics (MSA) degree by enrolling in the BSA-MSA or BSPO-MSA Combined Program Pathway.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

### Student Learning Outcomes

**Students will:**

- Apply mathematics, science, and applied sciences at a level appropriate to aviation-related disciplines at the master's level, including an adequate foundation in statistics.
- Analyze and interpret data at the master's level.
- Work effectively on multi-disciplinary and diverse teams.
- Make professional and ethical decisions.
- Communicate effectively, using both written and oral communication skills.
- Engage in and recognize the need for life-long learning.
- Assess contemporary issues.
- Use the techniques, skills, and modern technology necessary for professional practice.
- Assess the national and international aviation environment.
- Apply pertinent knowledge in identifying and solving problems.
- Apply knowledge of business sustainability to aviation issues.
- Apply advanced qualitative and quantitative problem-solving skills.

### DEGREE REQUIREMENTS

### Core/Major

| **MSA Core Requirements** | | |
|---|---|---|
| ASCI 602 | The Air Transportation System | 3 |
| ASCI 604 | Human Factors in the Aviation/Aerospace Industry | 3 |
| ASCI 674 | Project Management in Aviation/Aerospace | 3 |
| ASCI 516 | Applications in Crew Resource Management | 3 |
| ASCI 645 | Airport Operations and Management | 3 |
| ASCI 693 | Current Research Problems in Aviation/ Aerospace | 3 |

| | | |
|---|---|---|
| RSCH 665 | Statistical Analysis | 3 |
| **Total Credits** | | **21** |

## Specialization

| | |
|---|---|
| **Specialization** | **9** |

Choose at least one of the Specializations listed.

| | |
|---|---|
| **Total Degree Requirements** | **30** |

## Specializations:

### Aviation and Aerospace Sustainability

| | | |
|---|---|---|
| AASI 600 | Sustainable Aviation and Aerospace Perspectives | 3 |
| AASI 625 | Sustainability Policy in Aviation and Aerospace | 3 |
| AASI 629 | Sustainable Air Vehicles; Design and Propulsion | 3 |

### Small Uncrewed Aircraft Systems (sUAS) Operations

Students declaring the sUAS Operations Specialization or registering for courses within it must be physically located within the U.S. when registering for and while participating in the UNSY 520 and UNSY 620 courses. Students must contact their Academic Advisor regarding additional cost, possible travel, and FAA Testing, prior to enrolling in the first course of this specialization, UNSY 515.

| | | |
|---|---|---|
| UNSY 515 | sUAS Operation Fundamentals | 3 |
| UNSY 520 | sUAS Practical Application and Assessment | 3 |
| UNSY 620 | sUAS Operational Planning and Safety Management | 3 |

### Uncrewed and Autonomous Systems

| | | |
|---|---|---|
| UNSY 501 | Application of Uncrewed and Autonomous Systems | 3 |
| UNSY 603 | Uncrewed and Autonomous Systems Operational Configuration | 3 |
| UNSY 503 | Legal and Regulatory Issues in Uncrewed and Autonomous Systems | 3 |

### Space Operations

| | | |
|---|---|---|
| SPAC 511 | Geospatial Analytics | 3 |
| SPAC 512 | Human Spaceflight Industry | 3 |
| SPAC 514 | Commercial and Governmental Space Infrastructure | 3 |

### Aviation Safety

| | | |
|---|---|---|
| MSAS 611 | Aviation/Aerospace System Safety | 3 |
| MSAS 615 | Aviation/Aerospace Accident Investigation and Analysis | 3 |
| MSAS 621 | Aviation/Aerospace Safety Program Management | 3 |

### Human Factors

| | | |
|---|---|---|
| MSHF 606 | Human Cognition | 3 |
| MSHF 612 | Human Performance, Limitation, and Error | 3 |
| MSHF 624 | Ergonomics and Biomechanics | 3 |

### Aviation Maintenance

| | | |
|---|---|---|
| MAVM 601 | Leadership in Global Aviation Maintenance Organizations | 3 |
| MAVM 605 | Global Maintenance Resource Management | 3 |
| MAVM 615 | Strategic Management of Global Maintenance, Repair and Overhaul (MRO) Operations | 3 |

### Aviation Cybersecurity

| | | |
|---|---|---|
| MACY 515 | Foundations of Aviation Cybersecurity | 3 |
| MACY 520 | Aviation Cybersecurity Threats, Actors, Tools, and Techniques | 3 |
| MACY 525 | Aviation Cybersecurity Risk Management and Resilience | 3 |

### Research

| | | |
|---|---|---|
| RSCH 670 | Research Methods | 3 |
| RSCH 700A | Thesis I | 3 |
| RSCH 700B | Thesis II | 3 |

# M.S. in Aviation and Aerospace Sustainability

The Master of Science in Aviation and Aerospace Sustainability (MSAAS) degree program presents an emerging and proactive way to examine and manage aviation/aerospace sustainability. It is designed to teach students about new sustainable technologies, Sustainable Aviation Fuels, sustainability strategies, emissions schemes and standards for aviation and aerospace organizations, creating a competitive advantage for the industry while improving the world. Today, the aviation and aerospace industry operates under global mandates, such as the Net-Zero Pathways or the UN Sustainable Development Goals, recognizing the need to address social and environmental factors and economic ones for sustainable development. Under that perspective, this program cultivates a growth mindset, knowledge, and skills needed to promote aviation and aerospace sustainability. Students will apply existing environmental schemes to reduce the industry's carbon footprint and enhance sustainability practices within the industry's operations and procedures, evaluate new a/c designs and technologies, and examine a/c decommissioning processes and Sustainable Aviation Fuels, among others. The MSAAS provides a collaborative learning environment with opportunities to challenge current thought processes, work in autonomous or group settings and connect with diverse populations worldwide.

## Program-Specific Criteria

### Prerequisite Knowledge

Subject knowledge for a specific graduate course must be satisfied before enrollment in that course is permitted. Students may enroll in graduate-level classes only if they meet prerequisite knowledge requirements. Applicants to the MSAAS program must meet the following criteria:

- Have completed a bachelor's degree from an accredited institution, international equivalent, or closely related bachelor of science program, preferably a STEM degree.
- Have superior academic records with a minimum cumulative grade point average (CGPA) of 2.5;
- NOTE: International applicants whose primary language is not English must meet all university requirements

View information for B.S. in Aeronautics (BSA) students who wish to continue on to the M.S. in Aviation and Aerospace Sustainability (MSAAS) degree by enrolling in the BSA-MSAAS Combined Program Pathway.

The Master of Science in Aviation and Aerospace Sustainability program is recognized by the Royal Aeronautical Society (RAeS).

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Evaluate the application of environmental tools and policy schemes in the aviation and aerospace industry.
- Create sustainable operations for the aviation and aerospace industry.
- Apply leading-edge sustainable aviation and aerospace technologies and solutions.
- Create sustainable best management practices for economic sustainability.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| AASI 600 | Sustainable Aviation and Aerospace Perspectives | 3 |
| AASI 605 | Aviation and Aerospace Sustainable Organizations | 3 |
| AASI 607 | Airport Sustainability Operations | 3 |
| AASI 611 | Sustainable Aviation Fuels and Carbon Offsetting | 3 |
| AASI 613 | Sustainable Air Traffic Management | 3 |
| AASI 625 | Sustainability Policy in Aviation and Aerospace | 3 |
| AASI 629 | Sustainable Air Vehicles; Design and Propulsion | 3 |
| AASI 635 | Sustainable Aviation Techniques and Tools | 3 |
| AASI 637 | Aircraft Decommissioning and Circular Economy | 3 |
| AASI 639 | Aviation Corporate Sustainability Management | 3 |
| **Total Credits** | | **30** |

# Master of Aviation Cybersecurity

Aviation cybersecurity encompasses a very broad and specialized environment that includes risks to avionics, in-flight entertainment systems, air traffic management systems, aviation maintenance systems, aviation supply chains, airport operations, and aerospace operations. Aviation cybersecurity threats include attacks to steal customer and proprietary data, disrupt airport operations and aircraft maintenance and potentially impact aircraft flight navigation and tracking. Over the past several years we have seen information on hundreds of millions of aviation customers stolen in cyber-attacks. In addition to data breaches, aviation systems have also been targeted in ransomware attacks where information and services are made unavailable until a ransom is paid. Aviation experts have also expressed concern over potential vulnerabilities in newer aviation technologies that communicate information between aircraft and with air traffic control and ground services without any authentication or encryption, which could allow injection of false messages and ghost aircraft.

In response to the tremendous need to protect the aviation ecosystem, Embry-Riddle, as an internationally recognized education leader in aviation and cybersecurity expertise offers the Master of Aviation Cybersecurity (MAC) program to both define and lead the field of aviation cybersecurity.

The MAC is an academically robust graduate aviation cybersecurity program that will benefit stakeholders both in industry and in the government.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Evaluate the air transportation ecosystem impacts.
- Apply fundamentals of cybersecurity and information assurance.
- Examine the impact of operation technology on aviation/aerospace supply chains, maintenance, and operations.
- Evaluate cybersecurity risks within the aviation/aerospace ecosystem.
- Develop effective cybersecurity mitigation strategies specific to the aviation/aerospace ecosystem.
- Analyze cybersecurity risks and strategies.
- Communicate cybersecurity risks and strategies with both technical and non-technical stakeholders.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| ASCI 602 | The Air Transportation System | 3 |
| MAVM 609 | Aircraft Maintenance Management | 3 |
| MACY 515 | Foundations of Aviation Cybersecurity | 3 |
| MACY 520 | Aviation Cybersecurity Threats, Actors, Tools, and Techniques | 3 |
| MACY 525 | Aviation Cybersecurity Risk Management and Resilience | 3 |
| MACY 510 | Security Engineering and Management | 3 |
| MACY 516 | Operational Technology Risks in Aviation - IoT, ICS, SCADA | 3 |
| MACY 517 | Uncrewed and Autonomous Systems Cybersecurity | 3 |
| SPAC 515 | Cybersecurity Applications in Space | 3 |
| MACY 526 | Cybersecurity Standards, Laws, and Regulations | 3 |
| **Total Credits** | | **30** |

# Master of Aviation Maintenance

The Master of Aviation Maintenance (MAM) degree program is designed to provide students with the knowledge and skills to function as competent supervisors and managers of aviation maintenance programs in a dynamic and highly complex aviation global industry.

Students will develop a practical and analytical approach to problem-solving that will meet the challenges of managing and leading an aviation maintenance organization. The objective of the MAM is to provide the skills necessary for students to become influential professionals in the aviation maintenance industry. Within this context, the main goals of the MAM program are to provide students the opportunity to acquire the knowledge, skills, and abilities central to aviation maintenance and related industries. The program will provide the needed academic tools for students to become effective professionals, leaders, team members, managers, and undertake lifelong learning for continuing professional development.

View information for B.S. in Aviation Maintenance students who wish to continue on to the Master of Aviation Maintenance degree by enrolling in the BSAVM-MAM Combined Program Pathways.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Integrate aviation maintenance within a global business environment.
- Develop strategies for managing the resources of global aviation maintenance.
- Analyze data to make decisions for gaining efficiencies within the global aviation maintenance organization.
- Integrate a safety culture into a global aviation maintenance environment.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| AASI 635 | Sustainable Aviation Techniques and Tools | 3 |
| ASCI 674 | Project Management in Aviation/Aerospace | 3 |
| MAVM 601 | Leadership in Global Aviation Maintenance Organizations | 3 |
| MAVM 605 | Global Maintenance Resource Management | 3 |
| MAVM 609 | Aircraft Maintenance Management | 3 |
| MAVM 615 | Strategic Management of Global Maintenance, Repair and Overhaul (MRO) Operations | 3 |
| MAVM 625 | Trends and Challenges for Global Aviation Maintenance Organizations | 3 |
| MAVM 644 | Integrated Logistics In Aviation Management | 3 |
| MSAS 611 | Aviation/Aerospace System Safety | 3 |
| MSAS 612 | Aviation/Aerospace Industrial Safety Management | 3 |
| **Total Degree Requirements** | | **30** |

# M.S. in Aviation Safety

Safety is at the very heart of all we do in aviation. Our industry has an enviable safety record, but we can never take that for granted. It takes knowledge, experience, and hard work to keep the public's trust. The Master of Science in Aviation Safety (MSAVS) will give you the skills and abilities you need to advance the safety and efficiency of our aviation system today, while meeting the challenges of tomorrow.

As a student in the Master of Science in Aviation Safety program, you will learn the theory and application of system safety and human performance, as well as the practical management of safety programs, safety data analysis, and accident investigation. You will hone your critical thinking, teamwork, and communication skills while learning from experts in the field and collaborating with students from around the world. Subject areas include industrial and ground safety and emergency management as well as flight operations safety. This program will prepare you for a career in operations or safety with traditional employers such as major airlines, or with new entrants in uncrewed systems or commercial space.

Students interested in pursuing careers in research or academia have the option to complete a thesis.

View information for BS in Aviation Safety (BSAVS) students who wish to continue on to the M.S. in Aviation Safety (MSAVS) degree by enrolling in the BSAVS-MSAVS Combined Program Pathways.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Apply knowledge of mathematics, science, and applied sciences at various levels of education.
- Interpret data provided from various sources.
- Make positive contributions and function on multi-disciplinary teams.
- Understand professional and ethical responsibility as it applies to the aviation industry.
- Communicate effectively using technical writing and verbal communication skills.
- Recognize the need for, and be able to engage in, lifelong learning.
- Reflect knowledge of contemporary issues affecting the aviation industry.
- Use the techniques, skill, and modern technology necessary for professional practice.
- Possess an understanding of the national and international aviation environment.
- Apply pertinent knowledge in identifying and solving problems.
- Possess knowledge and understanding of business sustainability as it applies to aviation industry issues.
- Apply advanced qualitative and quantitative problem-solving skills.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| ASCI 604 | Human Factors in the Aviation/Aerospace Industry | 3 |
| ASCI 645 | Airport Operations and Management | 3 |
| MSAS 611 | Aviation/Aerospace System Safety | 3 |
| MSAS 612 | Aviation/Aerospace Industrial Safety Management | 3 |
| MSAS 615 | Aviation/Aerospace Accident Investigation and Analysis | 3 |
| MSAS 621 | Aviation/Aerospace Safety Program Management | 3 |
| MSAS 627 | Aviation Safety Data Management and Analysis | 3 |
| RSCH 665 | Statistical Analysis | 3 |
| SFTY 540 | Disaster Preparedness and Emergency Response | 3 |
| ASCI 693 | Current Research Problems in Aviation/ Aerospace | 3 |
| **Total Credits** | | **30** |

### Thesis Option

| | | |
|---|---|---|
| RSCH 700A | Thesis I | 3 |
| RSCH 700B | Thesis II | 3 |
| **Total Degree Requirements (Thesis Option)** | | **36** |

# Master of Space Operations

The Master of Space Operations (MSO) provides graduates of the program the necessary knowledge, skills and abilities to secure meaningful careers within today's growing space industry. This industry encompasses three major entities including: commercial space companies such as Blue Origin, civil space entities such as NASA, and the Department of Defense, such as the military's new Space Force. The degree program will be offered fully online, along with additional options for other learning modalities. The MSO degree takes a balanced approach with integrated and interdisciplinary curriculum rooted in areas of 1) domain awareness, 2) technical understanding and 3) functional execution.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Evaluate key elements within the space domain and its operational ecosystem.
- Apply STEM principles and theory necessary for conducting spaceflight operations.
- Create strategies for developing space capability and executing spaceflight missions.
- Demonstrate the requisite professional skills desired by large multinational agencies.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| **Space Operations Core** | | |
| SPAC 500 | Overview of the Space Ecosystem | 3 |
| SPAC 505 | The Launch Industry | 3 |
| SPAC 510 | The Satellite Communications Industry | 3 |
| SPAC 511 | Geospatial Analytics | 3 |
| SPAC 512 | Human Spaceflight Industry | 3 |
| SPAC 514 | Commercial and Governmental Space Infrastructure | 3 |
| SPAC 515 | Cybersecurity Applications in Space | 3 |
| SPAC 520 | Principles of Space Systems | 3 |
| SPAC 525 | Space Law and Policy | 3 |
| PMGT 652 | Concepts and Practices of Project Management | 3 |
| **Total Credits** | | **30** |

# M.S. in Space Systems

The Master of Science in Space Systems (MSSS) program provides technically oriented graduate students with the skills and knowledge they will need to advance their careers in space systems program management. MSSS begins by providing students with the necessary background in the economics, policy, and systems engineering skills needed to become a successful program manager. Building on this foundation, the majority of the coursework provides students with the experience of developing real world space systems. Students will learn to develop, design, and execute the architecture of trade studies necessary for successful system development.

## Program-Specific Criteria

### Admissions Criteria

In addition to the established admissions requirements, applicants for admission to the Master of Science in Space Systems degree program must meet the following criteria:

- Provide evidence of an undergraduate STEM degree. STEM field of study is a field of study *"included in the Department of Education's Classification of Instructional Programs (CIP) taxonomy within the 2-digit series containing engineering, biological sciences, mathematics, and physical sciences, or a related field. In general, related fields will include fields involving research, innovation, or development of new technologies using engineering, mathematics, computer science, or natural sciences (including physical, biological, and agricultural sciences)."*

**EXCEPTIONS:** Applicants with degrees from all other disciplines may be considered for conditional admission under circumstances determined by the Admissions Office and/or Program Coordinator. Conditions of admission will be determined on a case-by-case basis.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Design a range of space systems using systems engineering principles.
- Create strategies for developing space systems which optimally achieve mission, financial and organizational goals.
- Synthesize strategic critical thinking skills to effectively determine tradeoffs based on sound technical and business judgement.
- Analyze the technical characteristics and performance parameters of current and future systems and components in the context of a space system.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| SPAC 500 | Overview of the Space Ecosystem | 3 |
| SPAC 520 | Principles of Space Systems | 3 |
| SPAC 525 | Space Law and Policy | 3 |
| SYSE 500 | Fundamentals of Systems Engineering | 3 |
| MSSS 550 | Space Transportation Systems | 3 |
| MSSS 530 | Earth Observation Systems | 3 |
| MSSS 560 | SATCOM Systems | 3 |
| MSSS 570 | Space Science Systems | 3 |
| SPAC 515 | Cybersecurity Applications in Space | 3 |
| MSSS 540 | Human Spaceflight Systems | 3 |
| **Total Credits** | | **30** |

# M.S. in Uncrewed and Autonomous Systems

If you work in the uncrewed industry, the Master of Science in Uncrewed and Autonomous Systems (MSUAS) program will broaden your perspective, deepen your knowledge, and help you move to the next level in your career.

Alternatively, if you work in a field outside uncrewed systems, the MSUAS will help you to build your knowledge base, explore the potential of uncrewed technology in your own industry, advance into new career prospects and prepare you to be the expert on this rapidly advancing technology in your workplace.
In this program, you will:

- Learn from instructors with real-world industry, government, and research experience.
- Network with students, alumni, and faculty with a passion for uncrewed systems.
- Learn the essentials of uncrewed technology, including propulsion, control, communications, autonomy, sensing, and data processing.
- Refine the critical skill of communicating complex technical material to a general audience.
- Practice the team building and collaboration skills that are highly valued by employers.

In addition to helping you capitalize on the opportunities offered by uncrewed technology today, this degree will prepare you to be a leader in the dynamic, exciting future that uncrewed technology offers.

View information for B.S. in Uncrewed and Autonomous Systems students who wish to continue on to the M.S. in Uncrewed and Autonomous Systems degree by enrolling in the BSUAS-MSUAS Combined Program Pathways.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Discuss the origination of system capabilities, processes, and technology.
- Examine the effects of the legal and regulatory process on industry practices.
- Investigate uncrewed systems platform and payload selection based on mission oriented goals.
- Explain factors influencing the adoption and use of associated system technologies, in relation to past, present, and emerging perspectives.

- Analyze data through the use of appropriate methods supporting application and operations.
- Investigate how related technologies could affect future markets.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| UNSY 501 | Application of Uncrewed and Autonomous Systems | 3 |
| UNSY 502 | Current Issues in Uncrewed and Autonomous Systems | 3 |
| UNSY 503 | Legal and Regulatory Issues in Uncrewed and Autonomous Systems | 3 |
| UNSY 603 | Uncrewed and Autonomous Systems Operational Configuration | 3 |
| UNSY 606 | Uncrewed and Autonomous Systems Interoperability and Control | 3 |
| MACY 517 | Uncrewed and Autonomous Systems Cybersecurity | 3 |
| **Total Credits** | | **18** |

| | |
|---|---|
| **Specialization** | **12** |

Select one specialization from the following list (includes 4 specific courses per):

| | |
|---|---|
| **Total Degree Requirements** | **30** |

### Specializations

**Small Uncrewed Aircraft System (sUAS) Operations**

Students declaring the sUAS Operations Specialization or registering for courses within it must be physically located within the U.S. when registering for and while participating in the UNSY 520 and UNSY 620 courses. Students must contact their Academic Advisor regarding additional cost, possible travel, and FAA Testing, prior to enrolling in the first course of this specialization, UNSY 515.

| | | |
|---|---|---|
| UNSY 515 | sUAS Operation Fundamentals | 3 |
| UNSY 520 | sUAS Practical Application and Assessment | 3 |
| UNSY 620 | sUAS Operational Planning and Safety Management | 3 |
| UNSY 625 | sUAS Advanced Fixed-Wing Operations | 3 |

**Technical Development and Support**

| | | |
|---|---|---|
| SYSE 500 | Fundamentals of Systems Engineering | 3 |
| SYSE 530 | System Requirements Analysis and Modeling | 3 |
| UASE 531 | Robotics and Control | 3 |
| UNSY 635 | Remote Sensing Data Analysis | 3 |

**Research**

| | | |
|---|---|---|
| RSCH 665 | Statistical Analysis | 3 |
| RSCH 670 | Research Methods | 3 |
| RSCH 700A | Thesis I | 3 |
| RSCH 700B | Thesis II | 3 |

# Minor in Air Traffic Management

The goals and objectives of the air traffic management minor focus on air traffic management and operational concepts, providing students an understanding of the industry while emphasizing its global applications and overall safety. The air traffic control market is projected to grow substantially over the next several years. This growth is driven by the modernization of the air traffic management (ATM) infrastructure, the increase in the number of airports in emerging economies, and the need for more efficient airspace management. The ATM minor is designed for military and civilian students currently working as controllers, those in related aviation fields, and individuals interested in Air Traffic Control (ATC) and Air Traffic Management (ATM).

| | | |
|---|---|---|
| ASCI 301 | Introduction to Air Traffic Control | 3 |
| WEAX 301 | Aviation Weather | 3 |
| ASCI 303 | Tower and Radar for Air Traffic Control and Management | 3 |
| ASCI 403 | Air Traffic Management | 3 |
| ASCI 411 | Human Factors in ATM | 3 |
| ASCI 426 | Airport Management in ATM | 3 |
| **Total Credits** | | **18** |

# Minor in Applied Meteorology

The Minor in Applied Meteorology introduces the student with an interest in weather to the intriguing world of meteorology.

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| WEAX 201 | Meteorology I | 3 |
| WEAX 301 | Aviation Weather | 3 |
| WEAX 322 | Space Weather | 3 |
| WEAX 327 | Operational Analysis and Forecasting | 3 |
| WEAX 363 | Thunderstorms | 3 |
| **Total Credits** | | **15** |

# Minor in Aviation Maintenance Operations

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Not open to BS in Aviation Maintenance students.*

| | | |
|---|---|---|
| AMNT 322 | Aircraft Inspection and Scheduled Maintenance Programs | 3 |
| AMNT 416 | Aviation Maintenance Management: A Global Perspective | 3 |
| AMNT 424 | Maintenance Repair and Overhaul in Aviation | 3 |

| | | |
|---|---|---|
| AMNT 429 | Advanced Technologies in Design and Production of Aircraft Structures and Systems | 3 |
| LGMT 411 | Logistics Management for Aviation/Aerospace | 3 |
| OBLD 427 | Management of the Multicultural Workforce | 3 |
| **Total Credits** | | **18** |

## Minor in Aviation Safety

Aviation Safety is an exciting facet of the aviation field that deals with predicting and preventing flight accidents, and aviation safety management. This minor will help students to learn the basics of safety and accident prevention by studying human factors of accidents, mechanical failures, and systems failures. Additionally, the Aviation Safety minor program is designed to provide students with a knowledge of practices and procedures used in establishing and maintaining an effective safety program and promote a safety culture.

This program will serve as a foundation for students with an interest in pursuing graduate work or a career in this area of study.

*Not open to BS in Aviation Maintenance/Safety Specialization only.*
*Not open to BS in Pilot Operations students.*
*Not open to B.S. in Aviation Safety students.*

| | | |
|---|---|---|
| BSAS 320 | Human Factors in Aviation Safety | 3 |
| BSAS 330 | Aircraft Accident Investigation | 3 |
| BSAS 335 | Mechanical and Structural Factors in Aviation Safety | 3 |
| BSAS 345 | Aviation Safety Program Management | 3 |
| BSAS 409 | Aviation Safety | 3 |
| SFTY 426 | System Safety Management | 3 |
| **Total Credits** | | **18** |

## Minor in Cybersecurity Application and Management

The Cybersecurity Application and Management Minor program (15 credits, 5 courses) is open to all majors and explores the many approaches and meanings of this field that is fast becoming central to our nation's security. As we see every day in the press, cyber security can be used for offensive or defensive purposes. The approaches to defending critical infrastructures such as the energy grid, financial systems, the healthcare system, or agriculture, etc, can be either proactive (e.g., installing a firewall to detect and prevent attacks) or reactive (e.g., responding to an event). This program will introduce students to cyber security operations (e.g., day-to-day duties, actions, and responsibilities), governance (e.g., law, policy, and analysis), and education and training.

*Not open to BS in Technical Management, Business Cybersecurity Major students.*

| | | |
|---|---|---|
| CYBR 235 | Computer and Network Technologies | 3 |
| CYBR 335 | Information Security Tools and Techniques | 3 |
| CYBR 365 | Introduction to Digital Forensics | 3 |
| CYBR 465 | Cybercrime and Cyberlaw | 3 |
| CYBR 485 | War, Terrorism, and Diplomacy in Cyberspace | 3 |
| **Total Credits** | | **15** |

## Minor in Helicopter Operations and Safety

This Minor explores the dynamic world of helicopter operations, a multidisciplinary powerhouse within the aviation industry, boasting over 44 unique missions. Experience the unparalleled versatility of helicopters, a key driver of industry growth and innovation. Coursework offers an immersive journey through the historical, manufacturing, safety, and operational facets of the helicopter sector. Students study physiological considerations, tackle challenges in diverse flight environments, and explore the latest technologies. Learn how to integrate aviation safety seamlessly into real-world helicopter operations. Designed in collaboration with industry experts, the program equips you with the practical knowledge and skills essential for a successful career in helicopter operations.

| | | |
|---|---|---|
| ASCI 317 | Rotorcraft | 3 |
| ASCI 378 | Helicopter Flight Environments | 3 |
| ASCI 388 | Helicopter Flight Planning | 3 |
| ASCI 428 | Advanced Helicopter Systems and Functions | 3 |
| ASCI 438 | Advanced Helicopter Operations | 3 |
| BSAS 409 | Aviation Safety | 3 |
| **Total Credits** | | **18** |

## Minor in Small Uncrewed Aircraft Systems (sUAS) Operation

The Small Uncrewed Aircraft Systems Operation minor will provide students with the knowledge, skills, and abilities (KSAs) specific to the safe, responsible, and effective operation and application of small uncrewed aircraft systems (sUAS). The goal is to give students an opportunity to work towards an sUAS operator certification within the framework of the university's academic setting. While core content required for successful completion of FAA theoretical knowledge testing will be provided, the minor also aims to build some operational experience and skills beyond the basic scope of FAA certification, thus, expanding the student's KSAs in planning, execution, and support of sUAS operation.

**Eligibility:**
Students declaring the sUAS Operation Minor or registering for courses within it must be physically located within the U.S while participating in the UNSY 435 course.

**Important Notes:**
1) Students must contact their Academic Advisor regarding additional cost, possible travel, and FAA Testing, prior to enrolling in the first course of this minor.
2) Courses must be taken in the sequence as outlined in the requirements below.

| | | |
|---|---|---|
| ASCI 121 | Private Pilot Operations | 5 |
| BSAS 409 | Aviation Safety | 3 |
| UNSY 235 | sUAS Flight and Mission Planning | 3 |
| UNSY 235L | sUAS Flight and Mission Planning Laboratory | 1 |
| UNSY 435 | sUAS Practical Application and Assessment | 3 |
| UNSY 440 | Advanced Flight Operations | 3 |
| **Total Credits** | | **18** |

## Minor in Space Studies

The Minor in Space Studies provides undergraduates with foundational knowledge across the space domain. The growth of the space industry requires professionals who are capable of communicating and understand the nature of operating in space. The minor provides the initial knowledge and delivers content in a balanced method to include operational roles, engineering, and orbital navigation.

| | | |
|---|---|---|
| ASCI 110 | Introduction to Space Flight | 3 |
| SPAC 300 | Satellite and Spacecraft Systems | 3 |
| SPAC 310 | Human Factors in Space | 3 |
| SPAC 330 | Spaceflight and Operations Training | 3 |
| SPAC 400 | Introduction to Space Navigation | 3 |
| UNSY 415 | Uncrewed Space Systems and Application | 3 |
| **Total Credits** | | **18** |

# Minor in Uncrewed and Autonomous Systems

Uncrewed and autonomous systems (UAS) represent a significantly growing segment of the aviation/aerospace industry that provides an important capabilities modifier for military, civil, and commercial users. Understanding the historical background, development, integration, and application of this technology, coupled with a detailed comprehension of the regulatory framework, support requirements, advantages and limitations, industry needs, elemental composition, and planning provisions, provides students with the knowledge necessary to succeed in this field. Through this minor course of study, you will gain exposure and experience connected to the fundamental concepts, principles, and methods associated with the use, development, configuration, and support of UAS and the associated technology.

*Not open to BS in Uncrewed and Autonomous Systems students*

| | | |
|---|---|---|
| UNSY 315 | Uncrewed Aircraft Systems and Operations | 3 |
| UNSY 316 | Operational and Business Aspects of Uncrewed Aircraft Systems | 3 |
| UNSY 318 | Uncrewed Aircraft Systems Robotics | 3 |
| ASCI 404 | Applications in Aviation & Aerospace Law | 3 |
| ASCI 406 | Airborne Law Enforcement | 3 |
| UNSY 410 | Uncrewed Systems Sensing Technology | 3 |
| **Total Credits** | | **18** |

# Undergraduate Certificate in Aviation Maintenance Technology Part 65

The Aviation Maintenance Technology Certificate provides broad knowledge of general aeronautics, airframe systems, and powerplant systems.

Courses taken in this Certificate can be used to prepare for the A&P testing process. For those individuals who meet the experience requirements established by the FAA, these courses help prepare the applicant for the written, oral, and practical examinations. Experience requirements can be found in Part 65 of the Federal Aviation Regulations.

To be eligible for the award of an undergraduate certificate, a student must achieve a cumulative GPA of 2.0 or higher for the courses included in the program. The cumulative GPA for the series of courses in the certificate program must be 2.0 or higher on a 4.0 scale.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Aviation Maintenance Technology Part 65

### Certificate

| | | |
|---|---|---|
| AMNT 240 | General Aeronautics and Applications | 3 |
| AMNT 260 | Aircraft Electrical Systems Theory | 3 |
| AMNT 270 | Airframe Structures and Applications | 3 |
| AMNT 271 | Airframe Systems and Applications | 3 |
| AMNT 280 | Reciprocating Engine Theory and Applications | 3 |
| AMNT 281 | Turbine Engine Theory and Applications | 3 |
| **Total Credits** | | **18** |

Estimated Cost of Attendance: https://nextcatalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Apply the fundamentals of airframe maintenance to demonstrate basic troubleshooting techniques.
- Apply the fundamentals of general aviation maintenance to recognize problems and recommend solutions.
- Apply the fundamentals of powerplant maintenance and knowledge of basic troubleshooting techniques to solve common powerplant systems problems.
- Demonstrate adequate preparation to take the FAA AP written, oral, and practical examination.

# Undergraduate Certificate in Uncrewed Systems Technology

The uncrewed systems technology certificate allows students to establish their expertise and skills in the uncrewed systems technologies. The courses will give them practical application of system controls, task-oriented applications of uncrewed systems, an understanding of business operations, and knowledge of all aspects, including ground, air, and maritime domains. Certificate holders will be able to assume technical roles in organizations that wish to expand their utilization of uncrewed systems and related capabilities. The Uncrewed Systems Undergraduate AS Certificate Program consists of 6 courses that result in students earning 18 undergraduate credit hours.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Uncrewed Systems Technology

### Certificate

| | | |
|---|---|---|
| UNSY 205 | Applied Physics for Uncrewed Systems | 3 |
| UNSY 313 | Uncrewed Maritime Systems and Applications | 3 |
| UNSY 315 | Uncrewed Aircraft Systems and Operations | 3 |
| UNSY 316 | Operational and Business Aspects of Uncrewed Aircraft Systems | 3 |
| UNSY 318 | Uncrewed Aircraft Systems Robotics | 3 |
| UNSY 331 | Uncrewed Systems Legal and Regulatory Compliance | 3 |
| **Total Credits** | | **18** |

Estimated Cost of Attendance: https://nextcatalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Recognize the fundamentals of uncrewed systems and uncrewed systems operations.
- Identify different task requirements under varying operational circumstances in order to select appropriate solutions during mission planning and execution.
- Analyze a variety of managerial aspects to conduct different uncrewed systems applications.

# Graduate Certificate in Aviation and Aerospace Sustainability

The Aviation and Aerospace Sustainability professional graduate certificate considers how stakeholders, including society, governments, and the aviation industry, need to respond to the concerns of global climate change, aircraft noise disturbance, resource use, and waste production. This certificate is designed for those who are in the aviation and aerospace fields and want to gain an advantage for job advancement and demonstrate their expertise in sustainability. Courses are designed to prepare and train applicants with pertinent theory, real world application, and different tools and frameworks to develop and implement sustainable aviation and aerospace solutions.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Aviation and Aerospace Sustainability

### Certificate

| | | |
|---|---|---|
| AASI 600 | Sustainable Aviation and Aerospace Perspectives | 3 |
| AASI 625 | Sustainability Policy in Aviation and Aerospace | 3 |
| AASI 629 | Sustainable Air Vehicles; Design and Propulsion | 3 |
| Select one of the following: | | |
| AASI 607 | Airport Sustainability Operations | 3 |
| AASI 611 | Sustainable Aviation Fuels and Carbon Offsetting | 3 |
| AASI 637 | Aircraft Decommissioning and Circular Economy | 3 |
| AASI 639 | Aviation Corporate Sustainability Management | 3 |
| **Total Credits** | | **12** |

Estimated Cost of Attendance: https://nextcatalog.erau.edu/worldwide/dean-of-students/california-student/cost/

### Student Learning Outcomes

**Students will:**

- Evaluate the application of environmental tools and policy schemes in the aviation and aerospace industry.
- Create sustainable operations for the aviation and aerospace industry.
- Create sustainable best management practices for economic sustainability.
- Apply leading-edge sustainable aviation and aerospace technologies and solutions.

# Graduate Certificate in Aviation Safety

Safety is the bedrock of a vibrant aviation industry. As aviation professionals, we work tirelessly to earn and keep the public's trust. The graduate certificate in aviation safety will help you understand the fundamental principles and practices that keep our industry safe.

Designed for students who want a solid foundation in safety but are not at the point of seeking a graduate degree, the certificate in aviation safety covers system safety in design and manufacturing, operational safety program management, accident investigation, and industrial safety. The certificate is appropriate for business managers, airport directors, pilots, project engineers, maintainers, industry planners, manufacturers, policy and law advisers, consultants, and others involved in managing day-to-day processes within the aviation industry.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Aviation Safety

### Certificate

| | | |
|---|---|---|
| MSAS 611 | Aviation/Aerospace System Safety | 3 |
| MSAS 615 | Aviation/Aerospace Accident Investigation and Analysis | 3 |
| MSAS 621 | Aviation/Aerospace Safety Program Management | 3 |
| MSAS 612 | Aviation/Aerospace Industrial Safety Management | 3 |
| **Total Credits** | | **12** |

Estimated Cost of Attendance: https://nextcatalog.erau.edu/worldwide/dean-of-students/california-student/cost/

### Student Learning Outcomes

**Students will:**

- Employ sound management and systems engineering skills to analyze the integration of safety skills and resources into all phases of a system's life-cycle.
- Assess all the aspects of the aircraft accident investigation process.
- Use essential skills and methodology needed to plan and manage an effective aviation safety program under SMS guidelines.
- Apply and evaluate occupational safety and health regulations in the aviation work environment.

# School of Engineering

Dr. Joseph J. Rencis, Associate Dean

The mission of the School of Engineering is to deliver state-of-the-art engineering science skills to Embry Riddle's online engineering programs ranging from engineering certificates, associate degrees, and ABET-accredited bachelor degrees, to master-level engineering science programs. The School of Engineering (SoE) is located in the College of Aviation where the synergy between engineering and other fields of aeronautics is alive and well. The focus area at the undergraduate level lies in general engineering with a mechanical, electrical, aerospace, and robotics flavor. A newly established bachelor of science in software engineering program will be offered too. On the master's level, the focus is on systems and aerospace engineering.

The School of Engineering faculty possess real-world engineering experience in academic research, the private sector, government, or international organizations. Our valued adjunct faculty are current in their scientific or engineering fields and share their knowledge on a part-time basis.

For Faculty lists and other information view the College of Aviation website.

## Degrees

### Associates

- A.S. in Engineering Fundamentals

### Bachelors

- B.S. in Engineering
- B.S. in Engineering Technology
- B.S. in Software Engineering

### Masters

- M.S. in Aerospace Engineering
- M.S. in Airworthiness Engineering
- M.S. in Systems Engineering

### Minor Courses of Study

- Engineering Sciences

### Certificates

#### Undergraduate

- Engineering Fundamentals

#### Graduate

- Airworthiness Engineering
- Systems Engineering

## A.S. in Engineering Fundamentals

The Associate of Science in Engineering Fundamentals (ASEF) program is Embry-Riddle Aeronautical University's latest offering for aspiring engineering students who want world-class educational opportunities that meet their needs in new and innovative ways.

Through this program, you can complete your associate's degree online with an opportunity to pursue your Bachelor of Science in Engineering by transferring into Worldwide's BSE program or apply to an Embry-Riddle residential campus in Florida or Arizona, or any other four-year college of your choice to continue your studies and earn your bachelor's degree. Embry-Riddle professors and program development experts carefully researched every aspect of this offering, creating a curriculum that features short nine-week terms which ultimately result in the 63 credit hours necessary to obtain your degree.

### Program-Specific Criteria

#### Admissions Criteria

In addition to meeting the Worldwide Campus admissions requirements, applicants for admission into the AS in Engineering Fundamentals degree program must:

- Complete the English and Math Skills Assessments prior to admission to determine academic preparedness for entry into ENGL 123 English Composition and MATH 241 Calculus and Analytical Geometry I.
- Current high school students and recent graduates under the age of 20 must meet established admissions requirements and demonstrate a 3.0 high school CGPA, with coursework that reflects 4 years of college preparatory mathematics and 2 years of college preparatory science, including a laboratory science.
- Transfer applicants must meet established admissions requirements and demonstrate a 2.5 cumulative grade point average (CGPA); transfer credit deemed equivalent to demonstrate academic preparedness for immediate entry into ENGL 123 English Composition and MATH 241 Calculus and Analytical Geometry I, will be considered for admission into the program. Skills Assessment scores will be used for advising purposes if English and Math transfer credit demonstrates academic preparedness for admission into the program.

Students who fail to satisfy the guidelines for full admission may be considered for conditional admission under circumstances determined by the Admissions Office. A written petition for admission, current resume and other supporting documentation may be requested for consideration of admission. Exceptions will be reviewed on a case by case basis.

Current Worldwide students requesting a change of program to the AS in Engineering Fundamentals must complete the English and Math Skills Assessments and demonstrate successful completion of at least 12 credit hours of Embry-Riddle coursework, achieving a minimum of a 2.5 cumulative grade point average (CGPA). Exceptions will be reviewed on a case by case basis.

The Associate of Science in Engineering Fundamentals (ASEF) program is accredited by the Applied and Natural Science Accreditation Commission (ANSAC) of ABET, https://www.abet.org, under the commission's General Criteria with no applicable program criteria.

Estimated Cost of Attendance: https://tcatalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

### Student Learning Outcomes

**Students will:**

- Have an ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.
- Have an ability to conduct experiments or test theories and analyze and interpret data.
- Have an ability to function effectively on teams.
- Have an ability to demonstrate the knowledge of professional and ethical responsibilities.
- Have an ability to communicate effectively.
- Have an ability to apply appropriate dimensional units.

# DEGREE REQUIREMENTS

## General Education

| General Education | | |
|---|---|---|
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, and Social Sciences may be chosen from those listed below, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | |
| ENGL 123 | English Composition | 3 |
| COMD 219 | Speech | 3 |
| ENGL 221 | Technical Report Writing | 3 |
| Humanities elective (HUMN 140 Series) | | 3 |
| ECON 225 | Engineering Economics | 3 |
| **Mathematics** | | |
| MATH 241 | Calculus and Analytical Geometry I | 4 |
| **Total Credits** | | **19** |

## Core/Major

| | | |
|---|---|---|
| ENGR 101 | Introduction to Engineering | 3 |
| ENGR 115 | Introduction to Computing for Engineers | 3 |
| ENGR 120 | Graphical Communications | 3 |
| ESCI 201 | Statics | 3 |
| ESCI 202 | Solid Mechanics | 3 |
| ESCI 204 | Dynamics | 3 |
| ESCI 206 | Fluid Mechanics | 3 |
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| MATH 243 | Calculus and Analytical Geometry III | 4 |
| MATH 345 | Differential Equations and Matrix Methods | 4 |
| PHYS 150 | Physics I for Engineers | 3 |
| PHYS 160 | Physics II for Engineers | 3 |
| PHYS 250 | Physics III for Engineers | 3 |
| PHYS 253 | Physics Laboratory for Engineers | 2 |
| **Total Credits** | | **44** |
| **Total Degree Requirements** | | **63** |

## Plan of Study (ASEF)

### Year One

| Term 1 | | Credits |
|---|---|---|
| ENGR 101 | Introduction to Engineering | 3 |
| ENGL 123 | English Composition | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| MATH 241 | Calculus and Analytical Geometry I | 4 |
| ENGR 115 | Introduction to Computing for Engineers | 3 |
| | Humanities (HUMN) Lower Level | 3 |
| | **Credits Subtotal** | **10.0** |
| **Term 3** | | |
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| PHYS 150 | Physics I for Engineers | 3 |
| | **Credits Subtotal** | **7.0** |
| **Term 4** | | |
| PHYS 160 | Physics II for Engineers | 3 |
| COMD 219 | Speech | 3 |
| ECON 225 | Engineering Economics | 3 |
| | **Credits Subtotal** | **9.0** |
| | **Credits Total:** | **32.0** |

### Year Two

| Term 1 | | Credits |
|---|---|---|
| ESCI 201 | Statics | 3 |
| MATH 243 | Calculus and Analytical Geometry III | 4 |
| ENGL 221 | Technical Report Writing | 3 |
| | **Credits Subtotal** | **10.0** |
| **Term 2** | | |
| ENGR 120 | Graphical Communications | 3 |
| ESCI 202 | Solid Mechanics | 3 |
| ESCI 204 | Dynamics | 3 |
| | **Credits Subtotal** | **9.0** |
| **Term 3** | | |
| ESCI 206 | Fluid Mechanics | 3 |
| MATH 345 | Differential Equations and Matrix Methods | 4 |
| | **Credits Subtotal** | **7.0** |
| **Term 4** | | |
| PHYS 250 | Physics III for Engineers | 3 |
| PHYS 253 | Physics Laboratory for Engineers | 2 |
| | **Credits Subtotal** | **5.0** |
| | **Credits Total:** | **31.0** |
| **Total Degree Requirements** | | **63** |

# B.S. in Engineering

The Bachelor of Science in Engineering (BSE) degree is designed from a multidisciplinary perspective with subject matter from mechanical engineering, electrical engineering, aeronautical, and systems engineering. The educational focus is anticipated to support the growth and innovative development of aerospace technologies and systems and address current industry challenges.

The BSE targets the high-school graduate, in addition to non-traditional and transfer students, to provide knowledge, skills, and abilities (KSAs) correlating to comprehension and application of essential engineering concepts. The curriculum features: 19 hours of mathematics, 11 hours of calculus-based physics, 66 hours of engineering, 6 hours of a senior level design project, and 21 hours of economics, communications, social sciences, and humanities.

The BSE program is accredited by the Engineering Accreditation Commission of ABET, https://abet.org.

## Program-Specific Criteria

### Admissions Criteria

In addition to meeting the Worldwide Campus admissions requirements, applicants for admission into the BS in Software Engineering, BS in Engineering, and BS in Engineering Technology degree programs must:

- Complete the English and Math Skills Assessments prior to admission to determine academic preparedness for entry into ENGL 123 English Composition and MATH 241 Calculus and Analytical Geometry I.
- Current high school students and recent graduates under the age of 20 must meet established admissions requirements and demonstrate a 3.0 high school CGPA, with coursework that reflects 4 years of college preparatory mathematics and 2 years of college preparatory science, including a laboratory science.
- Transfer applicants must meet established admissions requirements and demonstrate a 2.5 cumulative grade point average (CGPA); transfer credit deemed equivalent to demonstrate academic preparedness for immediate entry into ENGL 123 English Composition

and MATH 241 Calculus and Analytical Geometry I, will be considered for admission into the program. Skills Assessment scores will be used for advising purposes if English and Math transfer credit demonstrates academic preparedness for admission into the program.

Students who fail to satisfy the guidelines for full admission may be considered for conditional admission under circumstances determined by the Admissions Office OR may be considered for admission into an alternate program. A written petition for admission, current resume and other supporting documentation may be requested for consideration of admission. Exceptions will be reviewed on a case by case basis.

Current Worldwide students requesting a change of program to the BS in Software Engineering, BS in Engineering, or BS in Engineering Technology degree programs must demonstrate successful completion of the first year of the suggested plan of study in the AS in Engineering Fundamentals degree plan with a 2.5 GPA. Students may then work with their campus advisor to determine eligibility to add or change to the BS in Software Engineering, BS in Engineering, or BS in Engineering Technology degree programs. Exceptions will be reviewed on a case by case basis.

## Capstone Requirements:

1. Senior status is defined as having completed all Freshmen, Sophomore, and Junior year courses of the BSE program as published in the Suggested Plan of Study.

2. All courses **must** be completed prior to enrolling in ENGR 490 with the exception of those identified in Terms 3 and 4 of the Senior year as published in the BSE Suggested Plan of Study.

Estimated Cost of Attendance: https://nextcatalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Have an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- Have an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- Have an ability to communicate effectively with a range of audiences.
- Have an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- Have an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- Have an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- Have an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

# DEGREE REQUIREMENTS

## General Education

| General Education | | |
|---|---|---|
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, Social Sciences, Physical and Life Science, Mathematics, and Computer Science are given in the list below, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | |
| ENGL 123 | English Composition | 3 |
| ENGL 221 | Technical Report Writing | 3 |
| COMD 219 | Speech | 3 |
| **Mathematics** | | |
| MATH 241 | Calculus and Analytical Geometry I | 4 |
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| **Computer Science/Information** | | |
| ENGR 115 | Introduction to Computing for Engineers | 3 |
| **Physical and Life Sciences** | | |
| PHYS 150 | Physics I for Engineers | 3 |
| PHYS 160 | Physics II for Engineers | 3 |
| **Humanities**/Social Sciences** | | |
| Humanities Lower Level | | 3 |
| Humanities Upper Level | | 3 |
| Social Sciences Upper Level | | 3 |
| ECON 225 | Engineering Economics | 3 |
| **Total Credits** | | **38** |

## Core/Major

| Aeronautical Engineering | | |
|---|---|---|
| AERO 309 | Aerodynamic Performance of Flight Vehicles | 3 |
| ENGR 350 | Project Management for Engineered Systems | 3 |
| **Total Credits** | | **6** |

| Engineering | | |
|---|---|---|
| ENGR 101 | Introduction to Engineering | 3 |
| ENGR 120 | Graphical Communications | 3 |
| ENGR 330 | Signals & Systems | 3 |
| ENGR 331 | Signals & Systems Laboratory | 1 |
| ENGR 400 | Fundamentals of Energy Systems | 3 |
| ENGR 450 | Systems and Controls | 3 |
| **Total Credits** | | **16** |

| Engineering Science | | |
|---|---|---|
| ESCI 201 | Statics | 3 |
| ESCI 202 | Solid Mechanics | 3 |
| ESCI 204 | Dynamics | 3 |
| ESCI 325 | Engineering Materials and Structures | 3 |
| **Total Credits** | | **12** |

| Computer Engineering | | |
|---|---|---|
| CESC 220 | Digital Circuit Design | 3 |
| CESC 222 | Digital Circuit Design Laboratory | 1 |
| **Total Credits** | | **4** |

| Electrical Engineering | | |
|---|---|---|
| ELEC 220 | Circuits | 3 |
| ELEC 221 | Circuits Laboratory | 1 |
| ELEC 230 | Electronics | 3 |
| ELEC 231 | Electronics Laboratory | 1 |
| **Total Credits** | | **8** |

| Physical Science | | |
|---|---|---|
| PHYS 250 | Physics III for Engineers | 3 |
| PHYS 253 | Physics Laboratory for Engineers | 2 |
| ESCI 206 | Fluid Mechanics | 3 |
| ESCI 305 | Thermodynamics | 3 |
| **Total Credits** | | **11** |

| Mechanical Engineering | | |
|---|---|---|
| MECH 302 | Introduction to Robotics | 3 |

| | | |
|---|---|---|
| MECH 303 | Robotics Laboratory | 1 |
| MECH 313 | Instrumentation and Data Acquisition | 2 |
| MECH 314 | Instrumentation and Data Acquisition Laboratory | 1 |
| ENGR 404 | Mechatronics | 3 |
| ENGR 405 | Mechatronics Laboratory | 1 |
| **Total Credits** | | **11** |

| | | |
|---|---|---|
| **Mathematics** | | |
| MATH 243 | Calculus and Analytical Geometry III | 4 |
| MATH 345 | Differential Equations and Matrix Methods | 4 |
| STAT 412 | Probability and Statistics | 3 |
| **Total Credits** | | **11** |

| | | |
|---|---|---|
| **Capstone** | | |
| ENGR 490 | Capstone Design Project I | 3 |
| ENGR 491 | Capstone Design Project II | 3 |
| **Total Credits** | | **6** |

| | | |
|---|---|---|
| **Total Degree Requirements** | | **123** |

## Plan of Study (BSE)

### Planning Your Course Progression

Engineering courses (ENGR, ESCI, ELEC, AERO, MECH, CESC) are offered 5 times a year (August, October, January, March and May). ENGR 490 is offered 3 times a year (August, January and May) and 491 is offered 3 times a year (October, March and August). Other supporting courses (i.e., Calculus, Physics, English, etc.) are offered more frequently. The suggested Plan of Study shows a sequence of courses for a typical four-year program. There are four terms a year. In a given year there are five tracks that these terms are offered. For example, the first track starts with term 1 in August and then progresses with term 2 in October, term 3 in January, term 4 in March, and term 5 in May. The other four tracks follow the same progression but with different start dates for the first term as indicated in the figure. BSE students should follow this approach when planning their course progression.

#### Year One

| **Term 1** | | **Credits** |
|---|---|---|
| ENGR 101 | Introduction to Engineering | 3 |
| ENGL 123 | English Composition | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| MATH 241 | Calculus and Analytical Geometry I | 4 |
| ENGR 115 | Introduction to Computing for Engineers | 3 |
| | Humanities Lower-Level (HUMN) | 3 |
| | **Credits Subtotal** | **10.0** |
| **Term 3** | | |
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| PHYS 150 | Physics I for Engineers | 3 |
| | **Credits Subtotal** | **7.0** |
| **Term 4** | | |
| PHYS 160 | Physics II for Engineers | 3 |
| COMD 219 | Speech | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **29.0** |

#### Year Two

| **Term 1** | | **Credits** |
|---|---|---|
| ENGR 120 | Graphical Communications | 3 |
| MATH 243 | Calculus and Analytical Geometry III | 4 |
| ENGL 221 | Technical Report Writing | 3 |
| | **Credits Subtotal** | **10.0** |
| **Term 2** | | |
| MATH 345 | Differential Equations and Matrix Methods | 4 |
| ESCI 201 | Statics | 3 |
| | **Credits Subtotal** | **7.0** |
| **Term 3** | | |
| ESCI 202 | Solid Mechanics | 3 |
| ESCI 206 | Fluid Mechanics | 3 |
| ECON 225 | Engineering Economics | 3 |
| | **Credits Subtotal** | **9.0** |
| **Term 4** | | |
| ESCI 204 | Dynamics | 3 |
| PHYS 250 | Physics III for Engineers | 3 |
| PHYS 253 | Physics Laboratory for Engineers | 2 |
| | **Credits Subtotal** | **8.0** |
| | **Credits Total:** | **34.0** |

#### Year Three

| **Term 1** | | **Credits** |
|---|---|---|
| ESCI 305 | Thermodynamics | 3 |
| ELEC 220 | Circuits | 3 |
| ELEC 221 | Circuits Laboratory | 1 |
| | **Credits Subtotal** | **7.0** |
| **Term 2** | | |
| ELEC 230 | Electronics | 3 |
| ELEC 231 | Electronics Laboratory | 1 |
| CESC 220 | Digital Circuit Design | 3 |
| CESC 222 | Digital Circuit Design Laboratory | 1 |
| | **Credits Subtotal** | **8.0** |
| **Term 3** | | |
| MECH 302 | Introduction to Robotics | 3 |
| MECH 303 | Robotics Laboratory | 1 |
| MECH 313 | Instrumentation and Data Acquisition | 2 |
| MECH 314 | Instrumentation and Data Acquisition Laboratory | 1 |
| | **Credits Subtotal** | **7.0** |
| **Term 4** | | |
| AERO 309 | Aerodynamic Performance of Flight Vehicles | 3 |
| ESCI 325 | Engineering Materials and Structures | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **28.0** |

#### Year Four

| **Term 1** | | **Credits** |
|---|---|---|
| ENGR 330 | Signals & Systems | 3 |
| ENGR 331 | Signals & Systems Laboratory | 1 |
| ENGR 404 | Mechatronics | 3 |
| ENGR 405 | Mechatronics Laboratory | 1 |
| | **Credits Subtotal** | **8.0** |
| **Term 2** | | |
| ENGR 450 | Systems and Controls | 3 |
| STAT 412 | Probability and Statistics | 3 |
| ENGR 350 | Project Management for Engineered Systems | 3 |
| | **Credits Subtotal** | **9.0** |
| **Term 3** | | |
| ENGR 490 | Capstone Design Project I | 3 |
| | Humanities Upper-Level (HUMN) | 3 |

| | | |
|---|---|---|
| ENGR 400 | Fundamentals of Energy Systems | 3 |
| | **Credits Subtotal** | **9.0** |
| **Term 4** | | |
| ENGR 491 | Capstone Design Project II | 3 |
| | Social Science Upper-Level (SOCI) | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **32.0** |
| **Total Degree Requirements** | | **123** |

# B.S. in Engineering Technology

With the rapid advancement of science and technology in today's world, every industry needs highly qualified engineers who can keep innovation moving forward. Offered entirely online through Embry-Riddle Aeronautical University Worldwide, this Bachelor of Science in Engineering Technology (BSET) specialized degree program will prepare you to put your engineering skills to work in a variety of industries.

Through the use of cutting-edge virtual labs and simulation methods, students will develop the skills to design, refine and apply engineering technologies across a range of industries. You can also choose to target your studies with a particular concentration including Aeronautical Science, Aviation Safety, Helicopter Operations and Safety, Logistics Management, Management Information Systems, Occupational Safety and Health, Project Management, Security and Intelligence, and Uncrewed Aerial Systems.

Students are also eligible to engage in cooperative study/internships and may elect to seek out those enriching opportunities.

## Program-Specific Criteria

### Admissions Criteria

In addition to meeting the Worldwide Campus admissions requirements, applicants for admission into the BS in Software Engineering, BS in Engineering, and BS in Engineering Technology degree programs must:

- Complete the English and Math Skills Assessments prior to admission to determine academic preparedness for entry into ENGL 123 English Composition and MATH 241 Calculus and Analytical Geometry I.
- Current high school students and recent graduates under the age of 20 must meet established admissions requirements and demonstrate a 3.0 high school CGPA, with coursework that reflects 4 years of college preparatory mathematics and 2 years of college preparatory science, including a laboratory science.
- Transfer applicants must meet established admissions requirements and demonstrate a 2.5 cumulative grade point average (CGPA); transfer credit deemed equivalent to demonstrate academic preparedness for immediate entry into ENGL 123 English Composition and MATH 241 Calculus and Analytical Geometry I, will be considered for admission into the program. Skills Assessment scores will be used for advising purposes if English and Math transfer credit demonstrates academic preparedness for admission into the program.

Students who fail to satisfy the guidelines for full admission may be considered for conditional admission under circumstances determined by the Admissions Office OR may be considered for admission into an alternate program. A written petition for admission, current resume and other supporting documentation may be requested for consideration of admission. Exceptions will be reviewed on a case by case basis.

Current Worldwide students requesting a change of program to the BS in Software Engineering, BS in Engineering, or BS in Engineering Technology degree programs must demonstrate successful completion of the first year of the suggested plan of study in the AS in Engineering Fundamentals degree plan with a 2.5 GPA. Students may then work with their campus advisor to determine eligibility to add or change to the BS in Software Engineering, BS in Engineering, or BS in Engineering Technology degree programs. Exceptions will be reviewed on a case by case basis.

### Engineering Technology Area of Concentration

The Engineering Technology Area of Concentration is the degree area where credit for prior engineering technology learning is housed or where students can take courses to learn about engineering technology. Many students bring in all or part of this credit based on prior engineering or engineering technology training or experience. However, shortages in the minimum credit required can be made up by taking courses in the following related disciplines: Aeronautical Science, Aviation Safety, Helicopter Operations and Safety, Uncrewed Aerial Systems, Logistics Management, Management Information Systems, Occupational Safety and Health, Project Management, Security and Intelligence.

### Sources of Prior Learning Credit include the following:

1. Transfer credit earned at accredited degree-granting colleges and universities.
2. The recommendations published by the American Council on Education for U.S. Military training and experience, as well as training conducted by other government agencies and private organizations.
3. Prior-learning credit established by the University for certain aviation certificates, licenses, and ratings as they relate to this degree.

### Duplicate Credit

Many Embry-Riddle courses are designed to teach the same skills and knowledge that engineering technology students have acquired through experience and training. Students who complete courses in the same engineering specialty for which they were granted credit would be duplicating coverage of the same subject matter. Credit for completion of such courses will not be applied to degree requirements.

The Bachelor of Science in Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET,https://www.abet.org/, under the commission's General Criteria with no applicable program criteria.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Have an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline.
- Have an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline.
- Have an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- Have an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes.
- Have an ability to function effectively as a member as well as a leader on technical teams.

## DEGREE REQUIREMENTS

## General Education

**General Education**

Embry-Riddle courses in the general education categories of Communication Theory and Skills, and Humanities and Social Sciences may be chosen from those listed below, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified.

| | | |
|---|---|---|
| **Communication Theory and Skills** | | |
| ENGL 123 | English Composition | 3 |
| English/Speech electives | | 6 |
| **Mathematics** | | |
| MATH 241 | Calculus and Analytical Geometry I | 4 |
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| **Computer Science / Information** | | |
| ENGR 115 | Introduction to Computing for Engineers | 3 |
| **Physical and Life Sciences** | | |
| CHEM 110 | General Chemistry I | 3 |
| CHEM 110L | General Chemistry I Laboratory | 1 |
| PHYS 150 | Physics I for Engineers | 3 |
| PHYS 160 | Physics II for Engineers | 3 |
| **Humanities** | | |
| HUMN 330 | Values and Ethics | 3 |
| Humanities lower level elective | | 3 |
| **Social Sciences** | | |
| ECON 210 | Microeconomics | 3 |
| ECON 211 | Macroeconomics | 3 |
| **General Electives** | | |
| General Open Electives | | 9 |
| **Total Credits** | | **51** |

## Core/Major

| | | |
|---|---|---|
| **Business** | | |
| STAT 222 | Business Statistics | 3 |
| **Total Credits** | | **3** |

| | | |
|---|---|---|
| **Leadership and Management** | | |
| MGMT 201 | Principles of Management | 3 |
| MGMT 203 | Management for Aeronautical Science | 3 |
| **Total Credits** | | **6** |

| | | |
|---|---|---|
| **Technical Core** | | |
| ENGR 101 | Introduction to Engineering | 3 |
| ENGR 120 | Graphical Communications | 3 |
| ESCI 201 | Statics | 3 |
| CESC 220 | Digital Circuit Design | 3 |
| CESC 222 | Digital Circuit Design Laboratory | 1 |
| ESCI 204 | Dynamics | 3 |
| ESCI 202 | Solid Mechanics | 3 |
| ESCI 206 | Fluid Mechanics | 3 |
| RSCH 202 | Introduction to Research Methods | 3 |
| ETEC 310 | Material Science for Engineering Technology | 3 |
| ETEC 315 | Circuits for Engineering Technology | 3 |
| ETEC 316 | Circuits Laboratory for Engineering Technology | 1 |
| ETEC 410 | Thermodynamics for Engineering Technology | 3 |
| ETEC 415 | Control Systems | 3 |
| ETEC 490 | Engineering Technology Capstone I | 3 |
| ETEC 491 | Engineering Technology Capstone II | 3 |
| **Total Credits** | | **44** |

## Electives/Concentration

| | |
|---|---|
| **Concentrations** | **18** |

Following concentration areas are available to BSET students. Students may choose at least 3 courses each from two concentration areas.

| | |
|---|---|
| **Total Degree Requirements** | **122** |

## Concentrations:

### Aeronautical Science

| | | |
|---|---|---|
| **Aeronautical Science Concentration** | | |
| ASCI 309 | Aerodynamics | 3 |
| AMNT 429 | Advanced Technologies in Design and Production of Aircraft Structures and Systems | 3 |
| ETEC 409 | Applied Aeronautics | 3 |

### Aviation Safety

| | | |
|---|---|---|
| **Aviation Safety Concentration** | | |
| BSAS 320 | Human Factors in Aviation Safety | 3 |
| BSAS 330 | Aircraft Accident Investigation | 3 |
| BSAS 409 | Aviation Safety | 3 |

### Helicopter Operations and Safety

| | | |
|---|---|---|
| **Helicopter Operations and Safety Concentration** | | |
| ASCI 317 | Rotorcraft | 3 |
| ASCI 378 | Helicopter Flight Environments | 3 |
| ASCI 388 | Helicopter Flight Planning | 3 |

### Uncrewed and Autonomous Systems

| | | |
|---|---|---|
| **Uncrewed and Autonomous Systems Concentration** | | |
| UNSY 315 | Uncrewed Aircraft Systems and Operations | 3 |
| UNSY 318 | Uncrewed Aircraft Systems Robotics | 3 |
| UNSY 410 | Uncrewed Systems Sensing Technology | 3 |

### Logistics Management

| | | |
|---|---|---|
| **Logistics Management Concentration** | | |
| LGMT 331 | Transportation Principles | 3 |
| LGMT 410 | Management of Air Cargo | 3 |
| LGMT 411 | Logistics Management for Aviation/Aerospace | 3 |

### Management Information Systems

| | | |
|---|---|---|
| **Management Information Systems Concentration** | | |
| MMIS 320 | Business Information Systems | 3 |
| MMIS 392 | Database Management | 3 |
| MMIS 494 | Aviation Information Systems | 3 |

### Occupational Safety & Health

| | | |
|---|---|---|
| **Occupational Safety & Health Concentration** | | |
| SFTY 311 | Fundamentals of Occupational Safety and Health | 3 |
| SFTY 321 | Ergonomics | 3 |
| SFTY 355 | Industrial Hygiene and Toxicology | 3 |

### Project Management

| | | |
|---|---|---|
| **Project Management Concentration** | | |
| PMGT 391 | Project Planning 1 | 3 |
| PMGT 394 | Project Planning 2 | 3 |
| PMGT 400 | Project Risk and Control | 3 |

### Security and Intelligence

| | | |
|---|---|---|
| **Security and Intelligence Concentration** | | |
| SCTY 315 | Studies in Intelligence I | 3 |
| SCTY 385 | Intelligence Collection and Analysis | 3 |
| SCTY 488 | National Security Issues and Terrorism | 3 |

## Plan of Study (BSET)

### Year One

| Term 1 | | Credits |
|---|---|---|
| ENGR 101 | Introduction to Engineering | 3 |
| ENGL 123 | English Composition | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| MATH 241 | Calculus and Analytical Geometry I | 4 |
| ENGR 115 | Introduction to Computing for Engineers | 3 |
| | Humanities Lower-Level (HUMN) | 3 |
| | **Credits Subtotal** | **10.0** |
| **Term 3** | | |
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| PHYS 150 | Physics I for Engineers | 3 |
| | **Credits Subtotal** | **7.0** |
| **Term 4** | | |
| PHYS 160 | Physics II for Engineers | 3 |
| | English/Speech (ENGL/SPCH) | 3 |
| ECON 210 | Microeconomics | 3 |
| | **Credits Subtotal** | **9.0** |
| | **Credits Total:** | **32.0** |

### Year Two

| Term 1 | | Credits |
|---|---|---|
| ENGR 120 | Graphical Communications | 3 |
| CHEM 110 | General Chemistry I | 3 |
| CHEM 110L | General Chemistry I Laboratory | 1 |
| | English/Speech (ENGL/SPCH) | 3 |
| | **Credits Subtotal** | **10.0** |
| **Term 2** | | |
| ESCI 201 | Statics | 3 |
| CESC 220 | Digital Circuit Design | 3 |
| CESC 222 | Digital Circuit Design Laboratory | 1 |
| | **Credits Subtotal** | **7.0** |
| **Term 3** | | |
| ESCI 202 | Solid Mechanics | 3 |
| ESCI 206 | Fluid Mechanics | 3 |
| ECON 211 | Macroeconomics | 3 |
| | **Credits Subtotal** | **9.0** |
| **Term 4** | | |
| ESCI 204 | Dynamics | 3 |
| STAT 222 | Business Statistics | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **32.0** |

### Year Three

| Term 1 | | Credits |
|---|---|---|
| ETEC 310 | Material Science for Engineering Technology | 3 |
| RSCH 202 | Introduction to Research Methods | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| HUMN 330 | Values and Ethics | 3 |
| MGMT 201 | Principles of Management | 3 |
| | Area of Concentration course | 3 |
| | **Credits Subtotal** | **9.0** |
| **Term 3** | | |
| MGMT 203 | Management for Aeronautical Science | 3 |
| ETEC 315 | Circuits for Engineering Technology | 3 |
| ETEC 316 | Circuits Laboratory for Engineering Technology | 1 |
| | **Credits Subtotal** | **7.0** |
| **Term 4** | | |
| | Area of Concentration course | 3 |
| | Open Elective (General) | 3 |
| | Area of Concentration course | 3 |
| | **Credits Subtotal** | **9.0** |
| | **Credits Total:** | **31.0** |

### Year Four

| Term 1 | | Credits |
|---|---|---|
| | Area of Concentration course | 3 |
| | Area of Concentration course | 3 |
| | Open Elective (General) | 3 |
| | **Credits Subtotal** | **9.0** |
| **Term 2** | | |
| ETEC 410 | Thermodynamics for Engineering Technology | 3 |
| ETEC 415 | Control Systems | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Area of Concentration course | 3 |
| ETEC 490 | Engineering Technology Capstone I | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| ETEC 491 | Engineering Technology Capstone II | 3 |
| | Open Elective (General) | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **27.0** |

| | |
|---|---|
| **Total Degree Requirements** | **122** |

# B.S. in Software Engineering

The Bachelor of Science degree in Software Engineering is designed to prepare students for an entry-level software engineering position in industry that supports the design and implementation of software systems with the focus on real-time, embedded, and safety-critical applications. Such systems are critical in aviation, space, medicine, and other disciplines that rely on high-quality, dependable software.

In a few years of completing their undergraduate degree, graduates of the Bachelor of Science in Software Engineering:

- Have established themselves in successful engineering careers in aviation, aerospace, and related fields and/or are pursuing advanced degrees.
- Are serving society and their professions as involved and responsible citizens, leaders, and role models.
- Are problem solvers, systems thinkers, and innovators.

## Program-Specific Criteria

### Admissions Criteria

In addition to meeting the Worldwide Campus admissions requirements, applicants for admission into the BS in Software Engineering, BS in Engineering, and BS in Engineering Technology degree programs must:

- Complete the English and Math Skills Assessments prior to admission to determine academic preparedness for entry into ENGL 123 English Composition and MATH 241 Calculus and Analytical Geometry I.
- Current high school students and recent graduates under the age of 20 must meet established admissions requirements and demonstrate a 3.0 high school CGPA, with coursework that reflects 4 years of

college preparatory mathematics and 2 years of college preparatory science, including a laboratory science.

- Transfer applicants must meet established admissions requirements and demonstrate a 2.5 cumulative grade point average (CGPA); transfer credit deemed equivalent to demonstrate academic preparedness for immediate entry into ENGL 123 English Composition and MATH 241 Calculus and Analytical Geometry I, will be considered for admission into the program. Skills Assessment scores will be used for advising purposes if English and Math transfer credit demonstrates academic preparedness for admission into the program.

Students who fail to satisfy the guidelines for full admission may be considered for conditional admission under circumstances determined by the Admissions Office OR may be considered for admission into an alternate program. A written petition for admission, current resume and other supporting documentation may be requested for consideration of admission. Exceptions will be reviewed on a case by case basis.

Current Worldwide students requesting a change of program to the BS in Software Engineering, BS in Engineering, or BS in Engineering Technology degree programs must demonstrate successful completion of the first year of the suggested plan of study in the AS in Engineering Fundamentals degree plan with a 2.5 GPA. Students may then work with their campus advisor to determine eligibility to add or change to the BS in Software Engineering, BS in Engineering, or BS in Engineering Technology degree programs. Exceptions will be reviewed on a case by case basis.

### Capstone Requirements:

1. Senior status is defined as having completed all Freshmen, Sophomore, and Junior year courses of the BSSE program as published in the Suggested Plan of Study.
2. All courses **must** be completed prior to enrolling in SWEN 490 with the exception of those identified in Terms 3 and 4 of the Senior year as published in the BSSE Suggested Plan of Study.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Have an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- Have an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
- Have an ability to communicate effectively with a range of audiences.
- Have an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
- Have an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
- Have an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
- Have an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

# DEGREE REQUIREMENTS

## General Education

| | | |
|---|---|---|
| **General Education** | | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, and Humanities and Social Sciences may be chosen from those listed below, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | |
| ENGL 123 | English Composition | 3 |
| ENGL 221 | Technical Report Writing | 3 |
| COMD 219 | Speech | 3 |
| **Mathematics** | | |
| MATH 241 | Calculus and Analytical Geometry I | 4 |
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| **Computer Science / Information** | | |
| CPSC 223 | Scientific Programming in C | 3 |
| **Physical and Life Sciences** | | |
| PHYS 150 | Physics I for Engineers | 3 |
| PHYS 160 | Physics II for Engineers | 3 |
| PHYS 250 | Physics III for Engineers | 3 |
| PHYS 253 | Physics Laboratory for Engineers | 2 |
| **Humanities** | | |
| Humanities Lower-Level | | 3 |
| Humanities Upper-Level | | 3 |
| **Social Sciences** | | |
| Psychology Lower-Level | | 3 |
| Psychology Upper-Level | | 3 |
| **Total Credits** | | **43** |

## Core/Major

| | | |
|---|---|---|
| **Professional Education** | | |
| ENGR 101 | Introduction to Engineering | 3 |
| **Total Credits** | | **3** |
| | | |
| **Computer Engineering** | | |
| CESC 220 | Digital Circuit Design | 3 |
| CESC 222 | Digital Circuit Design Laboratory | 1 |
| CESC 320 | Microprocessor Systems | 3 |
| CESC 322 | Microprocessor Systems Laboratory | 1 |
| CESC 450 | Real-Time Embedded Systems | 3 |
| CESC 470 | Computer Architecture | 3 |
| **Total Credits** | | **14** |
| | | |
| **Computer Science** | | |
| CPSC 222 | Introduction to Discrete Structures | 3 |
| CPSC 225 | Computer Science II | 3 |
| CPSC 227 | Computer Science II Laboratory | 1 |
| CPSC 315 | Data Structures and Analysis of Algorithms | 3 |
| CPSC 317 | Files and Database Systems | 3 |
| CPSC 332 | Organization of Programming Languages | 3 |
| CPSC 362 | Computing Theory | 3 |
| CPSC 420 | Operating Systems | 3 |
| CPSC 432 | Information and Computer Security | 3 |
| **Total Credits** | | **25** |
| | | |
| **Software Engineering** | | |
| SWEN 300 | Software Engineering Practices | 3 |
| SWEN 310 | Analysis and Design of Software Systems | 3 |

| | | |
|---|---|---|
| SWEN 320 | Software Construction | 3 |
| SWEN 420 | Software Quality Assurance | 3 |
| **Total Credits** | | **12** |

| | | |
|---|---|---|
| **Mathematics** | | |
| STAT 412 | Probability and Statistics | 3 |
| Mathematics Upper-Level | | 3 |
| **Total Credits** | | **6** |

| | | |
|---|---|---|
| **Electives** | | |
| CESC/CPSC/ELEC/SWEN Upper-Level | | 3 |
| CESC 300 | Computing in Aerospace and Aviation | 3 |
| CPSC 335 | Introduction to Computer Graphics | 3 |
| SWEN 410 | Software Modeling | 3 |
| **Total Credits** | | **12** |

| | | |
|---|---|---|
| **Capstone** | | |
| SWEN 450 | Software Team Project I | 3 |
| SWEN 451 | Software Team Project II | 3 |
| **Total Credits** | | **6** |

| | | |
|---|---|---|
| **Total Degree Requirements** | | **121** |

## Plan of Study (BSSE)

### Planning Your Course Progression

Engineering courses (ENGR, ESCI, ELEC, AERO, MECH, CESC) are offered four times a year. Other supporting courses (i.e., Calculus, Physics, English, etc.) are offered more frequently. The suggested Plan of Study shows a sequence of courses for a typical four-year program. There are four terms a year. In a given year there are four tracks that these terms are offered. For example, the first track starts with term 1 in August and then progresses with term 2 in October, term 3 in January and then term 4 in March. The other three tracks follow the same progression but with different start dates for the first term as indicated in the figure. BSE---students should follow this approach when planning their course progression.

#### Year One

| **Term 1** | | **Credits** |
|---|---|---|
| ENGR 101 | Introduction to Engineering | 3 |
| CPSC 222 | Introduction to Discrete Structures | 3 |
| CPSC 223 | Scientific Programming in C | 3 |
| | **Credits Subtotal** | **9.0** |
| **Term 2** | | |
| CPSC 225 | Computer Science II | 3 |
| CPSC 227 | Computer Science II Laboratory | 1 |
| MATH 241 | Calculus and Analytical Geometry I | 4 |
| | **Credits Subtotal** | **8.0** |
| **Term 3** | | |
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| ENGL 123 | English Composition | 3 |
| PHYS 150 | Physics I for Engineers | 3 |
| | **Credits Subtotal** | **10.0** |
| **Term 4** | | |
| COMD 219 | Speech | 3 |
| PHYS 160 | Physics II for Engineers | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **33.0** |

#### Year Two

| **Term 1** | | **Credits** |
|---|---|---|
| PHYS 250 | Physics III for Engineers | 3 |
| PHYS 253 | Physics Laboratory for Engineers | 2 |
| SWEN 300 | Software Engineering Practices | 3 |
| | **Credits Subtotal** | **8.0** |
| **Term 2** | | |
| CESC 220 | Digital Circuit Design | 3 |
| CESC 222 | Digital Circuit Design Laboratory | 1 |
| STAT 412 | Probability and Statistics | 3 |
| | **Credits Subtotal** | **7.0** |
| **Term 3** | | |
| CESC 320 | Microprocessor Systems | 3 |
| CESC 322 | Microprocessor Systems Laboratory | 1 |
| | Upper-Level MATH Elective (MATH 432) | 3 |
| | **Credits Subtotal** | **7.0** |
| **Term 4** | | |
| ENGL 221 | Technical Report Writing | 3 |
| | Psychology Lower-Level | 3 |
| | Humanities Lower-Level (HUMN) | 3 |
| | **Credits Subtotal** | **9.0** |
| | **Credits Total:** | **31.0** |

#### Year Three

| **Term 1** | | **Credits** |
|---|---|---|
| CPSC 315 | Data Structures and Analysis of Algorithms | 3 |
| CPSC 362 | Computing Theory | 3 |
| CPSC 317 | Files and Database Systems | 3 |
| | **Credits Subtotal** | **9.0** |
| **Term 2** | | |
| CPSC 332 | Organization of Programming Languages | 3 |
| SWEN 310 | Analysis and Design of Software Systems | 3 |
| CPSC 420 | Operating Systems | 3 |
| | **Credits Subtotal** | **9.0** |
| **Term 3** | | |
| CESC 470 | Computer Architecture | 3 |
| SWEN 320 | Software Construction | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Specified Elective (CESC 300) | 3 |
| | Humanities Upper-Level (HUMN) | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

#### Year Four

| **Term 1** | | **Credits** |
|---|---|---|
| CPSC 432 | Information and Computer Security | 3 |
| CESC 450 | Real-Time Embedded Systems | 3 |
| SWEN 420 | Software Quality Assurance | 3 |
| | **Credits Subtotal** | **9.0** |
| **Term 2** | | |
| | Specified Elective (CPSC 335) | 3 |
| | Specified Elective (SWEN 410) | 3 |
| | CPSC Upper-Level Elective (CPSC 462) | 3 |
| | **Credits Subtotal** | **9.0** |

| | | |
|---|---|---|
| **Term 3** | | |
| SWEN 450 | Software Team Project I | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| SWEN 451 | Software Team Project II | 3 |
| | Psychology Upper-Level | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **27.0** |

| | |
|---|---|
| **Total Degree Requirements** | **121** |

# M.S. in Aerospace Engineering

Aerospace engineers are in huge demand for industries from military services to space travel, and the right degree from a prestigious institution can open doors for a lifetime. Embry-Riddle's Master of Science in Aerospace Engineering (MSAE) has been one of the field's most sought-after degrees for decades.

You will develop the skills to conquer challenges currently facing military and commercial air and spacecraft technology. You'll be prepared to participate in and lead cutting-edge research projects. You'll gain entry into the highest levels of private and government operations.

And now, you'll be able to get your MSAE from the convenience of your home. No commute, no classroom, no rigid schedule. It's education designed around your life.

After completing the MSAE, you will be prepared to participate in the development of military and commercial aircraft, spacecraft designs, and government projects. You will also be positioned to continue your studies with advanced research through programs such as Embry-Riddle's Ph.D. in Aerospace Engineering.

## Program-Specific Criteria

### Admissions Criteria

Applicants for admission to the MSAE Degree Program must meet the following criteria:

- Provide evidence of an undergraduate Bachelor of Science degree in Aeronautical or Aerospace Engineering, or equivalent with a cumulative grade point average (CGPA) of 3.0 or higher, on a 4.0 scale. If earned in the United States, the degree must be from an ABET-accredited program (accredited by the Engineering Accreditation Commission, EAC). Applicants with graduate coursework must meet the established graduate transfer CGPA. Students with a Bachelor of Science or equivalent degree in other engineering disciplines, who otherwise meet the requirements for full admission, may also be admitted to the MSAE program.
- The Graduate Records Examination (GRE) is required.
- Submit (2) letters of recommendation. One letter is required from a professional contact. If you graduated within the last two years, (1) letter must be from a recent instructor, which can also serve as a professional contact.
  Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/

Note: Graduates of Embry-Riddle Aeronautical University receiving an engineering (ABET EAC – accredited) degree with at least a 3.2 undergraduate GPA may be excused from the GRE and Statement of Objectives requirements.

**EXCEPTIONS:** Applicants who fail to satisfy the guidelines for full admission may be considered for conditional admission under circumstances determined by the Admissions Office or Program Chair. Applicants will be required to submit the following documentation in addition to official transcripts:

- Submit a current resume outlining your education, work experience, special activities and awards.
- Prepare a type-written *Statement of Objectives*, demonstrating strong capacity for written communication and elucidating the following topic areas:
  - A description of the applicant's reasons for wishing to do graduate work in the field chosen
  - A description of the applicant's interests and background
  - A description of the applicant's long-term professional goals, defining how Embry-Riddle's MSAE program supports those interests and goals

Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Use analytical methods to analyze and solve engineering problems.
- Conduct research and/or independent study.
- Use written and oral communication effectively.
- Use numerical methods to analyze and solve engineering problems.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| AENG 502 | Strength and Fatigue of Materials | 3 |
| AENG 510 | Aircraft Structural Dynamics | 3 |
| AENG 511 | Engineering Materials Selection | 3 |
| AENG 514 | Introduction to the Finite Element Method | 3 |
| AENG 522 | Analysis of Aircraft Composite Materials | 3 |
| AENG 540 | Structural Health Monitoring | 3 |
| AENG 612 | Analysis of Aircraft Plate and Shell Structures | 3 |
| AENG 525 | Structural Design Optimization | 3 |
| MATH 502 | Boundary Value Problems | 3 |
| Take one of the following elective courses: | | 3 |
| SYSE 500 | Fundamentals of Systems Engineering | |
| SYSE 530 | System Requirements Analysis and Modeling | |
| SYSE 560 | Introduction to Systems Engineering Management | |
| SYSE 610 | System Architecture Design and Modeling | |
| SYSE 625 | System Quality Assurance | |
| AWEN 502 | Airworthiness Process and Procedures | |
| AWEN 510 | Aircraft Airworthiness Engineering Principles | |
| **Total Degree Requirements** | | **30** |

## Plan of Study (MSAE)

### Year One

| | | |
|---|---|---|
| **Term 1** | | **Credits** |
| MATH 502 | Boundary Value Problems | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| AENG 502 | Strength and Fatigue of Materials | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| AENG 510 | Aircraft Structural Dynamics | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| AENG 514 | Introduction to the Finite Element Method | 3 |
| | **Credits Subtotal** | **3.0** |

| | | |
|---|---|---|
| **Term 5** | | |
| AENG 511 | Engineering Materials Selection | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

### Year Two

| | | |
|---|---|---|
| **Term 1** | | **Credits** |
| AENG 522 | Analysis of Aircraft Composite Materials | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| AENG 525 | Structural Design Optimization | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| AENG 540 | Structural Health Monitoring | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| AENG 612 | Analysis of Aircraft Plate and Shell Structures | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| | Elective | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |
| **Total Degree Requirements** | | **30** |

# M.S. in Airworthiness Engineering

The Master of Science in Airworthiness Engineering (MSAWE) degree program will educate participants in the foundational elements of airworthiness engineering as they apply to aerospace vehicle certification, comprehensively exploring relevant civil and military airworthiness requirements to provide an understanding of the implications and impact on manned, uncrewed, and other innovative vehicle systems.

## Admissions Requirements:

**Official transcript(s)** from the accredited degree conferring institution(s) and transcripts reflecting graduate level coursework.

- Applicants must possess a Bachelor of Science degree in Physics, Math, OR an ABET accredited (EAC) Engineering degree; exceptions to this will be reviewed on a case-by-case basis.
- Applicants must demonstrate a cumulative grade point average (CGPA) of 3.0 or higher on a 4.0 scale, at the undergraduate and graduate levels.

**Submit (2) letters of recommendation.** One letter is required from a professional contact. If you graduated within the last two years, (1) letter must be from a recent instructor, which can also serve as a professional contact.

- Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/

**EXCEPTIONS:** Applicants who fail to satisfy the guidelines for full admission may be considered for conditional admission under circumstances determined by the Admissions Office or Program Chair. Applicants will be required to submit the following documentation in addition to official transcripts:

- *Resume outlining work experience, education, relevant activities and awards*
- *A type-written* Statement of Objectives*, demonstrating a strong capacity for written communication and addressing the following topic areas-*
  - *The applicant's understanding, in their own words, of what Airworthiness Engineering entails*
  - *The applicant's background and exposure to engineering to-date, in both their academic and professional career*
  - *A statement of the particular MSAWE electives the applicant intends to pursue (Structures, Systems, or Management) and a discussion of why this election was made.*
  - *An explanation of the applicant's overall academic and career objectives, including how the applicant believes that the MSAWE program will positively contribute to the achievement of stated goals*

Current students requesting to transfer into the MSAWE program will be required to meet the same program requirements stated above.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Exhibit an understanding of how civil and military regulatory frameworks, National and International, apply to contemporary issues in air system certification.
- Perform engineering analysis using acceptable methods for substantiating airworthiness compliance to requirements.
- Effectively communicate information, both technical and procedural, in written and oral forms to audiences in the aviation and aerospace disciplines.
- Make use of investigative methods to derive innovative airworthiness compliance solutions over the life cycle.
- Demonstrate topic mastery of airworthiness engineering principles and processes for selected technical discipline areas in air system certification.
- Recognize the importance of honest and ethical behavior concerning airworthiness in all their work, their spoken statements, and their written artifacts.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| AWEN 502 | Airworthiness Process and Procedures | 3 |
| SYSE 505 | System Safety and Certification | 3 |
| UASE 501 | Introduction to Uncrewed Aircraft Systems Design | 3 |
| AWEN 510 | Aircraft Airworthiness Engineering Principles | 3 |
| MATH 546 | Application-Based Advanced Engineering Mathematics | 3 |
| AWEN 552 | Continued Airworthiness | 3 |
| AWEN 690 | Graduate Research Project | 3 |
| or PMGT 652 | Concepts and Practices of Project Management | |
| **Total Credits** | | **21** |

### Electives

| | | |
|---|---|---|
| Electives: (9 credit hours) Choose one of the following concentrations. | | 9 |
| **Structures** | | |
| AENG 502 | Strength and Fatigue of Materials | |
| AENG 510 | Aircraft Structural Dynamics | |
| AENG 514 | Introduction to the Finite Element Method | |
| **Engineering Management** | | |
| EMGT 500 | Managing in the STEM Environment | |
| EMGT 530 | Project Scheduling and Risk Management | |
| EMGT 620 | Technology and Innovation Management | |

| | | |
|---|---|---|
| **Systems Engineering** | | |
| SYSE 530 | System Requirements Analysis and Modeling | |
| SYSE 560 | Introduction to Systems Engineering Management | |
| SYSE 625 | System Quality Assurance | |
| **Total Degree Requirements** | | **30** |

## Plan of Study (MSAWE)

### Year One

| **Term 1** | | **Credits** |
|---|---|---|
| AWEN 502 | Airworthiness Process and Procedures | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| SYSE 505 | System Safety and Certification | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| UASE 501 | Introduction to Uncrewed Aircraft Systems Design | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| AWEN 510 | Aircraft Airworthiness Engineering Principles | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| MATH 546 | Application-Based Advanced Engineering Mathematics | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

### Year Two

| **Term 1** | | **Credits** |
|---|---|---|
| AWEN 552 | Continued Airworthiness | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| | Elective #1: Structures, Systems or Engineering Management | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| | Elective #2: Structures, Systems or Engineering Management | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| | Elective #3: Structures, Systems or Engineering Management | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| AWEN 690 | Graduate Research Project | 3 |
| or PMGT 652 | Concepts and Practices of Project Management | |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

| | | |
|---|---|---|
| **Total Degree Requirements** | | **30** |

# M.S. in Systems Engineering

Complex engineering projects are at the heart of modern business. In order to innovate, adapt, thrive, and survive, organizations must undertake efforts that require the coordination of different teams, the understanding of complex technology and tools, and the integration of interdepartmental work processes. Leaders who can effectively manage these efforts are in high demand across many industries.

The Master of Science in Systems Engineering (MSSYSE) degree program prepares and qualifies students to take on such a role. Through this focused curriculum, students will establish a solid foundation of fundamental systems-engineering knowledge, learning how to apply a systems thinking and perspective to business and technology.

For applicants inclined toward research and future doctoral studies, the program offers a thesis option. Students in this option may select thesis advisors from participating faculty in the College of Aviation (Worldwide) and the School of Engineering (Worldwide), based on the alignment between faculty and student research interests.

For applicants more interested in entering or returning to the workforce, a non-thesis option is available. Depending on their background and goals, students pursuing this option can choose between two distinct tracks, allowing them to tailor their education to their career aspirations:

- The Technical Track focuses on system design, modeling, architecture, analysis, and implementation.
- The Engineering Management Track emphasizes organizational processes, management, and leadership in engineering environments.

The Master of Science in Systems Engineering offers exceptional learning and a respected credential for systems engineers entering the field, engineers seeking to broaden their perspective or move into management roles, and managers aiming to gain the technical and systems thinking skills required to oversee complex engineering projects and services.

## Program-Specific Criteria

### Admissions Criteria

*Applicants and students requesting an internal transfer to MSSYSE should meet the following criterion-*

- Applicant has successfully completed an equivalent to both MATH 242 and STAT 211/222 and have a 3.0 CGPA or higher in their undergraduate program
- Submit (2) letters of recommendation. One letter is required from a professional contact. If you graduated within the last two years, (1) letter must be from a recent instructor, which can also serve as a professional contact. Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/
- Any applicants with graduate coursework must meet the established graduate transfer CGPA as well.

NOTE: Applicants who fail to satisfy the guidelines for full admission may be considered for conditional admission under circumstances determined by the Admissions Office or Program Chair. Applicants not meeting the MATH 242 and STAT 211/222 requirement specifically, must successfully complete SYSE 515 prior to enrolling in MSSYSE core courses if accepted under conditional terms. The candidate will be notified of academic conditions of admission, including specific information on required course prerequisites, at the time a decision is rendered. Students granted custom conditional admission must adhere to the individual terms outlined in their letter of admission and will remain on conditional status until they have satisfied the terms of their conditional admission.

*In addition, applicants who fail to satisfy the guidelines for full admission must submit*

- Resume outlining work experience, education, relevant activities and awards
- A type-written Statement of Objectives, demonstrating a strong capacity for written communication and addressing the following topic areas:
    - The applicant's understanding, in their own words, of what Systems Engineering entails

- The applicant's background and exposure to engineering to-date, in both their academic and professional career
- A statement of the particular MSSYSE track the applicant intends to pursue (Technical or Management) and a discussion of why this election was made; If the applicant has chosen an elective set, disclosure and justification of elective selections may also be included
- An explanation of the applicant's overall academic and career objectives, including how the applicant believes that the MSSYSE program will positively contribute to the achievement of stated goals

Current students requesting to transfer into the MSSYSE program will be required to meet the same program requirements stated above.

### Prerequisite Knowledge

The Master of Science in Systems Engineering degree program is designed to instill specific skills and knowledge, with courses reinforcing one another, building toward student mastery. Access a Curriculum Map, outlining the Program Outcomes and suggested sequencing of student coursework.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Understand systems concepts, including the relations among subsystems, understand the needs of the super-system and their impact on system development, and understand how the business (enterprise) and technology environment influences system development and its effect on its operating and social environment.
- Analyze stakeholder needs to establish and manage system requirements throughout its life cycle, evaluate the impact of system requirements in terms of the draw of developmental and operational resources and the interaction of the system with its environment.
- Understand and apply different types of system architectures, evaluate alternatives in developing system concepts, understand the need for designing for a system's life cycle, and develop the processes for validating and verifying a system's design and transition to operation.
- Understand the coordination of system life cycle activities and the concurrent development of systems elements, incorporate the timely integration of both enterprise functions and system specialties into a system's development, employ a life cycle process for a given system, select appropriate systems engineering planning, monitoring and controlling, and the logistics and operations methods to effect robust system development and implementation.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| SYSE 500 | Fundamentals of Systems Engineering | 3 |
| SYSE 530 | System Requirements Analysis and Modeling | 3 |
| SYSE 560 | Introduction to Systems Engineering Management | 3 |
| SYSE 625 | System Quality Assurance | 3 |
| **Total Credits** | | **12** |

### Thesis Option - Technical Track

| | | |
|---|---|---|
| SYSE 610 | System Architecture Design and Modeling | 3 |
| SYSE 650 | Digital Engineering with Artificial Intelligence and Machine Learning | 3 |
| SYSE 700A | Systems Engineering Graduate Thesis I | 3 |
| SYSE 700B | Systems Engineering Graduate Thesis II | 3 |
| **Technical Track Electives** | | **6** |
| Choose 2 out of the following: | | |
| AWEN 502 | Airworthiness Process and Procedures | |
| ASCI 693 | Current Research Problems in Aviation/Aerospace | |
| ASCI 602 | The Air Transportation System | |
| ASCI 604 | Human Factors in the Aviation/Aerospace Industry | |
| ASCI 645 | Airport Operations and Management | |
| RSCH 665 | Statistical Analysis | |
| SPAC 511 | Geospatial Analytics | |
| SPAC 514 | Commercial and Governmental Space Infrastructure | |
| SPAC 520 | Principles of Space Systems | |
| UASE 531 | Robotics and Control | |
| SYSE 505 | System Safety and Certification | |
| **Total Credits** | | **18** |

### Thesis Option - Uncrewed Autonomous Systems Track

| | | |
|---|---|---|
| SYSE 610 | System Architecture Design and Modeling | 3 |
| UASE 501 | Introduction to Uncrewed Aircraft Systems Design | 3 |
| UNSY 606 | Uncrewed and Autonomous Systems Interoperability and Control | 3 |
| UASE 638 | Human Factors in Uncrewed Aerospace Systems | 3 |
| SYSE 700A | Systems Engineering Graduate Thesis I | 3 |
| SYSE 700B | Systems Engineering Graduate Thesis II | 3 |
| **Total Credits** | | **18** |

### Non-Thesis Option - Technical Track

| | | |
|---|---|---|
| SYSE 610 | System Architecture Design and Modeling | 3 |
| SYSE 650 | Digital Engineering with Artificial Intelligence and Machine Learning | 3 |
| SYSE 697 | Systems Engineering Project | 3 |
| **Technical Track Electives** | | **9** |
| Choose 3 out of the following: | | |
| ASCI 602 | The Air Transportation System | |
| ASCI 604 | Human Factors in the Aviation/Aerospace Industry | |
| ASCI 645 | Airport Operations and Management | |
| SPAC 511 | Geospatial Analytics | |
| SPAC 512 | Human Spaceflight Industry | |
| SPAC 514 | Commercial and Governmental Space Infrastructure | |
| SPAC 520 | Principles of Space Systems | |
| UASE 531 | Robotics and Control | |
| SYSE 505 | System Safety and Certification | |
| **Total Credits** | | **18** |

### Non-Thesis Option - Engineering Management Track

| | | |
|---|---|---|
| SYSE 660 | Organizational Systems Management | 3 |
| SYSE 697 | Systems Engineering Project | 3 |
| **Engineering Management Track Electives** | | **12** |
| Choose 4 out of the following: | | |
| EMGT 500 | Managing in the STEM Environment | |
| EMGT 520 | Quality for Projects and Operations | |
| EMGT 530 | Project Scheduling and Risk Management | |

| | | |
|---|---|---|
| EMGT 620 | Technology and Innovation Management | |
| SYSE 505 | System Safety and Certification | |
| HROM 530 | Modeling and Decision-Making | |
| PMGT 500 | Foundations of Project Management | |
| PMGT 520 | Fundamentals of Project Scope, Schedule, Cost, and Resource Management | |
| PMGT 530 | Fundamentals of Project Quality, Communication, Stakeholder, Resource, and Procurement Management | |
| PMGT 613 | Assessing and Managing Project Risk | |
| **Total Credits** | | **18** |
| **Total Degree Requirements** | | **30** |

# Minor in Engineering Sciences

The overall goal of the Engineering Sciences Minor is to provide insight into what engineers do, and an understanding of the tools and techniques they use. Participants in the engineering sciences minor program will not become engineers, but they should dramatically increase their ability to integrate their skills and communicate effectively with engineering professionals. They will acquire a conceptual understanding of what engineering, engineering design process, technology, and technology-related concepts are.

The program is designed to be an effective minor to supplement students' non-engineering degree programs. This program is designed for students who are not engineering majors but are interested in understanding "how things work;" and are looking at management, technical marketing, sales, and related careers in an industry such as aviation and aerospace that continues to involve more technology.

*Not open to BS in Aviation Maintenance/Engineering Specialization only students.*

*Not open to BS in Engineering Technology, BS in Engineering students and BS in Software Engineering students.*

| | | |
|---|---|---|
| ENGR 101 | Introduction to Engineering | 3 |
| MATH 241 | Calculus and Analytical Geometry I | 4 |
| PHYS 150 | Physics I for Engineers | 3 |
| ESCI 201 | Statics | 3 |
| SFTY 326 | System Safety | 3 |
| BSAS 335 | Mechanical and Structural Factors in Aviation Safety | 3 |
| AMNT 429 | Advanced Technologies in Design and Production of Aircraft Structures and Systems | 3 |
| **Total Credits** | | **22** |

* Note: Prerequisite for MATH 241 is MATH 142 or MATH 143. Engineering Sciences Minor students should not take MATH 112, but rather MATH 142. Upon successful completion of MATH 142/241, students will receive credit for MATH 112.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

# Undergraduate Certificate in Engineering Fundamentals

The Engineering Fundamentals certificate program provides a comprehensive introduction to the fundamentals of engineering and engineering-science including topics such as mathematics, physics, computer programming, and graphical design technics that will enable students to pursue a professional career in a STEM-related field. The program will emphasize problem-solving techniques that will help students to develop the necessary skills for success in their chosen profession.

Students interested in pursuing a career in a STEM-related field or those who plan to pursue an undergraduate associate or bachelor's degree in engineering (such as mechanical, electrical, aerospace, etc.) or professional degree in a technical, business, law, or medical field are welcome to apply.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Program-Specific Criteria

### Admissions Criteria

In addition to meeting the Worldwide Campus admissions requirements, applicants for admission into the Undergraduate Certificate in Engineering Fundamentals must:

- Complete the Math Skills Assessment prior to admission to determine academic preparedness for entry into MATH 241 Calculus and Analytical Geometry I.
- Current high school students and recent graduates under the age of 20 must meet established admissions requirements and demonstrate a 3.0 high school CGPA, with coursework that reflects 4 years of college preparatory mathematics and 2 years of college preparatory science, including a laboratory science.
- Transfer applicants must meet established admissions requirements and demonstrate a 2.5 cumulative grade point average (CGPA); transfer credit deemed equivalent to demonstrate academic preparedness for immediate entry into MATH 241 Calculus and Analytical Geometry I, will be considered for admission into the program. Skills Assessment scores will be used for advising purposes if Math transfer credit demonstrates academic preparedness for admission into the program.

Students who fail to satisfy the guidelines for full admission may be considered for conditional admission under circumstances determined by the Admissions Office OR may be considered for admission into an alternate program. A written petition for admission, current resume and other supporting documentation may be requested for consideration of admission. Exceptions will be reviewed on a case by case basis.

Current Worldwide students requesting a change of program to the Undergraduate Certificate in Engineering Fundamentals must demonstrate successful completion of MATH 241 and have an ERAU GPA of a 2.5 or above. Students may then work with their campus advisor to determine eligibility to add or change to the Undergraduate Certificate in Engineering Fundamentals. Exceptions will be reviewed on a case by case basis.

## Engineering Fundamentals

### Certificate

| | | |
|---|---|---|
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| PHYS 250 | Physics III for Engineers | 3 |
| PHYS 253 | Physics Laboratory for Engineers | 2 |
| ESCI 201 | Statics | 3 |
| ENGR 101 | Introduction to Engineering | 3 |
| ENGR 115 | Introduction to Computing for Engineers | 3 |
| ENGR 120 | Graphical Communications | 3 |
| **Total Credits** | | **21** |

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Acquire skills commonly found in the engineering profession, such as problem-solving, knowledge of the principles of structural engineering and mechanics, engineering design using CAD, algorithm design and software development, implementation of code, and testing.

- Demonstrate the knowledge of professional and ethical responsibilities.

# Graduate Certificate in Airworthiness Engineering

The Airworthiness Engineering Certificate is structured to address the professional educational needs of participants in the principles of airworthiness engineering, especially those individuals engaged in the design, development, certification, production, operation and maintenance of air systems - either crewed or uncrewed, at a graduate level.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Admissions Requirements:

**Official transcript(s)** from the accredited degree conferring institution(s) and transcripts reflecting graduate level coursework.

- Applicants must possess a Bachelor of Science degree in Physics, Math, OR an ABET accredited (EAC) Engineering degree; exceptions to this will be reviewed on a case-by-case basis.
- Applicants must demonstrate a cumulative grade point average (CGPA) of 3.0 or higher on a 4.0 scale, at the undergraduate and graduate levels.

**EXCEPTIONS:** Applicants who fail to satisfy the guidelines for full admission may be considered for conditional admission under circumstances determined by the Admissions Office or Program Chair. Applicants will be required to submit the following documentation in addition to official transcripts:

**Resume** outlining work experience, education, relevant activities or awards
**Statement of Objective**, to include:

- A description of the applicant's reasons for wishing to do graduate work in the field chosen.
- A description of the applicant's interests and background.
- A description of the applicant's long term professional goals, defining how Embry-Riddle's program supports those interests and goals.

**Submit (2) letters of recommendation**. One letter is required from a professional contact. If you graduated within the last two years, (1) letter must be from a recent instructor, which can also serve as a professional contact.

- Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/

## Airworthiness Engineering

### Certificate

| | | |
|---|---|---|
| AWEN 502 | Airworthiness Process and Procedures | 3 |
| SYSE 505 | System Safety and Certification | 3 |
| UASE 501 | Introduction to Uncrewed Aircraft Systems Design | 3 |
| AWEN 510 | Aircraft Airworthiness Engineering Principles | 3 |
| **Total Credits** | | **12** |

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Exhibit an understanding of how civil and military regulatory frameworks, National and International, apply to contemporary issues in air system certification.
- Perform engineering analysis using acceptable methods for substantiating airworthiness compliance to requirements.
- Effectively communicate information, both technical and procedural, in written and oral forms to audiences in the aviation and aerospace disciplines.
- Make use of investigative methods to derive innovative airworthiness compliance solutions over the life cycle.
- Demonstrate topic mastery of airworthiness engineering principles and processes for selected technical discipline areas in air system certification.
- Recognize the importance of honest and ethical behavior concerning airworthiness in all their work, their spoken statements, and their written artifacts.

# Graduate Certificate in Systems Engineering

The Systems Engineering Certificate is designed for students who are pursuing education related to systems engineering and will: Apply systems thinking tools to engineering and operational problems; Employ systems engineering tools to different types of systems throughout their lifecycle; Interpret stakeholder requirements for use in system analysis and design; Perform quantitative analysis techniques to systems engineering problems.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Systems Engineering

### Certificate

| | | |
|---|---|---|
| SYSE 500 | Fundamentals of Systems Engineering | 3 |
| SYSE 530 | System Requirements Analysis and Modeling | 3 |
| SYSE 560 | Introduction to Systems Engineering Management | 3 |
| SYSE 610 | System Architecture Design and Modeling | 3 |
| **Total Credits** | | **12** |

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Apply systems thinking tools to engineering and operational problems.
- Employ systems engineering tools to different types of systems throughout their lifecycle.
- Interpret stakeholder requirements for use in system analysis and design.
- Perform quantitative analysis techniques to systems engineering problems.

# College of Arts & Sciences

Dr. Alexander Siedschlag, Dean

The Embry-Riddle Worldwide College of Arts & Sciences develops and supports career-ready graduates and advances all students to be lifelong learners and leaders in their professional disciplines.

Through the general education program, the college emphasizes academic rigor in critical thinking, global perspectives, creative problem solving, communication skills, scientific and cultural literacy, as well as ethical interaction with the contemporary world. In its academic degree programs, the college focuses on applied studies that implement state of the art curriculum to educate students for long-term success in their profession. All the college's degree programs are STEM-designated and globally offered online, across the country and around the world. Select courses are also offered face-to-face on certain U.S. and international sites.

The college conducts basic, applied, and translational research and engages in creative work; it provides mentored research opportunities for undergraduate and graduate students. In doing so, it fosters unique and innovative disciplinary, multidisciplinary, and interdisciplinary research, approaches, and applications to STEM, social and behavioral sciences, humanities, and comprehensive civil security studies that have societal impact.

Our vision is to be a destination college for multidisciplinary studies and impactful collaborative research as well as continue to be a national leader in general education, developing opportunities for our diverse student population to fulfill their educational goals and become responsive, responsible global citizens.

For Faculty lists and other information, view the College of Arts & Sciences website.

## Degrees

### Associates

- A.S. in Emergency Management

### Bachelors

- B.S. in Communication
- B.S. in Data Science
- B.S. in Emergency Services
- B.S. in Homeland Security
- B.S. in Human Factors Psychology
- B.S. in Interdisciplinary Studies
- B.S. in Safety Management

### Combined Program Pathways

- B.S. in Communication/M.S. in Human Security and Resilience
- B.S. in Emergency Services/M.S. in Emergency Services
- B.S. in Homeland Security/M.S. in Human Security and Resilience
- B.S. in Human Factors Psychology/M.S. in Human Factors
- B.S. in Interdisciplinary Studies/M.S. in Human Security and Resilience
- B.S. in Safety Management/M.S. in Occupational Safety Management

### Masters

- M.S. in Emergency Services
- M.S. in Human Factors
- M.S. in Human Security and Resilience
- M.S. in Occupational Safety Management

### Minor Courses of Study

- Airport Baggage Handling Systems Implementation
- Applied Data Science
- Artificial Intelligence, Ethics, and Creativity
- Aviation, Technology, and Society
- Communication
- Crisis, Risk, and Resilience Communication
- Economics
- Emergency Services
- Environmental Science
- Homeland Security
- Human Factors
- Humanistic STEM
- Industrial/Organizational Psychology
- International Relations
- Mathematics
- Military Science
- Military Studies
- Occupational Safety and Health
- Psychology
- Research Foundations
- Science Literacy
- Security and Intelligence
- Space Policy, History, and Culture

### Certificates

#### Undergraduate

- Airport Baggage Handling Systems Implementation
- Artificial Intelligence, Ethics, and Creativity
- Crisis, Risk and Resilience Communication
- Emergency Management Leadership
- Occupational Safety and Health

#### Graduate

- Human Factors
- Human Security and Resilience
- Occupational Safety Management

## A.S. in Emergency Management

This comprehensive program, rigorously based in the state of the art of pertinent academic and professional disciplines and skills, provides an all-hazards foundation of emergency management across the national preparedness cycle (from prevention to response and recovery) and including Defense Support of Civil Authorities (DSCA). Focused on leadership competencies, the program also provides foundations of emergency management administration and planning and related risk management and exercise processes; of the National Response Framework (NRF) and the Incident Command System (ICS); and of working with partners within the whole-community approach of ensuring resilience and preparedness for response. Based on their professional needs/aspirations, students will also choose one of several alternative “leadership focus area” courses from a multidisciplinary pool of courses.

The program equips students with the competencies required to lead in the evolving all-hazards and whole-community context of emergency management across the military and civil sectors.

Upon successful completion of the following courses, the student may apply for the Embry Riddle Emergency Management Leadership Certification: HLSD 110; HLSD 280; EMGY 310; EMGY 430; HLSD 360; leadership focus area course.

Students will also complete the Federal Emergency Management Agency (FEMA) | Emergency Management Institute Professional Development Series (PDS) embedded in their coursework. It provides a well-rounded set of fundamentals of the emergency management profession. Upon completion of the PDS, students will earn a professional certificate from FEMA.

In an evolving threat and hazard environment, military and civil leaders need comprehensive foundations to lead multi-disciplinary emergency management efforts across the national preparedness cycle, from prevention to recovery. The program is ideal for military service members with careers or career aspirations at the leadership level in emergency management across the all-hazards spectrum and involving civil-military relations in disaster response and recovery (such as Defense Support of Civil Authorities). Public and private sector members with emergency management responsibilities that involve civil-military interaction will also greatly benefit from the program.

The program also provides a pathway into related undergraduate programs (B.S. in Emergency Services, B.S. in Homeland Security, B.S. in Interdisciplinary Studies, or B.S. in Safety Management).

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Describe the all-hazards and whole-community approach to comprehensive emergency management.
- Illustrate the application of emergency management principles and procedures to the National Preparedness Cycle with a focus on response and recovery.
- Explain the administrative and technical requirements for disaster response and emergency management.
- Conduct risk-based planning for emergency management and disaster response.
- Identify the components of the National Response Framework (NRF), the Incident Command System (ICS) and the Defense Support of Civil Authorities (DSCA) process.
- Practice leadership in multi-stakeholder disaster management.

## DEGREE REQUIREMENTS

## GENERAL EDUCATION

| | | |
|---|---|---|
| **General Education** | | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, Social Sciences, Physical and Life Science, Mathematics, and Computer Science may be chosen from as listed, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | **9** |
| Any Two Communication Theory and Skills above ENGL 106 | | |
| COMD 219 | Speech | |
| **Humanities and Social Sciences** | | **12** |
| SSES 110 | Critical Thinking in Contemporary Problems | |
| SSES 401 | Applied Research Methods in Security and Emergency Services | |
| Any Lower-Level Humanities | | |
| Any Social Science | | |
| **Physical and Life Science** | | **6** |
| Any Two Physical Science | | |
| **Mathematics** | | **6** |
| Any College Algebra or higher MATH series | | |
| **Computer Science** | | **3** |
| Any Computer Science | | |
| **Total Credits** | | **36** |

### Core/Major

| | | |
|---|---|---|
| HLSD 110 | Introduction to Homeland Security | 3 |
| HLSD 280 | Professional Skills in Homeland Security | 3 |
| EMGY 310 | Fundamentals of Emergency Management | 3 |
| HLSD 315 | Critical Infrastructure Security, Resilience, and Risk Analysis | 3 |
| or ESVS 301 | Community Risk Reduction for the Fire and Emergency Services | |
| EMGY 430 | Emergency Management and Contingency Planning | 3 |
| HLSD 360 | Strategic Planning and Decision Making in Homeland Security | 3 |
| HLSD 410 | Exercise Design and Evaluation in Homeland Security | 3 |
| or ESVS 404 | Managerial Issues in Hazardous Materials | |
| Leadership Focus Area - Select One of the Following: | | 3 |
| COMD 365 | Communication for Resilience | |
| EMGY 400 | Introduction to Incident Command System | |
| EMGY 405 | Disaster Policy and Management | |
| ESVS 402 | Fire and Emergency Services Administration | |
| ESVS 405 | Personnel Management for Fire and Emergency Services | |
| HLSD 320 | Homeland Security Law and Policy | |
| **Total Credits** | | **24** |

| | |
|---|---|
| **Total Degree Requirements** | **60** |

## Plan of Study (ASEM)

Recommended plan of study and sequence of courses for a two-year degree completion scenario. A two-year degree plan or a particular starting term are not required but serve as an example.

### Year 1

| **Term 1** | | **Credits** |
|---|---|---|
| | Any Communication Theory and Skills above ENGL 106 | 3 |
| | Any College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| SSES 110 | Critical Thinking in Contemporary Problems | 3 |
| | Any Computer Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Any Lower-Level Humanities | 3 |
| | Any College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| COMD 219 | Speech | 3 |
| HLSD 110 | Introduction to Homeland Security | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Any Communication Theory and Skills above ENGL 106 | 3 |

| | | |
|---|---|---|
| HLSD 280 | Professional Skills in Homeland Security | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 2

| **Term 1** | | **Credits** |
|---|---|---|
| EMGY 310 | Fundamentals of Emergency Management | 3 |
| HLSD 360 | Strategic Planning and Decision Making in Homeland Security | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Leadership Focus Area Course | 3 |
| | Any Physical Science/Physics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| SSES 401 | Applied Research Methods in Security and Emergency Services | 3 |
| HLSD 315 | Critical Infrastructure Security, Resilience, and Risk Analysis | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| EMGY 430 | Emergency Management and Contingency Planning | 3 |
| ESVS 404 | Managerial Issues in Hazardous Materials | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Any Physical Science/Physics | 3 |
| | Any Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

| | |
|---|---|
| **Total Degree Requirements** | **60** |

# B.S. in Communication

As modern society is increasingly influenced by developments in new media, science, and technology, the demand for skilled communicators continues to grow, with higher than average job growth for communication roles between 2020 and 2030. Embry Riddle's unique Bachelor of Science in Communication (BSCOMM) program equips students with the knowledge and skills needed to succeed in a variety of communication-related careers, from public relations to technical writing to crisis communication.

The BSCOMM program trains students to hone their communication skills; to practice gathering, analyzing, and disseminating information to a variety of audiences; to represent information through effective written, verbal, nonverbal, visual, and digital communication; and to integrate knowledge with practice in communication. Students explore communication in areas such as media literacy, public relations, law, visual design, and more!

Students specialize in one of two areas: Aviation, Science & Technology Communication or Crisis, Risk & Resilience Communication. Students also have the opportunity to minor in another field of study, such as International Relations, Marketing, or Project Management, to tailor their degree to their interests and career goals.

Finally, the program culminates in either a Senior Project or an Internship, giving students the ability to apply their communication knowledge and skills in a real-world setting.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Design effective visual and digital artifacts.
- Analyze the development, principles, and goals of communication theories and put appropriate research methods into practice.
- Apply the legal and ethical principles unique to the study and practice of communication.
- Employ effective information gathering and news writing skills.
- Create effective speeches and presentations.
- Write professional documents for diverse audiences, purposes, and genres.

## DEGREE REQUIREMENTS

## General Education

| **General Education** | | |
|---|---|---|
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, and Humanities and Social Sciences may be chosen from those listed below, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | **9** |
| ENGL 123 | English Composition | 3 |
| ENGL (above ENGL 106) and COMD 219 | | 6 |
| **Humanities and Social Sciences** | | **12** |
| Lower-Level Humanities | | 3 |
| Lower-Level Social Sciences | | 3 |
| Lower-Level or Upper-Level Humanities or Social Sciences | | 3 |
| Upper-Level Humanities or Social Sciences | | 3 |
| **Any Physical and Life Sciences** | | **6** |
| **Any Mathematics 6-hour sequence above MATH 106** | | **6** |
| **Any Computer Science / Information Technology** | | **3** |
| **Total Credits** | | **36** |

## Core/Major

| **Communication Core** | | **36** |
|---|---|---|
| COMD 180 | Media Literacy | 3 |
| COMD 230 | Digital Photography | 3 |
| COMD 260 | Introduction to Media | 3 |
| COMD 265 | Introduction to Newswriting and Reporting | 3 |
| COMD 295 | Rhetorical Strategies and Analysis | 3 |
| COMD 320 | Mass Communication Law and Ethics | 3 |
| COMD 360 | Public Relations | 3 |
| COMD 362 | Communication and Organizational Culture | 3 |
| COMD 363 | Communication and Society | 3 |
| COMD 364 | Visual Design | 3 |
| COMD 415 | Nonverbal Communication | 3 |
| COMD 495 | Senior Project | 3** |
| or COIN 496 | Co-Operative Education | |

**When taken as a part of the BS Communication degree, COIN 496 is a 3 credit hour course, and credit hours are approved by the Program Chair.

| | |
|---|---|
| **Program Specialization** | **21** |
| Choose one Specialization | |

## Minors

| | |
|---|---|
| **Minor*** ** | **15-21** |
| Select a minor, in consultation with your advisor. | |

***For students in the Bachelor of Science in Communication degree program the RSCH 202 prerequisite for courses in a minor is waived since RSCH 202 is not required for the program.

**(View Minors): https://catalog.erau.edu/worldwide/minors/**

| | |
|---|---|
| **Open Electives** | **6-12** |
| Open elective credits are dependent upon the selected minor. | |
| **Total Degree Requirements** | **120** |

## Program Specializations

### Aviation, Science & Technology Communication Specialization

The Aviation, Science & Technology Communication Specialization focuses on the nexus of communication in aviation, science, and technology contexts. Students develop a foundational understanding of effective communication strategies within these dynamic fields, mastering the art of addressing communication challenges as well as gathering, analyzing, and disseminating scientific and technological information to a variety of audiences.

| | | |
|---|---|---|
| COMD 225 | Science and Technology Communication | 3 |
| COMD 322 | Aviation and Aerospace Communication | 3 |
| COMD 335 | Technology and Modern Civilization | 3 |
| COMD 350 | Environmental Communication | 3 |
| Select three courses (9 hours) from the following options | | |
| ASCI 110 | Introduction to Space Flight | 3 |
| ASCI 202 | Introduction to Aeronautical Science | 3 |
| ASCI 254 | Aviation Legislation | 3 |
| BSAS 210 | Introduction to Aerospace Safety | 3 |
| CSCI 123 | Introduction to Computing for Data Analysis | 3 |
| PHYS 123 | Science of Flight | 3 |
| PHYS 142 | Introduction to Environmental Science | 3 |
| SFTY 205 | Principles of Accident Investigation | 3 |
| WEAX 201 | Meteorology I | 3 |
| **Total Credits** | | **21** |

### Crisis, Risk & Resilience Communication Specialization

*Students who select the Crisis, Risk & Resilience Communication Specialization cannot pursue the Crisis, Risk & Resilience Communication Minor.*

The Crisis, Risk & Resilience Communication Specialization explores the intersections between communication and safe and secure societies and industries. Students gain a foundation in communication for risk management, crisis response and fostering resilience in multidisciplinary contexts; effectively communicating across the phases of the national preparedness cycle; knowledge of historical, legal and policy foundations of communication challenges and approaches in an all-hazards and whole-community context of civil security.

| | | |
|---|---|---|
| COMD 365 | Communication for Resilience | 3 |
| COMD 420 | Applied Cross Cultural Communication | 3 |
| COMD 460 | Crisis Communication | 3 |
| COMD 480 | Advanced Seminar in Crisis and Risk Communication | 3 |
| Select three courses (9 hours) from the following options | | |
| EMGY 310 | Fundamentals of Emergency Management | 3 |
| EMGY 405 | Disaster Policy and Management | 3 |
| EMGY 430 | Emergency Management and Contingency Planning | 3 |
| ESVS 301 | Community Risk Reduction for the Fire and Emergency Services | 3 |
| ESVS 305 | Fire Prevention Organization and Management | 3 |
| ESVS 402 | Fire and Emergency Services Administration | 3 |
| HLSD 110 | Introduction to Homeland Security | 3 |
| HLSD 215 | Introduction to Industrial Security | 3 |
| HLSD 280 | Professional Skills in Homeland Security | 3 |
| HLSD 315 | Critical Infrastructure Security, Resilience, and Risk Analysis | 3 |
| HLSD 360 | Strategic Planning and Decision Making in Homeland Security | 3 |
| HLSD 410 | Exercise Design and Evaluation in Homeland Security | 3 |
| **Total Credits** | | **21** |

## Plan of Study (Aviation, Science and Technology Communication Specialization)

### Year 1

| **Term 1** | | **Credits** |
|---|---|---|
| ENGL 123 | English Composition | 3 |
| | MATH Sequence 1 above 106 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| COMD 219 | Speech | 3 |
| | MATH Sequence 1 above 106 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| COMD 180 | Media Literacy | 3 |
| | Computer Science/Information Technology | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| ENGL 222 | Business Communication | 3 |
| | Physical & Life Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Lower-Level Humanities | 3 |
| | Physical & Life Science | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

**Recommendations:**

Course Pairings: We recommend students pair one course from the General Education Communication Theory & Skills category with another General Education course throughout Y1 to maintain student focus on growing and improving their communication skills.

Important Y1 Courses: Students need to take ENGL 123 English Composition as soon as possible upon entry into the program, and Year 1 Term 1 is recommended. COMD 219 Speech and ENGL 222 Business Communication are recommended as General Education courses in the Communication Theory and Skills category as they focus on written, verbal, and visual communication – skills students will build upon in their major.

### Year 2

| **Term 1** | | **Credits** |
|---|---|---|
| COMD 265 | Introduction to Newswriting and Reporting | 3 |
| | Lower-Level Social Sciences | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| COMD 230 | Digital Photography | 3 |

| | | |
|---|---|---|
| | Lower-Level or Upper-Level Humanities or Social Sciences | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Upper-Level Humanities or Social Sciences | 3 |
| | Choose one course from: | 3 |
| | - Aviation, Science and Technology Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| COMD 295 | Rhetorical Strategies and Analysis | 3 |
| | Choose one course from: | 3 |
| | - Aviation, Science and Technology Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| COMD 260 | Introduction to Media | 3 |
| | Choose one course from: | 3 |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

## Year 3

| **Term 1** | | **Credits** |
|---|---|---|
| COMD 362 | Communication and Organizational Culture | 3 |
| | Choose one course from: | 3 |
| | - Aviation, Science and Technology Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| COMD 363 | Communication and Society | 3 |
| | Choose one course from: | 3 |
| | - Aviation, Science and Technology Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| COMD 360 | Public Relations | 3 |
| | Choose one course from: | 3 |
| | - Aviation, Science and Technology Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| COMD 320 | Mass Communication Law and Ethics | 3 |
| COMD 364 | Visual Design | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| COMD 225 | Science and Technology Communication | 3 |
| COMD 350 | Environmental Communication | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

## Year 4

| **Term 1** | | **Credits** |
|---|---|---|
| COMD 335 | Technology and Modern Civilization | 3 |
| | Choose one course from: | 3 |
| | - Aviation, Science and Technology Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| COMD 415 | Nonverbal Communication | 3 |
| | Choose one course from: | 3 |
| | - Aviation, Science and Technology Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Choose two courses from: | 6 |
| | - Aviation, Science and Technology Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| COMD 322 | Aviation and Aerospace Communication | 3 |
| | Choose one course from: | 3 |
| | - Aviation, Science and Technology Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Choose one course from: | 3 |
| | - Aviation, Science and Technology Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| COMD 495 or COIN 496 | Senior Project<br>Co-Operative Education | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |
| **Total Degree Requirements** | | **120** |

## Plan of Study (Crisis, Risk and Resilience Communication Specialization)

### Year 1

| Term 1 | | Credits |
|---|---|---|
| ENGL 123 | English Composition | 3 |
| | MATH Sequence 1 above 106 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| COMD 219 | Speech | 3 |
| | MATH Sequence 2 above 106 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| COMD 180 | Media Literacy | 3 |
| | Computer Science/Information Technology | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| ENGL 222 | Business Communication | 3 |
| | Physical & Life Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Lower-Level Humanities | 3 |
| | Physical & Life Science | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

**Recommendations:**

Course Pairings: We recommend students pair one course from the General Education Communication Theory & Skills category with another General Education course throughout Y1 to maintain student focus on growing and improving their communication skills.

Important Y1 Courses: Students need to take ENGL 123 English Composition as soon as possible upon entry into the program, and Year 1 Term 1 is recommended. COMD 219 Speech and ENGL 222 Business Communication are recommended as General Education courses in the Communication Theory and Skills category as they focus on written, verbal, and visual communication – skills students will build upon in their major.

### Year 2

| Term 1 | | Credits |
|---|---|---|
| COMD 265 | Introduction to Newswriting and Reporting | 3 |
| | Lower-Level Social Sciences | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| COMD 230 | Digital Photography | 3 |
| | Lower-Level or Upper-Level Humanities or Social Sciences | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Upper-Level Humanities or Social Sciences | 3 |
| | Choose one course from: | 3 |
| | - Crisis, Risk and Resilience Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| COMD 295 | Rhetorical Strategies and Analysis | 3 |
| | Choose one course from: | 3 |
| | - Crisis, Risk and Resilience Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| COMD 260 | Introduction to Media | 3 |
| | Choose one course from: | 3 |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 3

| Term 1 | | Credits |
|---|---|---|
| COMD 363 | Communication and Society | 3 |
| | Choose one course from: | 3 |
| | - Crisis, Risk and Resilience Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| COMD 363 | Communication and Society | 3 |
| | Choose one course from: | 3 |
| | - Crisis, Risk and Resilience Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| COMD 360 | Public Relations | 3 |
| | Choose one course from: | 3 |
| | - Crisis, Risk and Resilience Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| COMD 320 | Mass Communication Law and Ethics | 3 |
| COMD 364 | Visual Design | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Choose two courses from: | 6 |
| | - Crisis, Risk and Resilience Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 4

| Term 1 | | Credits |
|---|---|---|
| COMD 460 | Crisis Communication | 3 |
| | Choose one course from: | 3 |
| | - Crisis, Risk and Resilience Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |

| | | |
|---|---|---|
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| COMD 415 | Nonverbal Communication | 3 |
| COMD 365 | Communication for Resilience | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| COMD 420 | Applied Cross Cultural Communication | 3 |
| | Choose one course from: | 3 |
| | - Crisis, Risk and Resilience Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| COMD 480 | Advanced Seminar in Crisis and Risk Communication | 3 |
| | Choose one course from: | 3 |
| | - Crisis, Risk and Resilience Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Choose one course from: | 3 |
| | - Crisis, Risk and Resilience Program Specialization: Select one non-COMD course from the options list, or | |
| | - your declared Minor, or | |
| | - Open Electives | |
| COMD 495 or COIN 496 | Senior Project<br>Co-Operative Education | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |
| **Total Degree Requirements** | | **120** |

## B.S. in Communication to M.S. in Human Security and Resilience

By combining the Bachelor of Science in Communication (BSCOMM) with the Master of Science in Human Security and Resilience (MSHSR), students gain a unique advantage, equipping them with advanced communication skills and interdisciplinary expertise to effectively address pressing global challenges.

Students accepted into this combined pathway spend three academic years in undergraduate-level study of Communication. Students pursuing the program must select the BSCOMM Program Specialization in Crisis, Risk & Resilience Communication. At the beginning of the senior year (having earned at least 75 credit hours with a 3.0 CGPA), students will take 9 credit hours of MHSR coursework.

Upon completion of Bachelor of Science in Communication (BSCOMM) requirements, students will be enrolled in the Master of Science in Human Security and Resilience (MSHSR) for completion on an accelerated timeline. Instead of COMD Open Electives, students will take MHSR 500 Introduction to Human Security and 2 courses from the following options: MHSR 515 International Law and US Security Policy, MHSR 520 Principles of International Conflict Resolution, MHSR 530 Environmental Security, or MHSR 540 Foundations of Resilience.

In any graduate course taken by an undergraduate student, a grade of B or better must be earned. If a grade of C or F is earned in the MSHSR graduate courses taken for BSCOMM credit, the student will be removed from the program, have credit awarded to the BSCOMM degree only, and may continue to complete the BSCOMM degree.

Students initiate program acceptance through their Academic Advisor or Campus Advisor to ensure program criteria are met. Student Advisors will complete the request for processing into the program.

# B.S. in Data Science

The B.S. in Data Science program is designed for students who have an interest in deriving and communicating meaning from data that is typical for aerospace and many related industries. It features a tailored curriculum to bridge the gap between data science theory and practice, with a significant focus on real-world data science projects and research collaborations. This interdisciplinary program focuses on the mathematics, statistics, and computer science necessary to understand and employ machine learning algorithms to model observations and make predictions. The program includes a specialization in Applied Data Science.

Students who complete the program will gain a deep understanding of and expertise in the typical data science pipeline: gathering, processing, analyzing, and presenting data. The program accomplishes this by:

- Providing students with strong theoretical understanding and practical skills in data analytics.
- Developing students' problem-solving abilities, communication skills, and teamwork through project-based learning experiences.
- Fostering research collaborations with industry partners, leading to publications, presentations, and professional development opportunities.
- Preparing students for diverse career opportunities in data science, industry, and academic pursuits.

Courses in the program require students to apply data science skills to real-world data of their own choosing. The program also requires students to complete a minor and includes open electives. This allows students to incorporate fields of expertise relevant to their career goals into their coursework, further increasing career readiness upon graduation.

A broad range of professional areas benefit from data science, including artificial intelligence, aviation, finance, health, and defense. The overall career outlook for data science is excellent. The U.S. Bureau of Labor Statistics predicts that data science employment will rise by 36% from 2023 to 2033. In addition, many companies are increasingly recognizing the importance of data analysts.

**Students will:**

- Use data to construct evidence-based solutions.
- Assimilate skills acquired through the degree program in application to a capstone project providing solutions to real-world challenges.
- Acquire data from a variety of sources including public research, web pages, and social media.
- Convert unstructured and varied data into analysis-ready form.
- Use software packages and libraries to support data analysis.
- Use statistical theory and modern machine learning techniques to model observations and make predictions.
- Implement data storage and processing architectures across clusters of commodity hardware and cloud resources.
- Manage issues related to program performance, scalability, and high-availability.
- Communicate deftly with proficiency in both verbal and nonverbal communication.
- Present actionable results of data analysis in multimedia formats to both technical and nontechnical audiences.

# DEGREE REQUIREMENTS

## General Education

| General Education | | |
|---|---|---|
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, Social Sciences, Physical and Life Science, Mathematics, and Computer Science may be chosen from as listed, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | **9** |
| COMD 219 | Speech | |
| ENGL 123 | English Composition | |
| ENGL 221 | Technical Report Writing | |
| **Computer Science/Information Technology** | | **3** |
| CPSC 223 | Scientific Programming in C | |
| **Mathematics** | | **8** |
| MATH 241 | Calculus and Analytical Geometry I | |
| MATH 242 | Calculus and Analytical Geometry II | |
| **Physical and Life Sciences (Natural Sciences)** | | **7** |
| **Humanities and Social Sciences** | | **12** |
| Lower-Level Humanities | | |
| Lower-Level Social Science | | |
| Lower-Level or Upper-Level Humanities or Social Science | | |
| Upper-Level Humanities or Social Science | | |
| **Total Credits** | | **39** |

## Core/Major

| Data Science Core | | |
|---|---|---|
| CPSC 222 | Introduction to Discrete Structures | 3 |
| CPSC 225 | Computer Science II | 3 |
| CPSC 315 | Data Structures and Analysis of Algorithms | 3 |
| CPSC 317 | Files and Database Systems | 3 |
| or MMIS 392 | Database Management | |
| DSCI 310 | Data Storytelling | 3 |
| DSCI 411 | Applied Data Science Capstone | 3 |
| MATH 243 | Calculus and Analytical Geometry III | 4 |
| STAT 412 | Probability and Statistics | 3 |
| MATH 413 | Statistics | 3 |
| MATH 432 | Applied Linear Algebra | 3 |
| **Total Credits** | | **31** |

| Applied Data Science Concentration | | |
|---|---|---|
| CSCI 399 | Special Topics in Computer Science | 3 |
| or RSCH 395 | Publication-Ready STEM Research | |
| DSCI 440 | Data Mining | 3 |
| DSCI 201 | Introduction to Data Science Applications | 3 |
| CSCI 251 | Introduction to Programming for Data Science | 3 |
| MATH 345 | Differential Equations and Matrix Methods | 4 |
| CPSC 455 | Artificial Intelligence | 3 |
| **Total Credits** | | **19** |

## Minors

| Minor*** | 15-22 |
|---|---|
| Select a minor, in consultation with your advisor. | |
| ***The Applied Data Science and Mathematics minors cannot be chosen. | |

**(View Minors): https://catalog.erau.edu/worldwide/minors/**

| Any-Level Open Electives | 9-16 |
|---|---|
| Open elective credits are dependent upon the selected minor. | |
| **Total Degree Requirements** | **120** |

### Year 1

| Term 1 | | Credits |
|---|---|---|
| CSCI 251 | Introduction to Programming for Data Science | 3 |
| MATH 241 | Calculus and Analytical Geometry I | 4 |
| | **Credits Subtotal** | **7.0** |
| **Term 2** | | |
| DSCI 201 | Introduction to Data Science Applications | 3 |
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| | **Credits Subtotal** | **7.0** |
| **Term 3** | | |
| DSCI 310 | Data Storytelling | 3 |
| ENGL 123 | English Composition | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Physical & Life Science | 3 |
| COMD 219 | Speech | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| MATH 243 | Calculus and Analytical Geometry III | 4 |
| | **Credits Subtotal** | **4.0** |
| | **Credits Total:** | **30.0** |

### Year 2

| Term 1 | | Credits |
|---|---|---|
| | Physical & Life Science | 3 |
| | Physical & Life Science Lab | 1 |
| | **Credits Subtotal** | **4.0** |
| **Term 2** | | |
| MATH 345 | Differential Equations and Matrix Methods | 4 |
| ENGL 221 | Technical Report Writing | 3 |
| | **Credits Subtotal** | **7.0** |
| **Term 3** | | |
| MATH 432 | Applied Linear Algebra | 3 |
| STAT 412 | Probability and Statistics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| MATH 413 | Statistics | 3 |
| | Lower-Level Social Sciences | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Lower-Level Humanities | 3 |
| | Open Elective | 4 |
| | **Credits Subtotal** | **7.0** |
| | **Credits Total:** | **30.0** |

### Year 3

| Term 1 | | Credits |
|---|---|---|
| CPSC 222 | Introduction to Discrete Structures | 3 |
| CPSC 223 | Scientific Programming in C | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| CPSC 225 | Computer Science II | 3 |

| | | |
|---|---|---|
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| CPSC 315 | Data Structures and Analysis of Algorithms | 3 |
| CPSC 455 | Artificial Intelligence | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| CPSC 317 | Files and Database Systems | 3 |
| or MMIS 392 | Database Management | |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Open Elective | 3 |
| | Upper-Level Humanities/Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 4

| **Term 1** | | **Credits** |
|---|---|---|
| CSCI 399 | Special Topics in Computer Science | 3 |
| or RSCH 395 | Publication-Ready STEM Research | |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Open Elective | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| DSCI 440 | Data Mining | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Open Elective | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Open Elective | 3 |
| DSCI 411 | Applied Data Science Capstone | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

| | |
|---|---|
| **Total Degree Requirements** | **120** |

# B.S. in Emergency Services

The B.S. in Emergency Services (BSES) degree program provides students with the theoretical foundations, principles, and practices for management and leadership in fire and emergency services response organizations.

The BSES degree broadly encompasses all emergency services response disciplines in public and private sectors including fire, emergency medical service, investigation, aircraft rescue and firefighting, hazardous materials, inspection, instruction, public information, and wildland firefighting. Concepts covered include human behavior, structures and systems, prevention, protection, investigation and analysis, organization and management, research, administration, hazardous materials, personnel management, political and legal foundations, terrorism, community risk reduction, system design for life safety, occupational safety, and human program management.

Students can choose from two specializations currently offered at the baccalaureate level: Aviation Emergency Management or Fire and Emergency Services.

- The Aviation Emergency Management Specialization has a focus on aircraft accident crash investigation, airport emergency management, aviation safety, and leadership in emergency response organizations.
- The Fire and Emergency Services Specialization focuses on emergency response administration, management, leadership, community risk reduction, and operational issues in emergency services.

Our BSES program offers several advantages including flexibility to balance education with work, family, or other commitments; accessibility by overcoming geographical barriers and providing individuals with physical disabilities or other limitations better access to education; cost-effectiveness by saving on commuting, housing, and course materials; Advancement of Career with online education being suited for professionals with prior experience looking expand their formal education. Our state-of-the-art online modality allows students to acquire new skills and knowledge with little interruption to their careers. Many of our students can complete course work during downtimes at work or on the weekends.

The curriculum for this degree is designed, in part, from the National Fire Academy's Fire and Emergency Services Higher Education (FESHE) Model Curriculum for a bachelor's degree. When students complete FESHE courses through Embry-Riddle Aeronautical University, they can earn a National Fire Academy certificate just as if they completed the courses at the National Fire Academy. In addition to the FESHE core courses, our program also offers several of the FESHE non-core courses, of which have accompanying NFA certificates.

Students can earn NFA certificates for the following courses:

ESVS 406: Political and Legal Foundations for Fire Protection (C0258)
ESVS 401: Applications of Fire Research (C0260)
ESVS 305: Fire Prevention Organization and Management (C0264)
ESVS 405: Personnel Management for the Fire Service (C0266)
ESVS 402: Fire and Emergency Services Administration (C0271)
ESVS 301: Community Risk Reduction for the Fire and Emergency Services (C0287)
ESVS 302: Fire Dynamics (C0257)
ESVS 201: Fire Related Human Behavior (C0263)
ESVS 400: Analytical Approaches to Public Fire Protection (C0265)
ESVS 404: Managerial Issues in Hazardous Materials (C0274)
ESVS 304: Fire Investigation and Analysis (C0285)
ESVS 303: Fire Protection Structures and Systems Design (C0295)

Students will complete the FEMA | Emergency Management Institute Professional Development Series (PDS), which includes seven Emergency Management Institute independent study courses that provide a well-rounded set of fundamentals of the emergency management profession. At the completion of the PDS, students will earn a certificate.

The Bachelor of Science degree in Emergency Services is one of only a handful of programs around the world to have International Fire Service Accreditation Congress (IFSAC) accreditation and FESHE recognition which all lead to demonstrate our programs excellence and student dedication.

Accreditation is the hallmark of quality and excellence in higher education, and for our Bachelor of Science degree in Emergency Services program, accreditation by IFSAC underscores our commitment to academic rigor and industry standards. This accreditation ensures that our curriculum meets the highest benchmarks set by professionals in the field, providing students with the knowledge and skills they need to excel in their careers. By choosing an accredited program, students can be confident that they are receiving a reputable education that is recognized and respected by employers worldwide, giving them a competitive edge in the dynamic and critical field of emergency services. In addition, our BSES program is designed in collaboration with an industry advisory board of experts

in emergency services, ensuring that the curriculum is relevant to the demands and challenges of the profession.

The BSES program also participates in the Air University-Associate to Baccalaureate Cooperative (AU-ABC Category I). All students who have completed a Community College of the Air Force (CCAF) associates degree in Fire Science and Emergency Management are eligible. CCAF graduates can complete a Bachelor of Science in Emergency Services by taking no more than 60 semester hours beyond their CCAF degree.

B.S. in Emergency Services students who wish to continue to a master's degree may enroll in the BSES to MSES Combined Program Pathways.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Employ leadership and supervisory knowledge to effectively manage fire and emergency services incidents, resources, and programs.
- Apply research, critical thinking, and analytical decision-making skills to contemporary public safety challenges.
- Apply foundational fire and emergency services to scientific and technical concepts and principles.
- Implement management, protection, prevention, mitigation, response, recovery, and planning strategies responsive to community needs.
- Demonstrate proficiency in identifying and solving problems related to their specialty area using Fire Science knowledge and its interrelations with historical, organizational, legal, social, political, economic, and physical factors.

## DEGREE REQUIREMENTS

## General Education

| | | |
|---|---|---|
| **General Education** | | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, and Humanities and Social Sciences may be chosen from those listed below, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | **9** |
| ENGL 123 | English Composition | 3 |
| ENGL (above ENGL 106) / SPCH / COMD (6) | | 6 |
| **Humanities and Social Sciences** | | **12** |
| Lower-Level Humanities | | 3 |
| Lower-Level Social Sciences | | 3 |
| Lower-Level or Upper-Level Humanities or Social Sciences | | 3 |
| Upper-Level Humanities or Social Sciences | | 3 |
| **Any Physical and Life Sciences** | | **6** |
| **Any Mathematics 6-hour sequence above MATH 106** | | **6** |
| **Any Computer Science / Information Technology** | | **3** |
| **Total Credits** | | **36** |

## Core/Major

| | | |
|---|---|---|
| **Program Support** | | **3** |
| RSCH 202 | Introduction to Research Methods | 3 |
| **Program Specialization** | | **39** |
| Choose one Specialization | | |

## Electives

| | | |
|---|---|---|
| **Open Electives**** | | **27** |

** Students are allowed to utilize their elective credits to select any **Minor** (https://catalog.erau.edu/worldwide/minors/), offered in the catalog.

| | | |
|---|---|---|
| **Specified Electives** | | **15** |
| Choose 15 credits from ASCI/SFTY/ESVS/EMGY/SSES Courses | | |
| **Total Degree Requirements** | | **120** |

* Minnesota student residents refer to State of Minnesota Course Requirement statement for Humanities requirements.

## Program Specializations:

### Aviation Emergency Management Specialization

| | | |
|---|---|---|
| ESVS 301 | Community Risk Reduction for the Fire and Emergency Services | 3 |
| ESVS 302 | Fire Dynamics | 3 |
| ESVS 303 | Fire Protection Structures and Systems | 3 |
| ESVS 305 | Fire Prevention Organization and Management | 3 |
| ESVS 400 | Analytical Approaches to Public Fire Protection | 3 |
| ESVS 401 | Applications of Fire Research | 3 |
| ESVS 404 | Managerial Issues in Hazardous Materials | 3 |
| EMGY 400 | Introduction to Incident Command System | 3 |
| ESVS 405 | Personnel Management for Fire and Emergency Services | 3 |
| ESVS 480 | Advanced Principles in Fire and Emergency Services Safety and Survival | 3 |
| BSAS 330 | Aircraft Accident Investigation | 3 |
| BSAS 350 | Aircraft Crash and Emergency Management | 3 |
| BSAS 409 | Aviation Safety | 3 |
| **Total Credits** | | **39** |

### Fire and Emergency Services Specialization

| | | |
|---|---|---|
| ESVS 201 | Fire-Related Human Behavior | 3 |
| ESVS 301 | Community Risk Reduction for the Fire and Emergency Services | 3 |
| ESVS 303 | Fire Protection Structures and Systems | 3 |
| ESVS 304 | Fire Investigation and Analysis | 3 |
| ESVS 305 | Fire Prevention Organization and Management | 3 |
| ESVS 400 | Analytical Approaches to Public Fire Protection | 3 |
| ESVS 401 | Applications of Fire Research | 3 |
| ESVS 402 | Fire and Emergency Services Administration | 3 |
| ESVS 404 | Managerial Issues in Hazardous Materials | 3 |
| EMGY 400 | Introduction to Incident Command System | 3 |
| ESVS 405 | Personnel Management for Fire and Emergency Services | 3 |
| ESVS 406 | Political and Legal Foundations of Fire Protection | 3 |
| ESVS 480 | Advanced Principles in Fire and Emergency Services Safety and Survival | 3 |
| **Total Credits** | | **39** |

## Plan of Study (BSES)

Recommended plan of study and sequence of courses for a four-year degree and fall start completion scenario. A four-year degree plan or a particular starting term are not required but serve as an example.

**Recommended Plan of Study for a Fall Start, Four-Year Degree Completion Scenario**

## B.S. in Emergency Services with Aviation Emergency Management Specialization

### Year 1

| Term 1 | | Credits |
|---|---|---|
| ENGL 123 | English Composition | 3 |
| | MATH Sequence 1 above MATH 106 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | ENGL/SPCH/COMD Elective | 3 |
| | MATH Sequence 2 above MATH 106 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Computer Science/Information Technology | 3 |
| | Open Elective: Statistics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | ENGL/SPCH/COMD Elective | 3 |
| RSCH 202 | Introduction to Research Methods | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Physical & Life Science | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 2

| Term 1 | | Credits |
|---|---|---|
| ESVS 301 | Community Risk Reduction for the Fire and Emergency Services | 3 |
| | Lower-Level Humanities | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ESVS 302 | Fire Dynamics | 3 |
| | Lower-Level Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| ESVS 303 | Fire Protection Structures and Systems | 3 |
| | Physical & Life Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| ESVS 404 | Managerial Issues in Hazardous Materials | 3 |
| | Upper-Level Humanities or Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| ESVS 405 | Personnel Management for Fire and Emergency Services | 3 |
| | Any Level Humanities or Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 3

| Term 1 | | Credits |
|---|---|---|
| ESVS 305 | Fire Prevention Organization and Management | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ESVS 400 | Analytical Approaches to Public Fire Protection | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| BSAS 330 | Aircraft Accident Investigation | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| BSAS 409 | Aviation Safety | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| BSAS 350 | Aircraft Crash and Emergency Management | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 4

| Term 1 | | Credits |
|---|---|---|
| ESVS 401 | Applications of Fire Research | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| EMGY 400 | Introduction to Incident Command System | 3 |
| | Specified Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| ESVS 480 | Advanced Principles in Fire and Emergency Services Safety and Survival | 3 |
| | Specified Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Open Elective | 3 |
| | Specified Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Specified Elective | 3 |
| | Specified Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |
| **Total Degree Requirements** | | **120** |

## B.S. in Emergency Services with Fire & Emergency Services Specialization

### Year 1

| Term 1 | | Credits |
|---|---|---|
| ENGL 123 | English Composition | 3 |
| | MATH Sequence 1 above MATH 106 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | ENGL/SPCH/COMD Elective | 3 |
| | MATH Sequence 2 above MATH 106 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Computer Science/Information Technology | 3 |
| | Open Elective: Statistics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |

| | | |
|---|---|---|
| | ENGL/SPCH/COMD Elective | 3 |
| RSCH 202 | Introduction to Research Methods | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Physical & Life Science | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 2

| **Term 1** | | **Credits** |
|---|---|---|
| ESVS 301 | Community Risk Reduction for the Fire and Emergency Services | 3 |
| | Lower-Level Humanities | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ESVS 201 | Fire-Related Human Behavior | 3 |
| | Lower-Level Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| ESVS 303 | Fire Protection Structures and Systems | 3 |
| | Physical & Life Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| ESVS 404 | Managerial Issues in Hazardous Materials | 3 |
| | Upper-Level Humanities or Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| ESVS 405 | Personnel Management for Fire and Emergency Services | 3 |
| | Any Level Humanities or Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 3

| **Term 1** | | **Credits** |
|---|---|---|
| ESVS 305 | Fire Prevention Organization and Management | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ESVS 400 | Analytical Approaches to Public Fire Protection | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| ESVS 304 | Fire Investigation and Analysis | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| ESVS 406 | Political and Legal Foundations of Fire Protection | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Open Elective | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 4

| **Term 1** | | **Credits** |
|---|---|---|
| ESVS 401 | Applications of Fire Research | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| EMGY 400 | Introduction to Incident Command System | 3 |
| | Specified Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| ESVS 402 | Fire and Emergency Services Administration | 3 |
| ESVS 480 | Advanced Principles in Fire and Emergency Services Safety and Survival | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Specified Elective | 3 |
| | Specified Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Specified Elective | 3 |
| | Specified Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

| | |
|---|---|
| **Total Degree Requirements** | **120** |

## B.S. in Emergency Services to M.S. in Emergency Services

The BSES to MSES program is for exceptional students who are committed to continuing their education through the Master of Science in Emergency Service (MSES) degree. The MSES degree program is designed for individuals seeking advanced knowledge in planning, emergency services, hazard mitigation and preparedness, disaster response, recovery, and homeland security. The program accelerates the completion of the MSES degree by allowing qualified BSES students to complete up to three MSES graduate courses and count them toward both degrees.

Students may begin to complete the requirements when they have achieved senior status (having earned at least 75 credit hours with a 3.00 CGPA). Students must earn a B grade or better in each of the three MSES courses. If a grade of C, D, or F is earned in any of the MSES graduate courses taken for BSES credit, the student will be removed from the program, have credit awarded to the BSES degree only, and may continue to complete the BSES degree. Additionally, students must complete a minimum of 120 course credits for their Bachelor of Science degree.

Upon completion of the BSES degree, students will be enrolled in the MSES program where they can continue completing the degree requirements with the previous MSES courses already credited.

Students interested in this accelerated program option should contact their Academic Advisor or Campus Advisor.

# B.S. in Homeland Security

The Bachelor of Science in Homeland Security (BSHS) degree is based on the needs of the U.S. government and its citizens and the needs of the private sector. The BSHS degree combines the University's General Education requirements with a solid core of homeland security courses and minors in international relations, cybersecurity, or several other minors available to the student. In addition, this degree allows the student to take maximum advantage of transfer credits and electives to explore breadth in related areas of study.

The Homeland Security program is the first BS in Homeland Security program in the nation accredited by The Council for the Accreditation of Emergency Management and Homeland Security Education (CAEMHSE).

Students will earn the FEMA | Emergency Management Institute Professional Development Series (PDS) certificate as part of this program.

The Homeland Security degree is designed for students interested in obtaining a solid foundation in many of the domains of the growing homeland security enterprise. It includes terrorism studies, law and policy, emergency management, risk analysis, intelligence, physical security, environmental security, asymmetric warfare, and decision making/strategic planning. Students can choose how to specialize their homeland security bachelor's degree by taking two minors, or choose one minor and at least a 15-credit "coherent block of study" from transferred military credits, FAA licenses, or approved college credits (with permission from the BSHS program coordinator). Senior capstone project requires students to work with local organizations to solve real homeland security or emergency management challenges. Internships or cooperative work experiences optimize the student's professional preparation and credentials.

The goal of the degree is to produce highly marketable graduates with entry-level skills such as the ability to perform risk analyses, write emergency management and continuity of operations plans, design and evaluate exercises, design and perform physical security evaluations, design and deliver professional briefings, and understand how to identify and protect critical infrastructure. Graduates of this program will find employment opportunities in federal or state government, universities, and the military or private sectors. In addition, the BSHS program is ideal preparation for further study in graduate school, including law, public policy, or emergency management, intelligence analysis, business, criminal justice, political science, national security studies, international affairs, and other related fields.

**B.S. in Homeland Security students who wish to continue to a master's degree may enroll in the BSHS to MSHSR Combined Program Pathways.**

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Deliver professional presentations and communications based on scholarly research they conduct.
- Engage in all phases of the intelligence cycle, including techniques, strategies, and counter-intelligence concepts.
- Identify information security threats, cybersecurity challenges, and countermeasures.
- Demonstrate mastery of homeland security knowledge and tools.
- Recognize concepts of ethics and professionalism within the homeland security enterprise.
- Interpret the legal and policy structure of the homeland security and intelligence enterprise.
- Evaluate exercises of their design applicable to the disciplines of homeland security.
- Demonstrate knowledge of contemporary or emergent threats, including natural, man-made, and technological hazards.
- Define terrorism, its origins, ideologies, and goals.
- Assess U.S. critical infrastructures using risk-based methodologies and resiliency concepts.
- Apply risk management and analysis principles to homeland security and intelligence issues.
- Analyze environmental hazards and characterize their relationship to U.S. homeland/national security.
- Analyze elements of strategic planning and decision making.

# DEGREE REQUIREMENTS

## General Education

| General Education | |
|---|---|
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, and Humanities and Social Sciences may be chosen from those listed below, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | |
| **Communication Theory and Skills** | **9** |
| ENGL 123 or equivalent | 3 |
| ENGL (above ENGL 106) / SPCH / COMD | 6 |
| **Humanities and Social Sciences** | **12** |
| Lower-Level Humanities | 3 |
| Lower-Level Social Science | 3 |
| Lower-Level or Upper-Level Humanities or Social Sciences | 3 |
| Upper-Level Humanities or Social Sciences | 3 |
| **Any Physical and Life Sciences** | **6** |
| **Any Mathematics 6-hour sequence above MATH 106** | **6** |
| **Any Computer Science/Information Technology** | **3** |
| **Total Credits** | **36** |

## Core/Major

| Homeland Security Core** | | |
|---|---|---|
| HLSD 110 | Introduction to Homeland Security | 3 |
| HLSD 155 | Foundations of Information Security | 3 |
| HLSD 215 | Introduction to Industrial Security | 3 |
| HLSD 280 | Professional Skills in Homeland Security | 3 |
| HLSD 320 | Homeland Security Law and Policy | 3 |
| EMGY 310 | Fundamentals of Emergency Management | 3 |
| HLSD 315 | Critical Infrastructure Security, Resilience, and Risk Analysis | 3 |
| HLSD 360 | Strategic Planning and Decision Making in Homeland Security | 3 |
| SSES 401 | Applied Research Methods in Security and Emergency Services | 3 |
| SCTY 315 | Studies in Intelligence I | 3 |
| or SCTY 385 | Intelligence Collection and Analysis | |
| SCTY 488 | National Security Issues and Terrorism | 3 |
| HLSD 290 | Environmental Security | 3 |
| HLSD 405 | Emergent Topics in Homeland Security | 3 |
| or HLSD 415 | Immigration and Homeland Security | |
| HLSD 410 | Exercise Design and Evaluation in Homeland Security | 3 |
| HLSD 495 | Homeland Security Capstone | 3 |
| **Total Credits** | | **45** |

## Breadth Area or Choose Minors: https://catalog.erau.edu/worldwide/minors/

| Breadth Area/Minors** | |
|---|---|
| Students complete their breadth requirement by either two non-duplicating minors (minimum 30 credits total), or one minor and a "coherent block of study" from transferred military credits, FAA licenses, or approved college credits (minimum 30 credits total) that is determined with consent of Program Coordinator. | |
| **Total Credits** | **30** |

| Program Support** | | **9** |
|---|---|---|
| EMGY 400 | Introduction to Incident Command System | 3 |
| EMGY 405 | Disaster Policy and Management | 3 |

| | | |
|---|---|---|
| EMGY 430 | Emergency Management and Contingency Planning | 3 |

**For students in the Bachelor of Science in Homeland Security degree program the RSCH 202 prerequisite for Core, Program Support, or Minor courses are waived since RSCH 202 is not required for the program.

| | |
|---|---|
| **Total Degree Requirements** | **(Minimum) 120** |

## Plan of Study (BSHS)

Recommended plan of study and sequence of courses for a four-year degree scenario. A four-year degree plan is not required but serves as an example.

**Recommended Plan of Study for a Four-Year Degree Completion Scenario**

| | | |
|---|---|---|
| **Year One** | | |
| | | **Credits** |
| ENGL 123 | English Composition | 3 |
| HLSD 110 | Introduction to Homeland Security | 3 |
| | Lower-Level Humanities | 3 |
| | Any Mathematics above MATH 106 - Part 1 | 3 |
| | Any Physical and Life Sciences - Part 1 | 3 |
| | ENGL (above ENGL 106)/SPCH/COMD - Part 1 | 3 |
| HLSD 155 | Foundations of Information Security | 3 |
| | Lower-Level Social Science | 3 |
| | Any Mathematics above MATH 106 - Part 2 | 3 |
| | Any Physical and Life Sciences - Part 2 | 3 |
| | Lower-Level or Upper-Level Humanities or Social Sciences | 3 |
| | **Credits Subtotal** | **33.0** |
| **Year Two** | | |
| | ENGL (above ENGL 106)/SPCH/COMD - Part 2 | 3 |
| HLSD 215 | Introduction to Industrial Security | 3 |
| | Any Computer Science/Information Technology | 3 |
| | Upper-Level Humanities or Social Science | 3 |
| | Breadth Area/Minor Course 1 | 3 |
| HLSD 280 | Professional Skills in Homeland Security | 3 |
| SCTY 315 | Studies in Intelligence I | 3 |
| or SCTY 385 | Intelligence Collection and Analysis | |
| HLSD 315 | Critical Infrastructure Security, Resilience, and Risk Analysis | 3 |
| | Breadth Area/Minor Course 2 | 3 |
| | Breadth Area/Minor Course 3 | 3 |
| | **Credits Subtotal** | **30.0** |
| **Year Three** | | |
| EMGY 310 | Fundamentals of Emergency Management | 3 |
| HLSD 320 | Homeland Security Law and Policy | 3 |
| HLSD 360 | Strategic Planning and Decision Making in Homeland Security | 3 |
| EMGY 400 | Introduction to Incident Command System | 3 |
| | Breadth Area/Minor Course 4 | 3 |
| SSES 401 | Applied Research Methods in Security and Emergency Services | 3 |
| HLSD 290 | Environmental Security | 3 |
| HLSD 405 | Emergent Topics in Homeland Security | 3 |
| or HLSD 415 | Immigration and Homeland Security | |
| | Breadth Area/Minor Course 5 | 3 |
| | Breadth Area/Minor Course 6 | 3 |
| | **Credits Subtotal** | **30.0** |
| **Year Four** | | |
| SCTY 488 | National Security Issues and Terrorism | 3 |
| EMGY 430 | Emergency Management and Contingency Planning | 3 |
| HLSD 410 | Exercise Design and Evaluation in Homeland Security | 3 |
| EMGY 405 | Disaster Policy and Management | 3 |
| | Breadth Area/Minor Course 7 | 3 |
| | Breadth Area/Minor Course 8 | 3 |
| | Breadth Area/Minor Course 9 | 3 |
| | Breadth Area/Minor Course 10 | 3 |
| HLSD 495 | Homeland Security Capstone | 3 |
| | **Credits Subtotal** | **27.0** |
| | **Credits Total:** | **120.0** |

## B.S. in Homeland Security to M.S. in Human Security and Resilience

The BSHS to MSHSR program is designed for exceptional students who are committed to continuing their education at the master's level. This fast-paced program offers an accelerated path from a Bachelor of Science in Homeland Security (BSHS) to a Master of Science in Human Security & Resilience (MSHSR). The program allows qualifying students to substitute three MSHSR graduate courses that cover similar concepts and principles for three required undergraduate courses.

Students accepted into the program spend three academic years in undergraduate-level study. At the beginning of their senior year (having earned at least 75 credit hours with a 3.00 CGPA), they may take up to three graduate-level courses that will meet undergraduate and graduate program requirements (when a B grade or better is achieved). Students must complete a minimum of 120 undergraduate/graduate course credits for their Bachelor of Science degree.

Upon completion of the BSHS requirements, students will be enrolled in the MSHSR degree for completion on an accelerated timeline. In any graduate course taken by an undergraduate student, the student must earn a grade of B or better. If the student earns a grade of C or F in any of the MSHSR graduate courses taken for BSHS credit, the student will be removed from the program, have credit awarded to the BSHS degree only, and may continue to complete the BSHS degree.

Students have the flexibility to substitute certain courses. MHSR 530 (Environmental Security) may be taken instead of HLSD 290 (Environmental Security). Similarly, MHSR 520 (Principles of International Conflict Resolution) can replace HLSD 320 (Homeland Security Law and Policy). For the third MHSR course option, students may choose either MHSR 515 as an alternative to SCTY 488 or MHSR 540 in place of EMGY 310. Additionally, with the approval of both the BSHS and MHSR program chairs, other course substitutions may also be permitted.

Students initiate program acceptance through their Academic Advisor or Campus Advisor; to help ensure program criteria are met. Student Advisor will complete the request for processing into the program.

# B.S. in Human Factors Psychology

The field of Human Factors, rooted in understanding the interaction between humans and other system components, is becoming increasingly vital in our technology-driven world. With applications spanning across industries and disciplines, the relevance of an undergraduate program in this domain has never been more pronounced. This program helps ensure that future professionals are equipped with the necessary skills and knowledge to innovate and improve human-system interactions.

Human Factors Psychology is a unique area of psychology aimed toward the abilities and limitations of humans to sense, store and process

information, and act. This knowledge is used to guide decisions for the design, use, maintenance and improvement of systems that rely on human interactions. This complete human factors cycle approach focuses on the fact that a broad range of professional areas benefit from human factors psychology, for example including: artificial intelligence; aviation; ergonomics, human systems integration, safety, simulation, and robotics.

The program includes an applied practicum or research experience. This requirement can be met in several ways, including co-ops, internships or working on a virtual Worldwide Campus research team. Coordinated through the Worldwide Campus COIN program, students will be provided opportunities to gain practical experience in real-world settings to increase career/career progression readiness upon graduation.

Students successfully completing the B.S. in Human Factors Psychology program will have a deep understanding and expertise in the human-centered aspects of system design and operation. In particular, graduates from the program will:

- Have a robust foundation in the principles and practices of Human Factors.
- Have the critical thinking and problem-solving skills pertinent to human-system interactions.
- Be ready to meet the challenges of designing, evaluating, and implementing user-centered systems in various industries.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Describe characteristics of human anatomy, physiology, sensation, and perception, with emphasis on vision, audition, and vestibular systems.
- Describe characteristics and limitations of human memory and cognition.
- Relate ergonomic and bioengineering factors to human-machine system design and performance.
- Critically evaluate scientific research.
- Interpret applied statistical analyses for the behavioral sciences.
- Apply experimental designs for the behavioral sciences.
- Apply human factors psychology principles to human-machine system performance in various domains.
- Apply human-machine system analysis and design methodologies across various domains.
- Collaborate effectively in human factors and ergonomics team projects using professional communication skills.

# DEGREE REQUIREMENTS

## General Education

| | |
|---|---|
| **General Education** | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, Social Sciences, Physical and Life Science, Mathematics, and Computer Science may be chosen from as listed, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | |
| **Communication Theory and Skills** | **9** |
| ENGL 123 English Composition | |
| ENGL (above ENGL 106) / SPCH / COMD (6) | |
| **Computer Science/Information Technology** | **3** |
| **Mathematics** | **6** |
| **Physical and Life Sciences (Natural Sciences)** | **6** |
| **Humanities and Social Sciences** | **12** |
| Lower-Level Humanities | |
| Lower-Level Social Science | |
| Lower-Level or Upper-Level Humanities or Social Science | |
| Upper-Level Humanities or Social Science | |
| **Total Credits** | **36** |

## Core/Major

| | | |
|---|---|---|
| **Human Factors Core** | | |
| BSHF 300 | Human Factors I: Principles and Fundamentals | 3 |
| BSHF 302 | Human Factors II: Analytic Methods and Techniques | 3 |
| BSHF 307 | Human Factors III: Performance Processes | 3 |
| Culminating Experience (Select One): | | 3 |
| BSHF 401 | Applied Research | |
| BSHF 480 | Human Factors Capstone | |
| COIN 496 | Co-Operative Education | |
| **Total Credits** | | **12** |

| | | |
|---|---|---|
| **Additional Core (Program Support)** | | |
| PSYC 220 | Introduction to Psychology | 3 |
| PSYC 310 | Sensation and Perception | 3 |
| PSYC 315 | Cognitive Psychology | 3 |
| RSCH 202 | Introduction to Research Methods | 3 |
| STAT 211 | Statistics with Aviation Applications | 3 |
| **Total Credits** | | **15** |

| | |
|---|---|
| **Program Specialization** | **36** |
| Choose two specializations | |

## Electives

| | | |
|---|---|---|
| **Specified Electives** | | |
| BSHF 310 | Human Computer Interaction | 3 |
| BSHF 315 | Automation and System Issues in Aviation | 3 |
| BSHF 320 | User Experience/User Interaction | 3 |
| HUMN 250 | Generative Artificial Intelligence in Real-World Contexts | 3 |
| HUMN 330 | Values and Ethics | 3 |
| or RSCH 350 | Research Ethics | |
| MGMT 201 | Principles of Management | 3 |
| **Total Credits** | | **18** |

| | |
|---|---|
| **Open Electives** | **3** |

| | |
|---|---|
| **Total Degree Requirements** | **120** |

## Program Specializations:

### Psychological Foundations of Human Factors

| | | |
|---|---|---|
| Select 6 courses from the following: | | 18 |
| PSYC 320 | Aviation Psychology | |
| PSYC 326 | Group and Team Behavior | |
| PSYC 340 | Industrial/Organizational Psychology | |
| PSYC 350 | Social Psychology | |
| PSYC 355 | The Psychology of Creativity and Innovation | |
| PSYC 360 | Cultural Psychology | |
| PSYC 400 | Introduction to Cognitive Science | |
| PSYC 440 | The Psychology of Resilience | |
| **Total Credits** | | **18** |

### Safety

| | | |
|---|---|---|
| Select 6 of the following: | | 18 |
| SFTY 201 | Introduction to Occupational Safety and Health | |

| | | |
|---|---|---|
| SFTY 205 | Principles of Accident Investigation | |
| SFTY 311 | Fundamentals of Occupational Safety and Health | |
| BSAS 320 | Human Factors in Aviation Safety | |
| SFTY 321 | Ergonomics | |
| SFTY 326 | System Safety | |
| SFTY 341 | Occupational Safety and Health Program Management | |
| SFTY 415 | Human Reliability and Safety Analysis | |
| SFTY 421 | Ergonomics II | |
| **Total Credits** | | **18** |

### Organizational Behavior and Leadership

| | | |
|---|---|---|
| OBLD 275 | Critical Thinking for Leadership | 3 |
| Select 5 of the following: | | 15 |
| OBLD 300 | Emotional, Social, and Cognitive Intelligence | |
| OBLD 304 | Coaching and Mentoring | |
| OBLD 310 | Mediation, Negotiation, and Conflict Resolution | |
| OBLD 315 | Contemporary Leadership Theories | |
| OBLD 317 | Organizational Behavior | |
| OBLD 407 | Driving Change in Organizations | |
| OBLD 427 | Management of the Multicultural Workforce | |
| **Total Credits** | | **18** |

## Plan of Study (BSHFP)

Recommended plan of study and sequence of courses for a four-year degree completion scenario. A four-year degree plan or a particular starting term are not required but serve as an example.

**Recommended Plan of Study for a Four-Year Degree Completion Scenario**

### Year 1

| Term 1 | | Credits |
|---|---|---|
| | Any Communication Theory and Skills above ENGL 106 | 3 |
| | Any College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Any Communication Theory and Skills above ENGL 106 | 3 |
| | Any College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| STAT 211 | Statistics with Aviation Applications | 3 |
| | Any Communication Theory and Skills above ENGL 106 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| PSYC 220 | Introduction to Psychology | 3 |
| | Any Physical and Life Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Any Lower-Level Humanities | 3 |
| MGMT 201 | Principles of Management | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 2

| Term 1 | | Credits |
|---|---|---|
| | Lower-Level Social Science | 3 |
| BSHF 300 | Human Factors I: Principles and Fundamentals | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| RSCH 202 | Introduction to Research Methods | 3 |
| | Any Physical and Life Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| BSHF 302 | Human Factors II: Analytic Methods and Techniques | 3 |
| | Lower or Upper-Level Humanities/Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| HUMN 250 | Generative Artificial Intelligence in Real-World Contexts | 3 |
| | Program Specialization Course 1 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Any Computer Science | 3 |
| | Upper-Level Humanities/Social Science | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 3

| Term 1 | | Credits |
|---|---|---|
| | Program Specialization Course 2 | 3 |
| HUMN 330 or RSCH 350 | Values and Ethics Research Ethics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Program Specialization Course 3 | 3 |
| | Program Specialization Course 4 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Open Elective | 3 |
| | Program Specialization Course 5 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| BSHF 307 | Human Factors III: Performance Processes | 3 |
| | Program Specialization Course 6 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| BSHF 310 | Human Computer Interaction | 3 |
| | Program Specialization Course 7 | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 4

| Term 1 | | Credits |
|---|---|---|
| PSYC 310 or PSYC 315 | Sensation and Perception Cognitive Psychology | 3 |
| BSHF 315 | Automation and System Issues in Aviation | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Program Socialization Course 8 | 3 |

| | | |
|---|---|---|
| BSHF 320 | User Experience/User Interaction | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Program Specialization Course 9 | 3 |
| PSYC 315 | Cognitive Psychology | 3 |
| or PSYC 310 | Sensation and Perception | |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Program Specialization Course 10 | 3 |
| | Program Specialization Course 11 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Program Specialization Course 12 | 3 |
| | Culminating Experience (BSHF 401 or BSHF 480 or COIN 496) | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |
| **Total Degree Requirements** | | **120** |

## B.S. in Human Factors Psychology to M.S. in Human Factors

Students enrolled in the Bachelor of Science in Human Factors Psychology (BSHFP) degree program at the Worldwide College of Arts & Sciences have the opportunity to pursue the Worldwide Master of Science in Human (MSHF) in a combined degree program format. Combined bachelor's and master's degree program pathways provide academically talented students an opportunity to complete a bachelor's and a master's degree on an accelerated timeframe. ERAU recognizes that academically qualified undergraduate students may benefit from the advanced rigor and challenge of taking graduate-level course work prior to completing their bachelor's degree and being accepted into a graduate program.

A student who has earned a minimum of (1) 75 credit hours; and (2) a 3.00 CGPA may apply for admission into the combined program pathway through the Worldwide graduate admissions office. Students will then take up to nine (9) graduate credit hours to satisfy both undergraduate degree and graduate degree program requirements.

Upon completing the BSHFP requirements, the Bachelor of Science degree will be conferred, and students will be enrolled in the Master of Science degree. In any graduate course taken by an undergraduate student, a grade of “B” or better must be earned. These credits will count toward the B.S. and M.S. degree requirements, provided the student maintains enrollment in the combined program and receives a "B" or better in the courses. Students will be dropped from the program if their GPA falls below 3.0. The BSHFP degree will be conferred upon completion of all bachelor's degree requirements; the MSHF degree will be conferred upon completion of all master's degree requirements.

If the student chooses to leave the program before the completion of the MSHF program and has acquired the minimal hours required for graduation with the B.S. in Human Factors Psychology, any MSHF transition courses used to meet graduation requirements will be noted as undergraduate courses for the purpose of graduation.

## Approved Courses for the Combined Option

Students enrolled in the combined option must consult their academic advisor to determine appropriate course selection. Students will take MSHF 606 Human Cognition, MSHF 612 Human Performance, Limitation and Error and one other MSHF graduate-level elective course during their undergraduate degree.

# B.S. in Interdisciplinary Studies

## Program Plan of Study and Requirements

The Bachelor of Science in Interdisciplinary Studies (BSIS) degree program offers students a unique opportunity to transfer previously earned University and Joint Services Transcripted credit by custom designing a plan of study that serves their needs and aspirations. This flexible degree program, unique to Embry-Riddle, is designed for first-time-in-college students and students with previous academic and/or military credit who desire to study more than one academic discipline. BSIS students, minoring in Homeland Security, or Emergency Services are also eligible to participate in the BSIS 4+1 degree program option with the M.S. in Human Security and Resilience (MSHSR) degree program. BSIS 4+1 degree program option creates new opportunities for students to participate in an advanced graduate program and the Military Studies minor allows students to transfer previously earned, upper-level, American Council on Education recommended military training credit.

The Interdisciplinary Studies program consists of core requirements, in addition to two or three minors. Students who complete two minors must also have a specialization area, a group of courses closely related to one or more of their minors. The general education component provides a broad foundation of study, which leads to the core curriculum, focusing on a specialty. Core courses aim to enhance communication and analytical skills, so students gain an understanding of art, literature, and history, which shape an appreciation for the humanities. Also, core courses prepare students to discover meaningful links to technology, science, and other technical areas -- developing a renaissance education in a global economy.

Interdisciplinary Studies provides freedom for students to choose coursework, which is primarily lodged in the selection of a minor course of study. It allows students to explore the University’s offerings in search of a scholarly education that will broaden knowledge and worldwide ambitions. In the capstone experience, each student will complete and document program outcomes. The Capstone Project will illustrate and provide evidence of a well-rounded education to domestic and international employers.

The flexibility of the Interdisciplinary Studies degree program allows students to build on individual strengths and interests. Depending on your choices, graduates can prepare for careers in federal or civilian aviation or aerospace, management, engineering sciences, environmental sciences, communications, mathematics, or other related professions. In addition, Interdisciplinary Studies provide a strong foundation for advanced degrees. The Interdisciplinary Studies degree program seeks students with an entrepreneurial spirit who will cross boundaries, make creative connections, be flexible in a changing career environment, and become leaders in chosen fields.

This degree program participates in the Air University-Associate to Baccalaureate Cooperative (AU-ABC Category I). Students who have completed a Community College of the Air Force (CCAF) associate's degree are eligible. CCAF graduates can complete a Bachelor of Science in Interdisciplinary Studies by taking no more than 60 semester hours beyond their CCAF degree.

**B.S. in Interdisciplinary Studies students who wish to continue on to a master's degree may enroll in the BSIS to M.S. in Human Security and Resilience (MSHSR) Combined Program Pathways. In addition, BSIS students are also eligible to minor in Military Studies.**

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Evaluate problems or challenges within a career field related to their minors.

- Use digitally-enabled technology to interpret data.
- Apply meaningful interdisciplinary research to a capstone project or document that correctly uses an approved documentation system.
- Communicate disciplinary concepts through written, digital, and oral presentations for technical and non-technical audiences.
- Synthesize information from various disciplines related to their minors into a comprehensive understanding.

## DEGREE REQUIREMENTS

The Bachelor of Science in Interdisciplinary Studies degree requires successful completion of a minimum of 120 credit hours. Included in the 120 credit hours must be 40 credit hours of upper-division courses (300-400 level).

## General Education Requirements

For a full description of Embry-Riddle General Education guidelines, please see the General Education section of this catalog. These minimum requirements are applicable to all degree programs.

| | |
|---|---|
| Communication Theory and Skills | 9 |
| Lower-Level Humanities | 3 |
| Lower-Level Social Sciences | 3 |
| Lower or Upper-Level Humanities or Social Sciences | 3 |
| Upper-Level Humanities or Social Sciences | 3 |
| Computer Science | 3 |
| Mathematics | 6 |
| Physical and Life Sciences | 6 |
| **Total Credits** | **36** |

| | | |
|---|---|---|
| **Communication Theory and Skills** | | |
| Transfer English Composition or take: | | 3 |
| ENGL 123 | English Composition | |
| Transfer in up to six (6) credit hours of writing, communication or speech courses or take two Speech/English courses | | 6 |
| **Lower Level Humanities** | | |
| Transfer up to three (3) credit hours of 100 or 200 level Humanities courses or take a Humanities course (Lower Level) | | 3 |
| **Lower Level Social Sciences** | | |
| Transfer up to three (3) credit hours of Lower Level Social Sciences or take a Social Science elective (Lower Level) | | 3 |
| **Lower or Upper Level Humanities or Social Sciences** | | |
| Transfer lower or upper Humanities or Social Sciences credit or select a non-duplicated Humanities or Social Science elective (lower or upper level) | | 3 |
| **Upper Level Humanities or Social Sciences** | | |
| Transfer up to three (3) credit hours of upper level Humanities or Social Science or take a Humanities or Social Science elective, (Upper Level) *International Relations minor students may be required to take a humanities course to satisfy this requirement. | | 3 |
| **Computer Sciences** | | |
| Transfer three (3) credit hours of 100 level or above computer science course credit or take one of the following courses to satisfy Computer Science requirements. The course used to satisfy the General Education Computer Science requirement cannot also be used to satisfy a Core/Major or Minor requirement: | | 3 |
| CSCI 109 | Introduction to Computers and Applications | |
| CSCI 123 | Introduction to Computing for Data Analysis | |
| CYBR 235 | Computer and Network Technologies | |
| **Mathematics** | | |
| Take six (6) credit hours from any MATH series courses (excluding MATH 100 and MATH 106) or transfer in direct equivalents. | | 6 |
| **Physical and Life Sciences** | | |
| Transfer up to six (6) credit hours of physical/life science courses or take one or two Physical and Life Sciences courses (as appropriate to add up to a total of 6 semester hours). | | 6 |

## Core Requirements / Categories

| | | |
|---|---|---|
| **Aviation Foundation** | | |
| Select one of the following: | | 3 |
| ASCI 202 | Introduction to Aeronautical Science | |
| HIST 130 | History of Aviation in America | |
| **Humanities** | | |
| Transfer up to three (3) additional credit hours of humanities upper or lower -or- take a 3 credit hour upper or lower level Humanities course. | | 3 |
| **Management Foundation** | | |
| Transfer three (3) 100 level or above Management credit hours or choose one Embry-Riddle Management elective. | | 3 |
| **Interdisciplinary Research and Skills** | | |
| Transfer a three (3) credit hour of a 100 level or above Research Methods course or take: | | 3 |
| RSCH 202 | Introduction to Research Methods | |
| Transfer three (3) credit hours of 100 level or above Statistics course or select one from below: | | 3 |
| STAT 211 | Statistics with Aviation Applications | |
| STAT 222 | Business Statistics | |
| **International Perspectives** | | |
| Transfer three (3) upper level credit hour Government course or take a three 3 credit hour upper level Government course. | | 3 |
| **Philosophical Perspectives** | | |
| Transfer three (3) credit hours upper level Ethics course or take: | | 3 |
| HUMN 330 | Values and Ethics | |
| **Upper-Level Literature** | | |
| Transfer three (3) credit hour upper level Humanities or Literature course or take an upper level Humanities or Literature course | | 3 |
| **Upper-Level Communication** | | |
| Transfer three (3) credit hour upper level Communications or English course or select an upper level COMD or ENGL course | | 3 |
| **Senior Capstone** | | |
| BSIS 473 | Interdisciplinary Studies Capstone | 3 |
| **Total Core Requirements** | | **30** |

## View Minors: https://catalog.erau.edu/worldwide/minors/

**Available Minors**

The Military Studies minor is available exclusively to BSIS students. BSIS students must select **two or three** minor fields of study. Required credits in each minor vary, depending on the minor(s) chosen. Examples of minors and required credits are shown below but can change. Please consult the Worldwide Minor Courses of Study page for up to date list. Courses taken in minors cannot duplicate (be double-counted for) requirements in other areas.

Students may select any combination of two minors, but are cautioned that some minor combinations will result in degree totals exceeding 120 credits. Additionally, students should work with their academic advisors to assure that university upper-level course graduation requirements will be fulfilled with their selected minors, or undertake additional coursework to fulfill the requirement.

| | |
|---|---|
| **Total Credits (for first Minor)** | **15/22** |
| **Total Credits (for second Minor)** | **15/22** |

| | |
|---|---|
| **Specialization** | **15** |
| Specialty Area of related courses can be taken at ERAU or transferred from another college or university. | |
| **Open Electives** | **0/9** |
| Open Electives (Any shortages in the required upper level hours will be made up in this area). | 0/9 |
| **Total Degree Credits** | **(Minimum) 120** |

(at least 40 semester hours need to be upper level coursework)

## B.S. in Interdisciplinary Studies to M.S. in Human Security and Resilience

Students who are accepted into the program, spend three academic years in undergraduate-level study, minoring in Homeland Security or Emergency Services, and then, at the beginning of their senior year (having earned at least 75 credit hours with a 3.00 CGPA), will take up to three graduate-level courses that will meet undergraduate and graduate program requirements (when a B grade or better is achieved). Upon completion of the BSIS requirements, students will be enrolled in the Master of Science in Human Security and Resilience (MSHSR) degree for completion on an accelerated timeline. In any graduate course taken by an undergraduate student, a grade of B or better must be earned. If a grade of C or F is earned in the MSHSR graduate courses taken for BSIS credit, the student will be removed from the program, have credit awarded to the BSIS degree only, and may continue to complete the BSIS degree.

Students initiate program acceptance through their Academic Advisor or Campus Advisor; to help ensure program criteria are met. Student Advisor will complete the request for processing into the program.

# B.S. in Safety Management

The Bachelor of Science in Safety Management (BSSM) program is designed to provide students with the knowledge and skills to operate as competent leaders, managers, and practitioners in safety management. Students will develop technical understanding and expertise and a practical and analytical approach to problem solving that will allow them to address industry-related safety challenges in both the public and private sectors.

This degree program comprises core safety and emergency management courses with enough elective hours for students to earn as many as two minors to leverage professional development opportunities and study additional areas of interest.

The Worldwide Campus is appropriately positioned to offer the Bachelor of Science in Safety Management program. It has expertise in multi-modal curriculum delivery and experience delivering graduate programs to a widely dispersed student population.

**For students wanting to pursue a master's degree, the BSSM to MSOSM Combined Program Pathways is now available to all BSSM program students.**

- Upon acceptance, students spend three academic years in undergraduate-level study. Then, during their senior year, they will take up to three graduate-level courses that will meet the undergraduate 400-level elective and graduate program core requirements (GPA restrictions apply).
- Upon completing the BSSM requirements, students will be enrolled in graduate school and can complete their degree in one year. (GPA restrictions apply).

  Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Apply mathematics and science and/or technical topics to areas relevant to the discipline to identify, formulate, and solve broadly-defined technical or scientific problems.
- Design a system, process, procedure, or program to meet desired needs.
- Conduct experiments that include the analysis and interpretation of data to use scientific judgment to draw conclusions and test hypotheses.
- Communicate effectively with a range of audiences.
- Explain ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.
- Function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.

## DEGREE REQUIREMENTS

### General Education

| | | |
|---|---|---|
| **General Education** | | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, Social Sciences, Physical and Life Science, Mathematics, and Computer Science may be chosen from as listed, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | |
| ENGL 123 | English Composition | 3 |
| ENGL (above ENGL 106) / SPCH / COMD (6) | | 6 |
| **Humanities** | | |
| Any Upper Level Humanities | | 3 |
| Any Lower Level Humanities | | 3 |
| **Social Sciences** | | |
| Any Social Science | | 6 |
| **Physical and Life Science** | | |
| Any Physical/Life Science | | 3 |
| **Mathematics** | | |
| Any College Algebra or Higher Math Series | | 6 |
| **Computer Science** | | |
| Any Computer Science | | 3 |
| **Total Credits** | | **33** |

### Core/Major

| | | |
|---|---|---|
| **Safety Management Core** | | |
| SFTY 201 | Introduction to Occupational Safety and Health | 3 |
| SFTY 205 | Principles of Accident Investigation | 3 |
| SFTY 311 | Fundamentals of Occupational Safety and Health | 3 |
| SFTY 315 | Environmental Compliance and Safety | 3 |
| SFTY 321 | Ergonomics | 3 |
| SFTY 326 | System Safety | 3 |
| SFTY 355 | Industrial Hygiene and Toxicology | 3 |
| SFTY 441 | Construction Safety and Health | 3 |
| SFTY 365 | Fire Protection | 3 |
| SFTY 426 | System Safety Management | 3 |
| SFTY 450 | Loss Control & Insurance | 3 |
| EMGY 310 | Fundamentals of Emergency Management | 3 |

| | | |
|---|---|---|
| EMGY 405 | Disaster Policy and Management | 3 |
| STAT 222 | Business Statistics | 3 |
| CHEM 110 | General Chemistry I | 3 |
| CHEM 110L | General Chemistry I Laboratory | 1 |
| RSCH 202 | Introduction to Research Methods | 3 |
| SFTY 491 | Capstone: Operational Applications in Safety Management | 3 |
| **Total Credits** | | **52** |

## Safety Management Electives

| | |
|---|---|
| **Safety Management Elective** | **18** |

Select six Safety Management Courses (SFTY, EMGY, and safety-related SCTY, ESVS, HLSD courses)

## Open Electives or Choose Minor: https://catalog.erau.edu/worldwide/minors/

| | |
|---|---|
| **Open Electives or Minor** | **18** |

Choose 18 credit hours of Open Electives and/or Minor

| | |
|---|---|
| **Total Degree Requirements** | **121** |

## Plan of Study (BSSM)

Recommended plan of study and sequence of courses for a four-year degree completion scenario. A four-year degree plan or a particular starting term are not required but serve as an example.

**Recommended Plan of Study for a Four-Year Degree Completion Scenario**

### Year 1

| Term 1 | | Credits |
|---|---|---|
| | Any Communication Theory and Skills above ENGL 106 | 3 |
| | Any College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Any Communication Theory and Skills above ENGL 106 | 3 |
| | Any College Algebra or Higher Math Series | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| STAT 222 | Business Statistics | 3 |
| RSCH 202 | Introduction to Research Methods | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Any Social Science | 3 |
| | Any Computer Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Any Social Science | 3 |
| | Any Physical and Life Science/Physics | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 2

| Term 1 | | Credits |
|---|---|---|
| | Any Lower-Level Humanities | 3 |
| | Any Communication Theory and Skills above ENGL 106 | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Any Upper-Level Humanities | 3 |
| CHEM 110 | General Chemistry I | 3 |
| CHEM 110L | General Chemistry I Laboratory | 1 |
| | **Credits Subtotal** | **7.0** |
| **Term 3** | | |
| SFTY 201 | Introduction to Occupational Safety and Health | 3 |
| SFTY 205 | Principles of Accident Investigation | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| EMGY 310 | Fundamentals of Emergency Management | 3 |
| SFTY 311 | Fundamentals of Occupational Safety and Health | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| SFTY 315 | Environmental Compliance and Safety | 3 |
| SFTY 321 | Ergonomics | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **31.0** |

### Year 3

| Term 1 | | Credits |
|---|---|---|
| SFTY 326 | System Safety | 3 |
| SFTY 355 | Industrial Hygiene and Toxicology | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| SFTY 365 | Fire Protection | 3 |
| EMGY 405 | Disaster Policy and Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| SFTY 441 | Construction Safety and Health | 3 |
| | Safety Management Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Safety Management Elective | 3 |
| | Safety Management Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Open Elective | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 4

| Term 1 | | Credits |
|---|---|---|
| SFTY 426 | System Safety Management | 3 |
| SFTY 450 | Loss Control & Insurance | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| | Safety Management Elective | 3 |
| | Safety Management Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Safety Management Elective | 3 |
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| | Open Elective | 3 |

| | | |
|---|---|---|
| | Open Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Open Elective | 3 |
| SFTY 491 | Capstone: Operational Applications in Safety Management | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |
| **Total Degree Requirements** | | **121** |

## B.S. in Safety Management to M.S. in Occupational Safety Management

This program is for exceptional students committed to continuing their education through a master's degree. This fast-paced program allows qualifying students to complete both the Bachelor of Science in Safety Management (BSSM) and the Master of Science in Occupational Safety Management (MSOSM).

Students must have completed 75 credit hours of undergraduate study and have at least a 3.00 GPA before applying to the program. Senior students accepted in the BSSM/MSOSM program will be allowed to apply up to nine (9) specified graduate credits toward their baccalaureate degree in lieu of up to nine (9) specific undergraduate credits. Upon completing the BSSM requirements, students will be enrolled in the MSOSM degree for completion on an accelerated timeline. Undergraduate students must earn a grade of B or better for any graduate courses taken. Students receiving a C or F grade in any MSOSM graduate courses taken for BSSM credit will be removed from the program, have credit awarded to the BSSM degree only, and continue to complete the BSSM degree. Students initiate program acceptance through their Academic Advisor or Campus Advisor to ensure program criteria compliance. The student's Advisor will complete the request for processing into the program.

# Combined Program Pathways College of Arts & Sciences

The combined program pathways options allow exceptional students to complete a bachelor's degree in Communication, Emergency Services, Homeland Security, Human Factors Psychology, Interdisciplinary Studies or Safety Management and an M.S. degree on an accelerated timeline. The objective of these pathways is to provide the opportunity for students to build a well-rounded undergraduate education and then further prepare themselves as leaders in their professional discipline, competent in defensible analysis.

- B.S. in Communication/M.S. in Human Security and Resilience
- B.S. in Emergency Services/M.S. in Emergency Services
- B.S. in Homeland Security/M.S. in Human Security and Resilience
- B.S. in Human Factors Psychology/M.S. Human Factors
- B.S. in Interdisciplinary Studies/M.S. in Human Security and Resilience
- B.S. in Safety Management/M.S. in Occupational Safety Management

# M.S. in Emergency Services

The Master of Science in Emergency Services (MSES) degree program is designed for individuals seeking advanced all hazards-based knowledge in emergency services, emergency management, and homeland security, which include disaster mitigation, preparedness, response, and recovery. With its emphasis on critical thinking, leadership skills, and current research, the degree prepares students for advanced careers and trains them in evidence-based decision-making and defensible analysis related to natural and technological disasters at local, regional, national, and international levels. The degree will prepare students for careers in first responder organizations, emergency management organizations, civil and homeland security agencies, research institutes, public and private sectors, and non-governmental organizations.

The program has incorporated elements to assist students to earn the Certified Emergency Manager (CEM) and Associate Emergency Manager (AEM) certificates from the International Association of Emergency Managers (IAEM). Newly developed Emergency management courses have been added to the curriculum that can be considered as parts of the required professional training. Contents of these courses also will prepare students for the certification exam.

Current faculty research areas include the following: disaster recovery and mitigation, firefighter health (e.g., quality of sleep), disaster response (e.g., Incident Command System), immigration and homeland security, disaster preparedness (e.g., policies and planning), community resilience, and emerging technologies (e.g., how Artificial Intelligence facilitate disaster response).

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Critically evaluate emergency services rules and regulations to construct appropriate recommendations for developing new, improved emergency preparedness measures.
- Demonstrate problem-solving abilities, teamwork skills, communication competence and ethical leadership when managing complex emergencies through theoretical and simulated exercises.
- Develop advanced decision-making skills to respond to emergency situations using emerging technologies.
- Examine the global challenges of disaster aid, terrorism, weapons of mass destruction (WMDs) and humanitarian crises systematically to develop a critical awareness of how current problems contribute to innovative solutions to common emergency services responses.
- Formulate principles and policies for making critical decisions while mitigating risk in a rapidly changing, complex emergency environment.
- Investigate strategies for managing a diverse workforce of emergency responders to evaluate the effectiveness of current leadership and management policies and procedures.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| **Emergency Services Core** | | |
| MSES 530 | Statistics in the Public Sector | 3 |
| MSES 540 | Approaches to Comprehensive Emergency Management | 3 |
| MSES 570 | Disaster Recovery | 3 |
| MSES 580 | Disaster Response | 3 |
| MSES 590 | Disaster Preparedness | 3 |
| MSES 690 | Capstone | 3 |
| **Total Credits** | | **18** |

| | | |
|---|---|---|
| **Electives** | | |
| Choose 4 out of the following: | | |
| MSES 510 | Crisis Emergency Risk Communication | 3 |
| MSES 520 | Psychological Issues Among Emergency Service Personnel | 3 |
| MHSR 540 | Foundations of Resilience | 3 |
| MSES 550 | Atmospheric Conditions in Emergency Services | 3 |
| MSES 560 | Ethics in the Public Sector of Emergency Services | 3 |

| | | |
|---|---|---|
| MHSR 550 | Resilience Planning and Administration | 3 |
| **Total Credits** | | **12** |

| | |
|---|---|
| **Total Degree Requirements** | **30** |

## Plan of Study (MSES)

Recommended plan of study and sequence of courses for a two-year degree completion scenario. A two-year degree plan or a particular starting term are not required but serve as an example.

**Recommended Plan of Study for a Two-Year Degree Completion Scenario**

**Year One**

| **Term 1** | | **Credits** |
|---|---|---|
| MSES 540 | Approaches to Comprehensive Emergency Management | 3 |
| | 1st Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| MSES 590 | Disaster Preparedness | 3 |
| | 2nd Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| MSES 580 | Disaster Response | 3 |
| | 3rd Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| MSES 570 | Disaster Recovery | 3 |
| | 4th Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **24.0** |

**Year Two**

| **Term 1** | | **Credits** |
|---|---|---|
| MSES 530 | Statistics in the Public Sector | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| MSES 690 | Capstone | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **6.0** |

| | |
|---|---|
| **Total Degree Requirements** | **30** |

# M.S. in Human Factors

The Master of Science in Human Factors (MSHF) is an online program tailored to working professionals who want to better understand the interrelationship between humans and technology, environment, and other system components, as they relate to human performance, limitations, and error in simple and complex systems. This multidisciplinary degree explores how humans interact with technology, designs, social systems, operational interfaces, and environmental factors in contexts that include healthcare, aerospace, transportation, military, security, virtual and augmented reality, simulation, computing, and other complex sociotechnical systems concerned with human performance, system design, comfort, and safety.

Students will also learn and apply critical thought and synthesis skills required to analyze current trends and past events and designs in which human error led to operational failures, as core elements of the curriculum. Our goal is for graduates to emerge from the MS in Human Factors program with the knowledge and ability to identify trends, analyze system requirements, develop strategies, recommend solutions, and recognize opportunities for innovation in this field.

Students will select one of two research options, the 30-credit program with the 3-credit Culminating Research Experience (CRE), or the 33-credit program, which incorporates the 6-credit culminating Thesis series. This Thesis option will allow the student to complete original human factors research at the end of the MSHF degree program. Along either path (CRE or Thesis), students can expect to study human physiology, cognition, psychology, and biomechanics; human performance capabilities, limitations and errors; virtual and simulated environments; and human interactions within complex sociotechnical systems.

The MS in Human Factors also has a 4+1 agreement with the Prescott BS in Human Factors Psychology program, which allows students who have earned a minimum of 75 undergraduate credits with a grade of B or better in all courses to apply to the Prescott BSHFP-WW MSHF 4+1 Combined Program. View information for the PC BSHFP-WW MSHF 4+1 Combined Program.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Apply human factors evidence-based methodologies to identify, interpret, and define industry-based problems and develop strategies to control mitigate and/or solve them.
- Apply the fundamentals of human factors and ergonomic principles and concepts to complex socio-technical systems.
- Comprehensively evaluate human physiological capabilities and limitations across multiple human factors and ergonomics domains.
- Demonstrate ethical professional writing, communication and oral presentation skills using appropriate media and industry technology.
- Evaluate human cognitive/psychological capabilities and limitations comprehensively across multiple human factors and ergonomics domains.

## DEGREE REQUIREMENTS

### Major/Core

| | | |
|---|---|---|
| MSHF 606 | Human Cognition | 3 |
| MSHF 612 | Human Performance, Limitation, and Error | 3 |
| MSHF 618 | Human Factors in Virtual and Simulated Environments | 3 |
| MSHF 624 | Ergonomics and Biomechanics | 3 |
| MSHF 640 | Human Physiology and Adaptation | 3 |
| MSHF 641 | Systems Psychology | 3 |
| MSHF 647 | Human Factors in Complex Systems | 3 |
| **Total Credits** | | **21** |

### Research Options:

#### Culminating Research Experience (CRE)

| | | |
|---|---|---|
| RSCH 650 | Research Methods and Analysis | 3 |
| MSHF 653 | Cognitive Systems Engineering | 3 |
| MSHF 691 | MSHF Culminating Research Experience | 3 |
| **Total Credits** | | **9** |

#### Thesis

| | | |
|---|---|---|
| RSCH 665 | Statistical Analysis | 3 |
| RSCH 670 | Research Methods | 3 |
| MSHF 700A | MSHF Thesis I | 3 |

| | | |
|---|---|---|
| MSHF 700B | MSHF Thesis II | 3 |
| **Total Credits** | | **12** |

| | |
|---|---|
| **Total Degree Requirements** | |
| Culminating Research Experience (CRE) | 30 |
| Thesis | 33 |

## Plan of Study (MSHF) - Culminating Research Experience (CRE) Option

Recommended plan of study and sequence of courses for a two-year degree completion scenario. A two-year degree plan or a particular starting term are not required but serve as an example.

**Recommended Plan of Study for a Two-Year Degree Completion Scenario (One Course/Term)**

### Year 1

| Term 1 | | Credits |
|---|---|---|
| MSHF 606 | Human Cognition | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| MSHF 612 | Human Performance, Limitation, and Error | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| MSHF 640 | Human Physiology and Adaptation ** | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| MSHF 618 | Human Factors in Virtual and Simulated Environments ** | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| RSCH 650 | Research Methods and Analysis *** | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

### Year 2

| Term 1 | | Credits |
|---|---|---|
| MSHF 624 | Ergonomics and Biomechanics **** | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| MSHF 641 | Systems Psychology ** | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| MSHF 647 | Human Factors in Complex Systems ** | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| MSHF 653 | Cognitive Systems Engineering ** | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| MSHF 691 | MSHF Culminating Research Experience * | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

| | |
|---|---|
| **Total Degree Requirements** | **30** |

**Recommended Plan of Study for a Two-Year Degree Completion Scenario (Two Courses/Term)**

### Year 1

| Term 1 | | Credits |
|---|---|---|
| MSHF 606 | Human Cognition | 3 |
| RSCH 650 | Research Methods and Analysis *** | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| MSHF 612 | Human Performance, Limitation, and Error | 3 |
| MSHF 624 | Ergonomics and Biomechanics **** | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| MSHF 618 | Human Factors in Virtual and Simulated Environments ** | 3 |
| MSHF 640 | Human Physiology and Adaptation ** | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| MSHF 641 | Systems Psychology ** | 3 |
| MSHF 647 | Human Factors in Complex Systems ** | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| MSHF 653 | Cognitive Systems Engineering ** | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **27.0** |

### Year 2

| Term 1 | | Credits |
|---|---|---|
| MSHF 691 | MSHF Culminating Research Experience * | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **3.0** |

| | |
|---|---|
| **Total Degree Requirements** | **30** |

* Must be taken as the last course

**May be taken in any order after MSHF 606 and MSHF 612 are complete and prior to MSHF 691 or MSHF 700A and MSHF 700B

***May be taken in any order prior to MSHF 691 or MSHF 700A and MSHF 700B

****May be taken consecutively with MSHF 612

## Plan of Study (MSHF) - Thesis Option

Recommended plan of study and sequence of courses for a two-year degree completion scenario. A two-year degree plan or a particular starting term are not required but serve as an example.

**Recommended Plan of Study for a Two-Year Degree Completion Scenario (One Course/Term)**

### Year 1

| Term 1 | | Credits |
|---|---|---|
| MSHF 606 | Human Cognition | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| MSHF 612 | Human Performance, Limitation, and Error | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| MSHF 640 | Human Physiology and Adaptation ** | 3 |
| | **Credits Subtotal** | **3.0** |

| | | |
|---|---|---|
| **Term 4** | | |
| MSHF 618 | Human Factors in Virtual and Simulated Environments** | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| RSCH 665 | Statistical Analysis*** | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

### Year 2

| | | |
|---|---|---|
| **Term 1** | | **Credits** |
| MSHF 624 | Ergonomics and Biomechanics**** | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| RSCH 670 | Research Methods*** | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| MSHF 641 | Systems Psychology** | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| MSHF 647 | Human Factors in Complex Systems** | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| MSHF 700A | MSHF Thesis I | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

### Year 3

| | | |
|---|---|---|
| **Term 1** | | **Credits** |
| MSHF 700B | MSHF Thesis II* | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **3.0** |
| **Total Degree Requirements** | | **33** |

**Recommended Plan of Study for a Two-Year Degree Completion Scenario (Two Courses/Term)**

### Year 1

| | | |
|---|---|---|
| **Term 1** | | **Credits** |
| MSHF 606 | Human Cognition | 3 |
| RSCH 665 | Statistical Analysis*** | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| MSHF 612 | Human Performance, Limitation, and Error | 3 |
| RSCH 670 | Research Methods**** | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| MSHF 618 | Human Factors in Virtual and Simulated Environments** | 3 |
| MSHF 624 | Ergonomics and Biomechanics**** | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| MSHF 640 | Human Physiology and Adaptation** | 3 |
| MSHF 641 | Systems Psychology** | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| MSHF 647 | Human Factors in Complex Systems** | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **27.0** |

### Year 2

| | | |
|---|---|---|
| **Term 1** | | **Credits** |
| MSHF 700A | MSHF Thesis I | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| MSHF 700B | MSHF Thesis II* | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **6.0** |
| **Total Degree Requirements** | | **33** |

*Must be taken as the last course

**May be taken in any order after MSHF 606 and MSHF 612 are complete and prior to MSHF 691 or MSHF 700A and MSHF 700B

***May be taken in any order prior to MSHF 691 or MSHF 700A and MSHF 700B

****May be taken consecutively with MSHF 612

## M.S. in Human Security and Resilience

The Masters of Science in Human Security and Resilience (MSHSR) is a 30 credit, online program tailored to working professionals and includes a capstone course following completion of the specialization courses. Capstone projects are opportunities for students to deeply explore and address challenges from their respective worksites or issues endemic to their careers in a scholarly way. The curriculum is composed of 10 three-credit courses, including a 6 credit common core, 15 credits of specialized human security and resilience courses, 3 credits of capstone courses, and 6 credits of electives.

The discipline is rooted in the concept of human security, first defined by the United Nations Development Programme in 1994. The UNDP definition established that human security includes protection from "chronic threats as hunger, disease, and repression, and protection from sudden and hurtful disruptions in the patterns of daily lives, whether in homes, jobs or communities." According to the United Nations concept, human security is multi-dimensional and includes economic security, food security, health security, environmental security, energy security, societal security, military security, and political security.

Students learn and apply concepts of resilience to communities facing human security threats, such as organized crime and political violence (terrorism), resource competition resulting from environmental change, and post-conflict or post-disaster recovery and reconstruction. The Stockholm Resilience Center defines resilience as "The capacity of a system – be it a landscape, a coastal area or a city – to deal with change and continue to develop. This means the capacity to withstand shocks and disturbances such as a financial crisis or use such an event to catalyze renewal and innovation." Courses in resilience equip students with a deep understanding of milestone legislation and international agreements that nations, states, and communities use to address stressors. Students learn and apply resilience-building toolkits to cities facing regular stressors and disturbances, such as routine flooding, hurricanes, wildfires, drought, and urban heat.

It should be noted that there is no single definition of human security or resilience or an agreement on how to achieve either. These are some of the essential questions the security and policy community is wrestling with – and wonderful areas for continued scholarship and graduate capstone project development. For example, the capstone and research projects in the Master of Science in Human Security and Resilience program will contribute to the critical debates in this field. Graduates from this program will make a significant contribution to the development and practice of this field. Human security and resilience touch every level of government:

neighborhood, state, national and international. This degree program will find interest among human security and resilience practitioners from the municipal emergency management official to the national level strategic planner; from the public health advisor to an international humanitarian aid worker.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Evaluate dimensions of human security—including health, environmental protection, human rights, and economic stability—within global frameworks such as the United Nations Sustainable Development Goals (SDGs) while contrasting human security models with traditional state-centered security approaches.
- Investigate the impact of digital communications and cybersecurity on human security, analyzing how governments, international organizations, and private entities regulate emerging technologies to address transnational threats.
- Analyze the causes of political violence and organized communal conflict, identifying mitigation strategies and effective global approaches for fostering peace, stability, and sustainable development.
- Examine how global trends—such as climate change, migration, economic instability, and geopolitical shifts—contribute to political and economic destabilization and shape global security landscapes.
- Evaluate sources of resilience across countries with varying levels of development and effective strategies for building resilient communities in response to crises such as disasters, economic instability, and conflict.
- Analyze human security policy objectives in the context of international law, global governance structures, and transnational cooperation.
- Conduct comparative research on human security and resilience, integrating global perspectives and innovative methodologies to develop sustainable security strategies.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| **Common Graduate Core** | | **6** |
| MHSR 500 | Introduction to Human Security | 3 |
| RSCH 670 | Research Methods | 3 |
| **Human Security and Resiliency Specialization** | | **15** |
| MHSR 515 | International Law and U.S. Security Policy | 3 |
| MHSR 520 | Principles of International Conflict Resolution | 3 |
| MHSR 530 | Environmental Security | 3 |
| MHSR 540 | Foundations of Resilience | 3 |
| MHSR 550 | Resilience Planning and Administration | 3 |
| **Capstone** | | **3** |
| MHSR 690 | MHSR Capstone | 3 |
| **Total Credits** | | **24** |

### Electives

| | |
|---|---|
| **Electives** | |
| Choose 6 credits from other graduate level courses approved by program chair. | |
| **Total Credits** | **6** |

| | |
|---|---|
| **Total Degree Requirements** | **30** |

## Plan of Study (MSHSR)

Recommended plan of study and sequence of courses for a two-year degree completion scenario. A two-year degree plan or a particular starting term are not required but serve as an example. Students should still make an effort to follow the sequence of courses as far as possible within their individual degree completion timeframe. Students should bear in mind that program courses are typically only offered one time per academic year and should take MHSR 500 as their first course or as soon as possible. While electives can be taken at any time, students are encouraged to take their core courses first.

**Recommended Plan of Study for a Fall Start and Two-Year Degree Completion Scenario**

### Year 1

| **Term 1** | | **Credits** |
|---|---|---|
| MHSR 500 | Introduction to Human Security | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| MHSR 520 | Principles of International Conflict Resolution | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| MHSR 515 | International Law and U.S. Security Policy | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| MHSR 540 | Foundations of Resilience | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **12.0** |

### Year 2

| **Term 1** | | **Credits** |
|---|---|---|
| MHSR 550 | Resilience Planning and Administration | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| RSCH 670 | Research Methods | 3 |
| | 1st Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| MHSR 530 | Environmental Security | 3 |
| | 2nd Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| MHSR 690 | MHSR Capstone | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **18.0** |

| | |
|---|---|
| **Total Degree Requirements** | **30** |

# M.S. in Occupational Safety Management

**ABET-Accredited**: The MS in Occupational Safety Management program is accredited by the **ANSAC Accreditation Commission of ABET**, under the commission's General Criteria and Program Criteria for Safety and Similarly Named Programs.

The risk of workplace injuries, illnesses, and fatalities presents a serious threat in any industry. Organizations rely heavily upon safety and health professionals to help them mitigate these risks and maintain a safe and healthy work environment. This graduate-degree program helps students develop the skills and knowledge they need to effectively

anticipate, recognize, evaluate, prevent, and control workplace safety and occupational health hazards within numerous industries.

Through the focused curriculum – which includes case studies, writing safety policies and initiatives, and participating in collaborative projects – the student will gain a solid foundation in the critical aspects of occupational safety and health, including:

- Occupational Safety and Health Management
- Hazard Control Methods
- Fire Safety
- Safety, Health and Environmental Legislation
- Human Factors and Ergonomics
- Disaster Preparedness and Emergency Response
- Regulatory Compliance
- Industrial Hygiene and Toxicology
- Environmental Protection

The research component will expose students to statistics and research methodology that is both applicable to the workplace and good preparation for a doctoral program. Students will complete the degree with a Capstone Project that will provide the opportunity to explore a real-world safety and/or health issue, applying new knowledge to answer a research question.

The Occupational Safety Management coursework also helps prepare students for certification by the Board of Certified Safety Professionals (BCSP) and the Institute of Hazardous Materials Management (IHMM).

The Worldwide MSOSM degree program has been approved by the IHMM as an Associate Safety and Health Manager (ASHM) Program. Graduates from the MSOSM program may now apply for the ASHM credential upon graduation. The ASHM designation is an important stepping stone to the accredited Certified Safety and Health Manager (CSHM) certification. Graduates achieving a degree from an approved ASHM institution only have to demonstrate two years of experience, instead of four, in order to sit for the CSHM exam. Graduates can submit to IHMM to be able to add the ASHM designation behind their name, signifying to employers their level of preparation for the safety and health profession and they are on the path for full certification.

The MSOSM program is a Board of Certified Safety Professionals (BCSP) Qualified Academic Program (QAP). A QAP is an academic degree program in safety, health and/or environmental practices meeting BCSP standards for participation and whose curriculum has been reviewed as showing a substantial match to the Associate Safety Professional® (ASP) blueprint. Graduates of these programs may apply to hold the Graduate Safety Practitioner® (GSP) designation. The GSP designation is an alternate path to the Certified Safety Professional®(CSP), waiving the requirement to sit for the ASP exam. The GSP is not a certification, and graduates must apply at the link provided below.

Benefits of the GSP designation are:

- Recognition for being in a path toward the CSP certification
- Recognition for the level of preparation for professional safety practice
- A waiver of the ASP examination requirement for CSP eligibility
- A certificate awarding the GSP designation

BCSP and GSP details are provided at http://www.bcsp.org/GSP

Upon completion of the program, the students' focused skills and specialized degree will distinguish them as astute and knowledgeable safety management professionals. With this distinction, students will be ready to take on occupational safety and health leadership positions – including director of safety, safety manager, safety consultant, compliance officer, and loss-control manager – in virtually every occupational setting.

## Program Specific Criteria

### Prerequisite Knowledge

*Subject knowledge for a specific graduate course must be satisfied before enrollment in that course is permitted. Students may enroll in graduate level courses only if they meet prerequisite knowledge requirements.*

*Applicants for admission to the **Master of Science in Occupational Safety Management (MSOSM)** program must have prerequisite knowledge in the following areas:*

- College algebra (or higher) and at least one college-level course in chemistry or biology or physics.

*Students should assume responsibility to see that prerequisites are satisfied. The prerequisite subject knowledge for a specific graduate course must be satisfied before enrollment in that specific course is permitted. Students may enroll in other graduate-level courses as they meet any specific prerequisite knowledge required.*

*The prerequisite knowledge can be validated through one of the following:*

1. *Completed an undergraduate or graduate course in each of the specific subject areas and upon validation of the course from an official transcript; **-OR-***
2. *Completed a course listed in either the National or ACE Guide for which academic credit in one of the specific subject areas is recommended; **-OR-***
3. *Received at least the minimum recommended score on a CLEP, DSST/DANTES, PEP, etc. exam in each of the subject areas as required.*

To view the graduate certificate in Occupational Safety Management program, click here.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Identify, formulate, and solve broadly-defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.
- Formulate or design a system, process, procedure, or program to meet desired needs.
- Function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.
- Anticipate, recognize, evaluate, prevent, and control workplace safety and occupational health hazards within numerous industries to protect people, property, the environment, and organizational operations.
- Have an ability to effectively manage the occupational safety and health functions within a variety of industries.
- Have an ability to justify occupational safety and health programs, initiatives, and control efforts through the use of business and risk management metrics by maintaining compliance with applicable standards and regulations or through scientific evaluation of outcomes.
- Have an ability to effectively communicate and interact with persons at all levels within an organization and externally about occupational safety, health, and environmental management.
- Practice and perform in an ethical, moral, responsible, and accountable manner in all aspects, but especially in the practice of safety, understanding the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.
- Identify an occupational safety and health research problem; complete a thorough review of the scholarly literature; formulate and test hypotheses or research questions; collect and appropriately analyze qualitative or quantitative data; and interpret and report research findings using scientific judgment to improve the field of occupational

safety and health or to provide solutions to an occupational safety and health problem.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| SFTY 530 | Safety, Health and Environmental Legislation, Litigation & Compliance | 3 |
| SFTY 540 | Disaster Preparedness and Emergency Response | 3 |
| SFTY 570 | Fire Safety Management | 3 |
| SFTY 580 | Environmental Protection for the Safety, Health and Environmental Manager | 3 |
| SFTY 590 | Hazard Control Methods in Occupational Safety and Health | 3 |
| SFTY 600 | Occupational Safety and Health Management | 3 |
| SFTY 611 | Industrial Hygiene and Toxicology | 3 |
| SFTY 619 | Human Factors and Ergonomics | 3 |
| RSCH 650 | Research Methods and Analysis | 3 |
| SFTY 691 | Graduate Capstone Course | 3 |
| **Total Degree Requirements** | | **30** |

### Plan of Study (MSOSM)

Recommended plan of study and sequence of courses for a two-year degree completion scenario. A two-year degree plan or a particular starting term are not required but serve as an example.

**Recommended Plan of Study for a Two-Year Degree Completion Scenario (One Course/Term)**

#### Year 1

| **Term 1** | | **Credits** |
|---|---|---|
| SFTY 530 | Safety, Health and Environmental Legislation, Litigation & Compliance | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| SFTY 570 | Fire Safety Management | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| SFTY 540 | Disaster Preparedness and Emergency Response | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| SFTY 580 | Environmental Protection for the Safety, Health and Environmental Manager | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| SFTY 590 | Hazard Control Methods in Occupational Safety and Health | 3 |
| or SFTY 600 | Occupational Safety and Health Management | |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

#### Year 2

| **Term 1** | | **Credits** |
|---|---|---|
| SFTY 600 | Occupational Safety and Health Management | 3 |
| or SFTY 590 | Hazard Control Methods in Occupational Safety and Health | |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| SFTY 611 | Industrial Hygiene and Toxicology | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| RSCH 650 | Research Methods and Analysis | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| SFTY 619 | Human Factors and Ergonomics | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| SFTY 691 | Graduate Capstone Course * | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |
| **Total Degree Requirements** | | **30** |

**Recommended Plan of Study for a Two-Year Degree Completion Scenario (Two Courses/Term)**

#### Year 1

| **Term 1** | | **Credits** |
|---|---|---|
| SFTY 530 | Safety, Health and Environmental Legislation, Litigation & Compliance | 3 |
| SFTY 540 | Disaster Preparedness and Emergency Response | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| SFTY 570 | Fire Safety Management | 3 |
| SFTY 580 | Environmental Protection for the Safety, Health and Environmental Manager | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| SFTY 590 | Hazard Control Methods in Occupational Safety and Health | 3 |
| SFTY 600 | Occupational Safety and Health Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| SFTY 611 | Industrial Hygiene and Toxicology | 3 |
| SFTY 619 | Human Factors and Ergonomics | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| RSCH 650 | Research Methods and Analysis | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **27.0** |

#### Year 2

| **Term 1** | | **Credits** |
|---|---|---|
| SFTY 691 | Graduate Capstone Course * | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **3.0** |
| **Total Degree Requirements** | | **30** |

* Must be taken as the last course

## Minor in Airport Baggage Handling Systems Implementation

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Airport Baggage Handling Systems Implementation provides students with supplemental knowledge and tools required to be knowledgeable in baggage handling system design and implementation.

The target audience for this minor will be students who are currently working in this field and/or aspire to be part of the airport industry.

The objective is to understand the lifecycle of implementation of baggage handling systems and its relation to the overall airport system.

Students will be able to: (1) identify and collaborate with the relative airport stakeholder groups; (2) have an overall understanding of the of the baggage handling system (BHS) through the following lifecycle: planning/sizing; total cost of ownership; design elements; regulations (industry standards, local, state, federal and international harmonization, military charters); stakeholder engagement and collaboration; procurement; implementation; installation management; commissioning and closeout; operations, maintenance, and lifecycle management; (3) participate in an immersive cooperative education (COIN) environment to gain hands-on experience with elements of the lifecycle of BHS implementation.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| SFTY 311 | Fundamentals of Occupational Safety and Health | 3 |
| BHSI 325 | Homeland Security and Regulatory Policy Management in Aviation | 3 |
| BHSI 401 | Baggage Handling System Design | 3 |
| BHSI 402 | Baggage Handling System Management | 3 |
| COIN 496 | Co-Operative Education | 3 |
| **Total Credits** | | **15** |

## Minor in Applied Data Science

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

Students in the Minor in Applied Data Science will develop skills in using programming packages to analyze and visualize large-scale data. The curriculum is also designed to provide students with a comprehensive understanding of both supervised and unsupervised machine learning algorithms.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Students majoring in the B.S. in Data Science may not declare this minor.*

| | | |
|---|---|---|
| CSCI 251 | Introduction to Programming for Data Science | 3 |
| STAT 320 | Decision Mathematics | 3 |
| or STAT 412 | Probability and Statistics | |
| DSCI 201 | Introduction to Data Science Applications | 3 |
| DSCI 310 | Data Storytelling | 3 |
| DSCI 411 | Applied Data Science Capstone | 3 |
| **Total Credits** | | **15** |

## Minor in Artificial Intelligence, Ethics, and Creativity

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Artificial Intelligence, Ethics, and Creativity offers students a multidisciplinary exploration of the impact of artificial intelligence (AI) on society, culture, research, and creative endeavors. This program examines real-world applications of generative AI, AI rhetorics, and cognitive science perspectives on what differentiates artificial from human intelligence. Students will also explore the ethical considerations surrounding AI use and gain practical knowledge of its research applications. The curriculum aims to promote critical thinking skills and enable students to analyze AI's societal role from a humanistic perspective. By studying current capabilities and future trends, students will be well-equipped to ethically leverage AI in their academic pursuits and professional careers. This minor is ideal for those seeking to understand and harness the potential of AI across various disciplines while maintaining a critical and creative approach to its implementation.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| HUMN 154 | Artificial Intelligence Rhetorics | 3 |
| HUMN 250 | Generative Artificial Intelligence in Real-World Contexts | 3 |
| HUMN 431 | Ethics and Artificial Intelligence | 3 |
| RSCH 310 | Applications of Artificial Intelligence in Research | 3 |
| PSYC 400 | Introduction to Cognitive Science | 3 |
| or PSYC 355 | The Psychology of Creativity and Innovation | |
| **Total Credits** | | **15** |

## Minor in Aviation, Technology, and Society

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

A Minor in Aviation, Technology, and Society offers an interdisciplinary exploration of the ways in which science, technological advancements, and aviation have shaped modern society. This program examines not only the evolution of flight but also the broader historical and cultural contexts of technological innovation. Students will delve into the history of aviation in America, the development of scientific thought, and the impact of communication technologies. They will also explore the portrayal of progress in aviation and science in film and media, as well as the societal implications of aerospace technology. This program will also include a study of the social, economic, and political impacts of aviation technology, analyzing how advancements have changed transportation, warfare, and global connectivity. Students will gain a deeper understanding of how technology influences culture and society, and how aviation intersects

with broader technological and scientific trends. This program is ideal for students interested in the dynamic relationships between technology, culture, and aviation throughout history.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| HIST 130 | History of Aviation in America | 3 |
| HIST 302 | Evolution of Scientific Thought | 3 |
| HUMN 240 | History of Communication Technologies | 3 |
| HUMN 333 | How Fiction, Film and Popular Culture Represent Science and Mathematics | 3 |
| or HUMN 340 | Aviators and Aviation in Film | |
| HUMN 400 | Science and Aviation/Aerospace Technology in Society | 3 |
| **Total Credits** | | **15** |

## Minor in Communication

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Communication equips students with essential skills in effective written and visual communication, verbal and nonverbal communication, as well as ethical and societal dimensions of communication, increasing versatility and preparation for success in diverse professional environments. Objectives include providing students with a strong foundation in the basic concepts of communication in today's technology-centric world, gaining hands-on experience with news writing and reporting and public relations essentials, exploring new media communication and visual design, and evaluating the laws, ethics, cultural, and societal aspects of mass communication.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Students majoring in the B.S. in Communication may not declare this minor.*

| | | |
|---|---|---|
| ENGL 221 | Technical Report Writing | 3 |
| or ENGL 222 | Business Communication | |
| COMD 265 | Introduction to Newswriting and Reporting | 3 |
| Take three courses (9 credit hours) from the following options: | | 9 |
| COMD 230 | Digital Photography | 3 |
| COMD 260 | Introduction to Media | 3 |
| COMD 320 | Mass Communication Law and Ethics | 3 |
| COMD 360 | Public Relations | 3 |
| COMD 362 | Communication and Organizational Culture | 3 |
| COMD 363 | Communication and Society | 3 |
| COMD 364 | Visual Design | 3 |
| COMD 415 | Nonverbal Communication | 3 |
| **Total Credits** | | **15** |

## Minor in Crisis, Risk and Resilience Communication

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Crisis, Risk and Resilience Communication is a unique course of study that answers the demand for those who wish to explore the intersections between communication and safe and secure societies and industries. Students gain a strong foundation in communication for risk management, crisis response and fostering resilience in multidisciplinary contexts and vis-à-vis diverse audiences; effectively communicating across the phases of the national preparedness cycle; knowledge of important historical, legal and policy foundations of communication challenges and approaches in an all-hazards and whole-community context of civil security.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Students majoring in the B.S. in Communication with Crisis, Risk, and Resilience specialization may not declare this minor.*

| | | |
|---|---|---|
| ENGL 222 | Business Communication | 3 |
| COMD 460 | Crisis Communication | 3 |
| COMD 365 | Communication for Resilience | 3 |
| Select two courses from the following options: | | 6 |
| COMD 480 | Advanced Seminar in Crisis and Risk Communication | |
| EMGY 310 | Fundamentals of Emergency Management | |
| EMGY 405 | Disaster Policy and Management | |
| EMGY 430 | Emergency Management and Contingency Planning | |
| ESVS 301 | Community Risk Reduction for the Fire and Emergency Services | |
| ESVS 305 | Fire Prevention Organization and Management | |
| HLSD 110 | Introduction to Homeland Security | |
| HLSD 360 | Strategic Planning and Decision Making in Homeland Security | |
| **Total Credits** | | **15** |

## Minor in Economics

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Economics empowers students to critically assess both domestic and global economies. By gaining proficiency in key economic concepts, students position themselves for lucrative roles, equipped to understand and address economic issues impacting consumers, firms, and the global landscape. This minor provides a well-rounded education, allowing students to seamlessly integrate economic principles into any industry. Students develop the ability to apply economic concepts to real-world scenarios, enhancing their contributions to professional endeavors. With its universal applicability, an Economics minor equips students

to reach their full potential, influencing business model decisions and fostering economic literacy among consumers and employees.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| ECON 210 | Microeconomics | 3 |
| ECON 211 | Macroeconomics | 3 |
| Choose any 4 of the 5 following courses: | | |
| ECON 225 | Engineering Economics | 3 |
| ECON 312 | Money and Banking | 3 |
| ECON 315 | Managerial Economics | 3 |
| ECON 411 | International Economics | 3 |
| ECON 420 | Economics of Air Transportation | 3 |
| **Total Credits** | | **18** |

## Minor in Emergency Services

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Emergency Services is an ideal option for those interested in a career related to emergency services or those who will be working closely with emergency services personnel. The minor in Emergency Services focuses on essential areas of emergency services and emergency management including processes, management, and service delivery. Students who select this minor can choose from a variety of courses, allowing for a tailored learning experience to their educational interests and career goals.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Students majoring in the B.S. in Emergency Services may not declare this minor.*

| | | |
|---|---|---|
| Select five from the following list of courses: | | 15 |
| ESVS 201 | Fire-Related Human Behavior | 3 |
| ESVS 301 | Community Risk Reduction for the Fire and Emergency Services | 3 |
| ESVS 302 | Fire Dynamics | 3 |
| ESVS 303 | Fire Protection Structures and Systems | 3 |
| ESVS 304 | Fire Investigation and Analysis | 3 |
| ESVS 305 | Fire Prevention Organization and Management | 3 |
| ESVS 400 | Analytical Approaches to Public Fire Protection | 3 |
| ESVS 401 | Applications of Fire Research | 3 |
| ESVS 402 | Fire and Emergency Services Administration | 3 |
| ESVS 403 | Disaster Planning and Control | 3 |
| ESVS 404 | Managerial Issues in Hazardous Materials | 3 |
| ESVS 405 | Personnel Management for Fire and Emergency Services | 3 |
| ESVS 406 | Political and Legal Foundations of Fire Protection | 3 |
| SCTY 488 | National Security Issues and Terrorism | 3 |
| **Total Credits** | | **15** |

## Minor in Environmental Science

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Environmental Science includes the topics of Earth systems, biological diversity, world resources (water, food, energy), global climate change, land use planning, and sustainable development. At its core, the minor emphasizes a systems-thinking approach, drawing in diverse disciplinary perspectives to provide a holistic perspective. The curriculum is designed to explore complex real-world challenges and cutting-edge innovations to address them. This minor meets a growing interest of students and employers in environmental responsibility and sustainability. Engaging students in experiential learning, the program offers opportunities for research or service-learning. This hands-on approach enriches the academic experience and equips students to integrate environmental science principles into their chosen career paths.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| Required Courses: | | |
| PHYS 142 | Introduction to Environmental Science | 3 |
| PHYS 304 | Environmental Science | 3 |
| CHEM 110 | General Chemistry I | 3 |
| or BIOL 120 | Foundations of Biology I | |
| WEAX 201 | Meteorology I | 3 |
| Electives (select one): | | 3 |
| COMD 350 | Environmental Communication | |
| SFTY 315 | Environmental Compliance and Safety | |
| PHYS 359 | Self-Directed Exploration of Environmental Science | |
| **Total Credits** | | **15** |

## Minor in Homeland Security

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Homeland Security equips students with specialized knowledge and skills essential for protecting the nation's transportation infrastructure. It focuses on planning for, responding to, and managing emergencies related to acts of terrorism, as well as natural and man-made disasters. This minor is especially beneficial for students pursuing majors in safety, aeronautical science, airport management, communication, human factors, aeronautics, business, or interdisciplinary studies. Upon completion of this minor, students will be adept in assessing security risks, developing strategic responses, and understanding the complexities of homeland security operations.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Students majoring in the B.S. in Homeland Security may not declare this minor.*

| | | |
|---|---|---|
| HLSD 110 | Introduction to Homeland Security | 3 |
| HLSD 215 | Introduction to Industrial Security | 3 |
| HLSD 155 | Foundations of Information Security | 3 |
| Take any two of the following courses: | | 6 |
| EMGY 310 | Fundamentals of Emergency Management | |
| HLSD 315 | Critical Infrastructure Security, Resilience, and Risk Analysis | |
| HLSD 320 | Homeland Security Law and Policy | |
| HLSD 360 | Strategic Planning and Decision Making in Homeland Security | |
| SCTY 315 | Studies in Intelligence I | |
| SCTY 385 | Intelligence Collection and Analysis | |
| SCTY 488 | National Security Issues and Terrorism | |
| BHSI 325 | Homeland Security and Regulatory Policy Management in Aviation | |
| **Total Credits** | | **15** |

## Minor in Human Factors

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Human Factors is designed to emphasize and support the need for lifelong learning, to facilitate pathways for continuing education in discipline or related discipline, and to provide a competitive edge to its graduates by equipping practitioners and researchers to critically analyze human performance capabilities, limitations, and error across a wide array of industries and applications, and by showcasing additional skills and research interests to current and prospective employers.

With rapid advances in science, technology, and applications in advanced technologies, such as automation, robotics, artificial intelligence, and virtual/augmented/mixed realties, sociotechnical interfaces are becoming increasingly more complex. This trend emphasizes the need to optimize the interaction between humans and systems, to enhance safety, security, performance, usability, and satisfaction. The multidisciplinary curriculum was designed for working professionals, as is evidenced by the flexibility of the online platform and highly relevant content, applications, and assessment protocols.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Students majoring in the B.S. in Human Factors Psychology may not declare this minor.*

| | | |
|---|---|---|
| PSYC 220 | Introduction to Psychology | 3 |
| BSHF 300 | Human Factors I: Principles and Fundamentals | 3 |
| Select 3 from the following list: | | 9 |
| BSAS 320 | Human Factors in Aviation Safety | 3 |
| BSHF 302 | Human Factors II: Analytic Methods and Techniques | 3 |
| BSHF 307 | Human Factors III: Performance Processes | 3 |
| BSHF 310 | Human Computer Interaction | 3 |
| BSHF 315 | Automation and System Issues in Aviation | 3 |
| BSHF 320 | User Experience/User Interaction | 3 |
| PSYC 310 | Sensation and Perception | 3 |
| PSYC 315 | Cognitive Psychology | 3 |
| **Total Credits** | | **15** |

## Minor in Humanistic STEM

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Humanistic STEM provides opportunities to enhance critical thinking skills, improve communication expertise and develop an interdisciplinary mindset. The interdisciplinarity across the meta-disciplines of Humanities and STEM demonstrates to employers that students can think beyond academic silos, using a variety of perspectives in creative problem solving.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| Required Courses: | | |
| HUMN 333 | How Fiction, Film and Popular Culture Represent Science and Mathematics | 3 |
| PSYC 355 | The Psychology of Creativity and Innovation | 3 |
| Take any three of the following Courses | | 9 |
| HIST 119 | U.S. History to 1865 | |
| HIST 130 | History of Aviation in America | |
| HUMN 240 | History of Communication Technologies | |
| HUMN 241 | Introduction to Digital Humanities | |
| HUMN 256 | Baseball History and Statistics | |
| HUMN 400 | Science and Aviation/Aerospace Technology in Society | |
| MATH 201 | Learning to Reason: Art and Quotient | |
| MATH 202 | Learning to Reason: Commerce and Flux | |
| Two of the following H-STEM "infusion" courses can substitute for one of the three non-required courses: | | 6 |
| CHEM 110 | General Chemistry I | |
| ECON 210 | Microeconomics | |
| ECON 211 | Macroeconomics | |
| PHYS 224 | Astronomy | |
| PHYS 142 | Introduction to Environmental Science | |
| STAT 211 | Statistics with Aviation Applications | |
| or STAT 222 | Business Statistics | |
| **Total Credits** | | **15-18** |

# Minor in Industrial/Organizational Psychology

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Industrial and Organizational Psychology focuses on human performance in the workplace environment and the application of psychological principles to organizations. It is designed to help students understand and improve organizational effectiveness, employee satisfaction, and workplace productivity. Through a blend of theoretical study and practical application, students gain insights into human behavior in professional settings across various industries. It equips students with valuable skills in communication, analysis, and problem-solving, essential for addressing the complex challenges in today's diverse and dynamic work environments.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| PSYC 340 | Industrial/Organizational Psychology | 3 |
| PSYC 326 | Group and Team Behavior | 3 |
| PSYC 350 | Social Psychology | 3 |
| or SOCI 310 | Personality Development | |
| Choose 2 courses from one of the following elective areas: | | 6 |
| Emergency Services: | | |
| ESVS 201 | Fire-Related Human Behavior | |
| ESVS 405 | Personnel Management for Fire and Emergency Services | |
| English/Communications: | | |
| ENGL 222 | Business Communication | |
| ENGL 223 | Collaborative Writing & Presenting | |
| COMD 362 | Communication and Organizational Culture | |
| COMD 415 | Nonverbal Communication | |
| Psychology: | | |
| PSYC 320 | Aviation Psychology | |
| PSYC 400 | Introduction to Cognitive Science | |
| PSYC 350 | Social Psychology (Whichever not taken as core) | |
| or SOCI 310 | Personality Development | |
| Business: | | |
| HRMD 314 | Human Resource Management | |
| OBLD 317 | Organizational Behavior | |
| OBLD 427 | Management of the Multicultural Workforce | |
| HRMD 482 | Human Resources Training and Development | |
| HRMD 495 | Staffing and Workforce Planning | |
| Safety/Human Factors: | | |
| BSAS 320 | Human Factors in Aviation Safety | |
| SFTY 321 | Ergonomics | |
| SFTY 415 | Human Reliability and Safety Analysis | |
| **Total Credits** | | **15** |

# Minor in International Relations

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in International Relations provides students with an understanding of global dynamics and the skills necessary to navigate the complexities of international affairs. The courses instill a global perspective, allowing students to comprehend geopolitical, economic, and cultural factors shaping international relations. Through critical analysis of international events, understanding of major international institutions, and exploring the intersection of science, technology, and global governance, students gain a comprehensive view of global affairs. Graduates gain skills in effective communication, research, and analytical skills and cultural competency, positioning them for careers in diplomacy, international business, aviation management, STEM fields, and other professions requiring a nuanced understanding of the interconnected global landscape.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| GOVT 331 | Current Issues in America | 3 |
| GOVT 325 | International Studies | 3 |
| Select three of the following: | | 9 |
| GOVT 320 | American National Government | 3 |
| GOVT 340 | U.S. Foreign Policy | 3 |
| GOVT 363 | Inter-American Relations | 3 |
| GOVT 401 | American Constitutional Law | 3 |
| GOVT 402 | Globalization and World Politics | 3 |
| HUMN 210 | World Culture | 3 |
| **Total Credits** | | **15** |

# Minor in Mathematics

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Mathematics covers a wide range of advanced concepts such as limits, derivatives, integrals, multivariable calculus, first and second order differential equations, Laplace transforms, matrix methods of solutions, and application of mathematics used to solve complex aeronautical and technical real-world problems. Courses in this minor also develop skills critical to success in the STEM (Science, Technology, Engineering and Mathematics) workforce such as critical thinking, problem solving, quantitative reasoning, and use of computational and representational tools.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Students majoring in the B.S. in Data Science may not declare this minor.*

| | | |
|---|---|---|
| MATH 241 | Calculus and Analytical Geometry I | 4 |
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| MATH 243 | Calculus and Analytical Geometry III | 4 |
| MATH 345 | Differential Equations and Matrix Methods | 4 |
| MATH 432 | Applied Linear Algebra | 3 |
| or STAT 412 | Probability and Statistics | |
| **Total Credits** | | **19** |

## Minor in Military Science

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Military Science program is structured to provide students with foundational knowledge in military practices, history, homeland security principles, and management basics. This foundational coursework lays the groundwork for deeper exploration through elective subjects within the minor, offering a broad perspective that is both comprehensive and adaptable to a range of academic and career interests.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| **Military Science (Non-ROTC)** | | |
| **Core** | | **9** |
| HIST 331 | Moments of Crisis in U.S. Military History | |
| HLSD 110 | Introduction to Homeland Security | |
| MGMT 201 | Principles of Management | |
| **Choose any 2 courses from the following: (at least 3 credit hours must be Upper Level)** | | **6** |
| **History and Government** | | |
| GOVT 320 | American National Government | |
| GOVT 325 | International Studies | |
| GOVT 340 | U.S. Foreign Policy | |
| HIST 130 | History of Aviation in America | |
| **Homeland Security** | | |
| HLSD 290 | Environmental Security | |
| HLSD 415 | Immigration and Homeland Security | |
| **Cybersecurity** | | |
| HLSD 155 | Foundations of Information Security | |
| **Security Science** | | |
| SCTY 315 | Studies in Intelligence I | |
| SCTY 488 | National Security Issues and Terrorism | |
| **Leadership** | | |
| OBLD 275 | Critical Thinking for Leadership | |
| OBLD 304 | Coaching and Mentoring | |
| OBLD 310 | Mediation, Negotiation, and Conflict Resolution | |
| **Total Credits** | | **15** |

## Minor in Military Studies

Students, having earned Joint Services transcripted American Council of Education (ACE) upper-level recommended credit, pursuing a B.S. in Interdisciplinary Studies degree; are eligible to minor in Military Studies.

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

***Available to BS in Interdisciplinary Studies students only.***

| | | |
|---|---|---|
| **Upper Level ACE Recommended Credit** | | |
| Joint Services transcripted, upper level ACE recommended academic credit. | | 15 |
| **Upper Level Embry-Riddle Elective Credit** | | |
| Select any two non-duplicated 300-400 level ASCI or MGMT courses. | | 6 |
| **Total Credits** | | **21** |

## Minor in Occupational Safety and Health

Minor courses of study are academic programs designed to satisfy students' interests and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Occupational Safety and Health provides the skills and knowledge required to identify potential hazards and associated risks in general industry. In a safety-conscious organization, it is crucial to prioritize the creation of safer workplaces to prevent losses and promote the well-being of employees, the environment, and profits. Students will gain a fundamental understanding of critical aspects of occupational safety, including ergonomics, industrial hygiene, system safety management, fire protection, systems design for fire and life safety, loss control and insurance, construction safety, environmental compliance and safety, and occupational safety and health.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. Students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing to gain the greatest value from their academic experience.

The student becomes subject to the minor's requirement as stated in the effective catalog when the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

- Fundamentals of Occupational Safety and Health;
- Ergonomics;
- Industrial Hygiene and Toxicology;
- System Safety Management;
- Fire Protection;
- Systems Design for Fire and Life Safety;
- Loss Control and Insurance;

- Construction Safety;
- Environmental Compliance and Safety;
- Occupational Safety and Health.

*Students majoring in the B.S. in Safety Management may not declare this minor.*

| | | |
|---|---|---|
| SFTY 311 | Fundamentals of Occupational Safety and Health | 3 |
| SFTY 321 | Ergonomics | 3 |
| SFTY 355 | Industrial Hygiene and Toxicology | 3 |
| SFTY 341 | Occupational Safety and Health Program Management | 3 |
| SFTY 441 | Construction Safety and Health | 3 |
| SFTY 470 | Advanced Occupational Safety and Health Technology | 3 |
| **Total Credits** | | **18** |

## Minor in Psychology

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Psychology provides students with a foundational understanding of psychological principles and their applications. This program focuses on developing critical thinking, research skills, and an appreciation for the diversity of psychological thought and practice. It will equip students with valuable life skills and a deeper understanding of human behavior and mental processes applicable across all industries and vocations. This minor complements a variety of majors and prepares students for diverse career paths by providing a broad perspective on various aspects of human psychology.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| PSYC 220 | Introduction to Psychology | 3 |
| Select 4 from the following List: | | 12 |
| PSYC 320 | Aviation Psychology | 3 |
| PSYC 326 | Group and Team Behavior | 3 |
| PSYC 340 | Industrial/Organizational Psychology | 3 |
| PSYC 350 | Social Psychology | 3 |
| PSYC 355 | The Psychology of Creativity and Innovation | 3 |
| PSYC 360 | Cultural Psychology | 3 |
| PSYC 365 | Abnormal Psychology | 3 |
| PSYC 400 | Introduction to Cognitive Science | 3 |
| PSYC 440 | The Psychology of Resilience | 3 |
| **Total Credits** | | **15** |

## Minor in Research Foundations

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

Offered across the university, the Minor in Research Foundations trains students in identifying, understanding, and evaluating academic sources and tools for use in research projects as well as in real-world applications that require defensible analysis. After a general introduction to research and its different forms, students will master strategies to evaluate sources, engage with academic literature and be familiarized with the conventions of scholarly literature across multiple fields. Students will become competent in using traditional as well as technology-supported methods of deriving state-of-the-art knowledge and synthesizing multiple sources, and planning research and development projects. Students will explore ethical risks and challenges in research and system design and how to manage them successfully. At the end of their minor, students will explore scientific inquiry through one of several alternative disciplinary lenses.

The target clientele are students with an interest in undergraduate research activity and/or with career goals where discovery, evidence-based design, and/or ability in defensible analysis is essential. This applies to a broad range of job types, industries, and workforces.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| RSCH 200 | Inquiry & Discovery: Exploring Academic Sources | 3 |
| RSCH 202 | Introduction to Research Methods | 3 |
| RSCH 350 | Research Ethics | 3 |
| Select one: | | 3 |
| MA 404 | Statistics and Research Methods | |
| PSY 322 | Research Design | |
| STAT 211 | Statistics with Aviation Applications | |
| STAT 222 | Business Statistics | |
| STAT 412 | Probability and Statistics | |
| Select one: | | 3 |
| BSHF 401 | Applied Research | |
| ESVS 401 | Applications of Fire Research | |
| PSY 312 | Research Analysis in Psychology | |
| RSCH 395 | Publication-Ready STEM Research | |
| Other program/discipline-specific course as approved by minor coordinator | | |
| **Total Credits** | | **15** |

## Minor in Science Literacy

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

The Minor in Science Literacy equips students with the critical tools to identify, understand, evaluate, and communicate scientific knowledge in an increasingly complex and technologically driven world. Drawing on interdisciplinary coursework, the program emphasizes the evolution of scientific thought, the importance of credible evidence, and the role of emerging technologies—including artificial intelligence—in research and discovery. Students will develop the ability to assess the reliability of scientific sources, engage with contemporary global issues through a scientific lens, and communicate findings to expert and non-expert audiences alike. The curriculum promotes responsible and ethical approaches to inquiry and highlights how science both shapes and is shaped by cultural, technological, and societal forces.

This minor is ideal for students who seek to strengthen their scientific literacy and critical thinking skills in order to become informed, agile thinkers in their professional fields and industries.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| SSES 110 | Critical Thinking in Contemporary Problems | 3 |
| HIST 302 | Evolution of Scientific Thought | 3 |
| RSCH 200 | Inquiry & Discovery: Exploring Academic Sources | 3 |
| RSCH 310 | Applications of Artificial Intelligence in Research | 3 |
| or HUMN 400 | Science and Aviation/Aerospace Technology in Society | |
| COMD 225 | Science and Technology Communication | 3 |
| **Total Credits** | | **15** |

## Minor in Security and Intelligence

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

In an era where security and intelligence are of paramount importance, the Minor in Security and Intelligence is timely and relevant. This program is designed for students aiming to become professionals in aviation security, commercial security, homeland security, national security, and intelligence communities. It prepares students for the challenges of protecting assets in the face of evolving security threats in both the public and private sectors.

The Minor in Security and Intelligence provides students with a comprehensive understanding of the intelligence cycle, including practical applications valuable across various professions. Students will learn to analyze, interpret, and evaluate intelligence information, equipping them with skills critical for decision-making in security roles. This minor is also beneficial for those in non-security professions who may assume security responsibilities or oversee security operations as part of their duties.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| SCTY 310 | Introduction to Security | 3 |
| SCTY 315 | Studies in Intelligence I | 3 |
| SCTY 385 | Intelligence Collection and Analysis | 3 |
| SCTY 400 | Aviation Security | 3 |
| SCTY 485 | Corporate Security | 3 |
| SCTY 488 | National Security Issues and Terrorism | 3 |
| **Total Credits** | | **18** |

## Minor in Space Policy, History, and Culture

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

Offered jointly with the College of Aviation, the Minor in Space Policy, History, and Culture offers students an interdisciplinary exploration of humanity's evolving relationship with outer space, examining how space exploration shapes—and is shaped by—scientific, political, and cultural forces. This program investigates the development of space policies and legal frameworks, the historical milestones of space exploration, and the scientific principles that underpin our understanding of the universe. Students will also analyze how literature and film reflect and influence societal aspirations, anxieties, and ethical considerations about the cosmos. The curriculum fosters critical thinking, cultural literacy, and an understanding of the complex interplay between space as a domain of discovery, governance, and imagination. This minor is ideal for students seeking to connect technical knowledge with humanistic insights, preparing them to engage thoughtfully with the future of space exploration in both academic and professional contexts.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

| | | |
|---|---|---|
| ASCI 110 | Introduction to Space Flight | 3 |
| PHYS 224 | Astronomy | 3 |
| SPAC 315 | Space Policy | 3 |
| HIST 310 | History of Space Exploration | 3 |
| HUMN 322 | Imagining Space in Literature and Film | 3 |
| **Total Credits** | | **15** |

## Undergraduate Certificate in Airport Baggage Handling Systems Implementation

The Undergraduate Certificate in Airport Baggage Handling Systems Implementation provides specialized academic training in designing, implementing, and managing airport baggage handling systems (BHS). The certificate equips students with comprehensive knowledge of the entire BHS lifecycle within the broader framework of airport operations as well as homeland security and aviation regulatory policy. Courses cover essential topics, including system design, regulatory compliance, procurement, and operational management.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

### Airport Baggage Handling Systems Implementation (BHSI)

#### Certificate

Students in the Certificate in Airport Baggage Handling Systems Implementation may not declare the Minor in Airport Baggage Handling Systems Implementation.

Students in the Minor in Airport Baggage Handling Systems Implementation may not enroll in the Certificate in Airport Baggage Handling Systems Implementation.

| | | |
|---|---|---|
| SFTY 311 | Fundamentals of Occupational Safety and Health | 3 |
| BHSI 325 | Homeland Security and Regulatory Policy Management in Aviation | 3 |
| BHSI 401 | Baggage Handling System Design | 3 |
| BHSI 402 | Baggage Handling System Management | 3 |
| **Total Credits** | | **12** |

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

**Students will:**

- Demonstrate the ability to identify and collaborate with airport stakeholder groups to support effective baggage handling system (BHS) projects
- Explain the lifecycle of a baggage handling system (BHS), including planning, cost analysis, design, regulatory compliance, stakeholder engagement, procurement, implementation, and maintenance.
- Describe the relevance of airport baggage handling systems implementation in the homeland security and aviation regulatory policy context.

# Undergraduate Certificate in Artificial Intelligence, Ethics, and Creativity

The Certificate in Artificial Intelligence, Ethics, and Creativity is designed to provide professionals, career changers, and non-degree-seeking learners with the foundational knowledge and practical skills necessary to understand and engage with artificial intelligence technologies in ethical and creative ways. The certificate program is targeted toward a broad audience, including working professionals seeking to enhance their qualifications, individuals transitioning into AI-related fields, and lifelong learners interested in exploring AI's societal impact.

This certificate emphasizes practical, interdisciplinary approaches that combine technical literacy in generative AI with humanities-based frameworks for ethical reasoning and creativity. The program will prepare participants to apply AI tools responsibly and innovatively in industries such as technology, business, education, and the arts.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Artificial Intelligence, Ethics, and Creativity

### Certificate

Students in the Certificate in Artificial Intelligence, Ethics, and Creativity may not declare the Minor in Artificial Intelligence, Ethics, and Creativity.

Students in the Minor in Artificial Intelligence, Ethics, and Creativity may not enroll in the Certificate in Artificial Intelligence, Ethics, and Creativity.

| | | |
|---|---|---|
| HUMN 154 | Artificial Intelligence Rhetorics | 3 |
| HUMN 250 | Generative Artificial Intelligence in Real-World Contexts | 3 |
| HUMN 431 | Ethics and Artificial Intelligence | 3 |
| PSYC 400 | Introduction to Cognitive Science | 3 |
| or PSYC 355 | The Psychology of Creativity and Innovation | |
| **Total Credits** | | **12** |

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

**Students will:**

- Describe the basic mechanisms of generative AI and its role in creative and research applications.
- Apply ethical frameworks to the use of AI technologies in various industries.
- Illustrate the impact of AI-assisted creativity through responsible use of current generative AI capabilities.
- Design strategies to use AI in ways that enhance human creativity without compromising originality or authenticity.
- Create projects using both AI technology and humanities-based approaches that address questions about human cognition and machine interaction.

# Undergraduate Certificate in Crisis, Risk and Resilience Communication

The Certificate in Crisis, Risk and Resilience Communication is designed to provide professionals, career changers, and non-degree-seeking learners with the foundational knowledge and practical skills necessary to communicate during crises, assess and manage risks, and build organizational and community resilience through strategic communication response strategies. The Certificate in Crisis, Risk and Resilience Communication answers the demand for those who wish to explore the intersections between communication and safe and secure societies and industries.

The certificate program is targeted toward a broad audience, including working professionals seeking to enhance their qualifications, individuals transitioning into risk and crisis communication fields, and lifelong learners interested in exploring strategic communication in crisis, risk, and resilience contexts.

This certificate emphasizes applied, interdisciplinary approaches that combine strategic communication principles with risk assessment, crisis management, and resilience-building strategies. The certificate will prepare participants to effectively communicate across the phases of the national preparedness cycle; to craft clear, timely, and credible messages in high-stakes situations; and to help organizations and communities navigate risk and crisis situations.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Crisis, Risk and Resilience Communication

### Certificate

Students in the Certificate in Crisis, Risk and Resilience Communication may not declare the Minor in Crisis, Risk and Resilience Communication.

Students in the Minor in Crisis, Risk and Resilience Communication may not enroll in the Certificate in Crisis, Risk and Resilience Communication.

| | | |
|---|---|---|
| ENGL 222 | Business Communication | 3 |
| COMD 460 | Crisis Communication | 3 |
| COMD 365 | Communication for Resilience | 3 |
| Select one course from the following options: | | 3 |
| EMGY 310 | Fundamentals of Emergency Management | |
| ESVS 301 | Community Risk Reduction for the Fire and Emergency Services | |
| HLSD 110 | Introduction to Homeland Security | |
| HLSD 360 | Strategic Planning and Decision Making in Homeland Security | |
| **Total Credits** | | **12** |

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

**Students will:**

- Apply strategic communication principles in risk and crisis situations to effectively and ethically convey information to diverse audiences in high-stakes situations
- Develop communication strategies that support risk management, crisis response, and resilience-building within multiple contexts
- Use strategic decision-making frameworks to enhance preparedness, response, and recovery communication across the national preparedness cycle.

# Undergraduate Certificate in Emergency Management Leadership

This certificate provides an all-hazards foundation of emergency management across the national preparedness cycle (from prevention to response and recovery) and including Defense Support of Civil Authorities (DSCA). Focused on leadership competencies, the program also provides foundations of emergency management administration and planning and related risk management and exercise processes; of the National Response Framework (NRF) and the Incident Command System (ICS); and of working with partners within the whole-community approach of ensuring resilience and preparedness for response. Based on their professional needs/aspirations, students will also choose one of several alternative "leadership focus area" courses from a multidisciplinary pool of courses.

The program equips students with the competencies required to lead in the evolving all-hazards and whole-community context of emergency management across the military and civil sectors.

In an evolving threat and hazard environment, military and civil leaders need comprehensive foundations to lead multi-disciplinary emergency management efforts across the national preparedness cycle, from prevention to recovery. The program is ideal for military service members with careers or career aspirations at the leadership level in emergency management across the all-hazards spectrum and involving civil-military relations in disaster response and recovery (such as Defense Support of Civil Authorities). Public and private sector members with emergency management responsibilities that involve civil-military interaction will also greatly benefit from the program.

Upon successful completion of the certificate, students can apply and if admitted transfer all certificate credits into the A.S. in Emergency Management program.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Emergency Management Leadership

### Certificate

| | | |
|---|---|---|
| HLSD 110 | Introduction to Homeland Security | 3 |
| HLSD 280 | Professional Skills in Homeland Security | 3 |
| EMGY 310 | Fundamentals of Emergency Management | 3 |
| EMGY 430 | Emergency Management and Contingency Planning | 3 |
| HLSD 360 | Strategic Planning and Decision Making in Homeland Security | 3 |
| Leadership Focus Area - Select One of the Following: | | 3 |
| COMD 365 | Communication for Resilience | |
| EMGY 400 | Introduction to Incident Command System | |
| EMGY 405 | Disaster Policy and Management | |
| ESVS 402 | Fire and Emergency Services Administration | |
| ESVS 405 | Personnel Management for Fire and Emergency Services | |
| HLSD 320 | Homeland Security Law and Policy | |
| **Total Credits** | | **18** |

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Describe the all-hazards and whole-community approach to comprehensive emergency management.
- Illustrate the application of emergency management principles and procedures to the National Preparedness Cycle with a focus on response and recovery.
- Detail the administrative and technical requirements for disaster response and emergency management.
- Outline risk-based planning for emergency management and disaster response.
- Identify the components of the National Response Framework (NRF), the Incident Command System (ICS) and the Defense Support of Civil Authorities (DSCA) process.
- Practice leadership in multi-stakeholder disaster management.

# Undergraduate Certificate in Occupational Safety and Health

The Undergraduate Certificate in Occupational Safety and Health equips students with essential skills for ensuring workplace safety and health. This certificate is designed for civilians, active-duty military personnel, and organizations dedicated to enhancing their teams' expertise or adhering to regulatory standards, making it an invaluable asset for professionals in HR, risk management, and safety across diverse industries. Aspiring professionals may seek the Occupational Safety and Health (OSH) certificate as a dedicated pathway to deepen their understanding and enhance their skills in the ever-evolving safety industry. This certificate not only empowers learners to stand out in the competitive job market but also serves as a valuable complement for those planning to pursue a Bachelor of Science in Safety Management (BSSM) degree program, providing a robust foundation of knowledge that aligns with their academic and career goals. Active BSSM students can add the certificate alongside their degree at any time.

The knowledge gained from this certificate will serve as foundational knowledge for those aspiring to a leadership role in EHS and ultimately achieve their professional safety certification. Participants will dive into a dynamic curriculum that includes key areas such as fundamentals of occupational safety, environmental health, occupational safety and health program management, and advanced occupational safety and health technology. The certificate prepares students to be capable leaders, ready to identify, evaluate, prevent, and eliminate workplace hazards, ensuring the safety of individuals and fortifying organizational integrity.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Occupational Safety and Health

### Certificate

Students in the Certificate in Occupational Safety and Health may not declare the Minor in Occupational Safety and Health.

Students in the Minor in Occupational Safety and Health may not enroll in the Certificate in Occupational Safety and Health.

| | | |
|---|---|---|
| SFTY 311 | Fundamentals of Occupational Safety and Health | 3 |
| SFTY 315 | Environmental Compliance and Safety | 3 |
| SFTY 341 | Occupational Safety and Health Program Management | 3 |

| | | |
|---|---|---|
| SFTY 470 | Advanced Occupational Safety and Health Technology | 3 |
| **Total Credits** | | **12** |

**NOTE: Degree-seeking BSSM students adding the certificate must complete all SFTY course prerequisites as outlined in the catalog for the BSSM degree program.**

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

**Students will:**

- Develop a comprehensive plan to identify, mitigate, and justify financial approaches for addressing a variety of occupational safety and health hazards.
- Determine the societal implications of potential environmental issues in the workplace, including control measures for regulatory compliance and meeting public expectations.
- Identify effective safety and health training techniques for diverse workplace populations.
- Use technology to support professional practices.

# Graduate Certificate in Human Factors

The Human Factors certificate program is designed to give a competitive edge to its graduates by equipping practitioners and researchers to critically analyze human performance capabilities, limitations, and error across a wide array of industries and applications. With rapid advances in science, technology, and applications in automation, robotics, artificial intelligence, and virtual/augmented realty, sociotechnical interfaces are becoming increasingly more complex. This trend emphasizes the need to optimize the interaction between humans and systems, to enhance safety, security, performance, usability, and satisfaction. The multidisciplinary curriculum was designed for working professionals, as is evidenced by the flexibility of the online platform and highly relevant content, applications, and assessment protocols. A total of 12 credits, four courses, are required to complete the program. The required courses support Human Factors and Ergonomics Society tenets, with a concentration on applied cognition, psychology, physiology, and ergonomics.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Human Factors

### Certificate

| | | |
|---|---|---|
| MSHF 606 | Human Cognition | 3 |
| MSHF 612 | Human Performance, Limitation, and Error | 3 |
| MSHF 624 | Ergonomics and Biomechanics | 3 |
| MSHF 640 | Human Physiology and Adaptation | 3 |
| **Total Credits** | | **12** |

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Evaluate human cognitive/psychological capabilities and limitations comprehensively across multiple human factors and ergonomics domains.
- Comprehensively evaluate human physiological capabilities and limitations across multiple human factors and ergonomics domains.
- Apply principles of ergonomic and bioengineering as relate to human-machine design and performance.

# Graduate Certificate in Human Security and Resilience

The certificate equips students with the skills and knowledge to address complex global challenges threatening individual and community well-being. Students engage in interdisciplinary studies that draw from economics, public health, environmental science, and political science. This approach allows graduates to develop a comprehensive understanding of the complex interactions shaping security landscapes. The program instills a resilience mindset, enabling graduates to thrive in adversity. By cultivating adaptive thinking and problem-solving skills, the certificate prepares leaders who can effectively respond to unforeseen challenges to lead interdisciplinary teams for policy-making, research, field action, or advocacy.

As conflicts, environmental changes, and social inequalities rise, there is a pressing demand for professionals with the knowledge and skills to address this transnational issue effectively. Human security emphasizes the protection of individuals rather than just state security, aligning with a framework that advocates for a deeper understanding of security challenges. The United Nations Sustainable Goals (SDGs) further emphasize the importance of human security and resilience. SDGs explicitly address the need for integrated approaches to ensure that vulnerable populations are supported in the face of environmental and socio-economic challenges. By aligning with the SDGs, a certificate program in this field can contribute to training professionals to tackle these global changes and build more resilient societies.

Upon successful completion of the certificate, students can apply and, if admitted, transfer all certificate credits into the MS in Human Security and Resilience program.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Human Security and Resilience

### Certificate

| | | |
|---|---|---|
| MHSR 500 | Introduction to Human Security | 3 |
| MHSR 511 | The Internet, Security, and Governance | 3 |
| MHSR 515 | International Law and U.S. Security Policy | 3 |
| or MHSR 520 | Principles of International Conflict Resolution | |
| MHSR 530 | Environmental Security | 3 |
| MHSR 540 | Foundations of Resilience | 3 |
| **Total Credits** | | **15** |

## Student Learning Outcomes

**Students will:**

- Examine the concept and foundational principles of human security.
- Explore the role of digital communications on societal resilience, including government strategies to control these technologies.
- Examine how global trends contribute to political and economic destabilization and security concerns worldwide
- Evaluate sources and case studies of resilience in countries with varying levels of development and its importance to global security
- Analyze the impact of international legal frameworks on promoting human security across different contexts

# Graduate Certificate in Occupational Safety Management

The Graduate Certificate in Occupational Safety Management is designed for students who desire to build core competencies in the field of safety and health management. The certificate program is designed to give a competitive edge to its graduates by equipping safety and health practitioners with safety and health management knowledge and skills to anticipate, recognize, evaluate, prevent and control workplace safety and occupational health hazards within numerous industries to protect people, property, the environment and organizational operations. The certificate program will also prepare practitioners with the ability to effectively manage the occupational safety and health function within a variety of industries, and justify occupational safety and health programs, initiatives and control efforts through the use of business and risk management metrics. The curriculum was designed for working professionals, as is evidenced by the flexibility of the online platform and highly relevant content, applications, and assessment protocols. A total of 12 credits, four courses, are required to complete the program.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Occupational Safety Management

### Certificate

| | | |
|---|---|---|
| SFTY 530 | Safety, Health and Environmental Legislation, Litigation & Compliance | 3 |
| SFTY 590 | Hazard Control Methods in Occupational Safety and Health | 3 |
| SFTY 600 | Occupational Safety and Health Management | 3 |
| SFTY 611 | Industrial Hygiene and Toxicology | 3 |
| **Total Credits** | | **12** |

To view the M.S. in Occupational Safety Management program, click here.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Have the ability to anticipate, recognize, evaluate, prevent, and control workplace safety and occupational health hazards within numerous industries to protect people, property, the environment, and organizational operations.
- Have the ability to effectively manage the occupational safety and health functions within a variety of industries.
- Have an ability to justify occupational safety and health programs, initiatives, and control efforts through the use of business and risk management metrics.

# College of Business

Dr. Maneesh Sharma, Dean

The College of Business strives to be the premier global educator of leaders and managers in aviation and aerospace. The mission of the College of Business is to prepare our students to become global leaders by providing education that is rooted in critical thinking, analysis, and problem solving. Our vision is to become a leading destination institution for providing innovative, market ready and highly accessible business education for the broader aviation industry.

For Faculty lists and other information, view the College of Business website.

## Degrees

### Associates

- A.S. in Aviation Business Administration
- A.S. in Technical Management

### Bachelors

- B.S. in Aviation Business Administration
- B.S. in Business Analytics
- B.S. in Logistics and Supply Chain Management
- B.S. in Project Management
- B.S. in Technical Management

### Masters

- M.B.A. in Aviation
- M.S. in Airline Management
- M.S. in Airport and Air Mobility Management
- M.S. in Engineering Management
- M.S. in Leadership
- M.S. in Logistics and Supply Chain Management
- M.S. in Management
- M.S. in Management Information Systems
- M.S. in Project Management

### Minor Courses of Study

- Air Cargo Management
- Airport Management
- Aviation Management
- Human Resources
- Leadership
- Logistics Management
- Management
- Management Information Systems
- Marketing
- Project Management
- Technical Management

### Certificates

#### Graduate

- Business Intelligence and Analytics
- Finance
- Human Resources
- International Business
- Leadership
- Marketing
- Project Management

### Partnership Certificates

- Airline Management
- International Society of Transport Aircraft Trading (ISTAT)

## A.S. in Aviation Business Administration

In this degree program, you'll build a strong business foundation and sharp acumen crucial for top-tier organizational roles.

The Associate in Science in Aviation Business Administration covers essential business competencies. All credit hours fulfill general education requirements and the undergraduate business core.

The ASABA seamlessly transitions into various bachelor's degrees, including Aviation Business Administration, Business Analytics, Logistics and Supply Chain Management, Project Management, or Technical Management, with all 60 hours applicable.

This program is accredited by the Association of Collegiate Business Schools and Programs (ACBSP).

Estimated Cost of Attendance: https://nextcatalog.erau.edu/worldwide/dean-of-students/california-student/cost/

### Student Learning Outcomes

**Students will:**

- Achieve proficiency in general education competencies.
- Achieve proficiency in common professional business components.

### DEGREE REQUIREMENTS

### General Education

| | | |
|---|---|---|
| **General Education** | | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, and Social Sciences may be chosen from those listed below, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | |
| ENGL 123 | English Composition | 3 |
| ENGL 222 | Business Communication | 3 |
| Any Communication Theory and Skills above ENGL 106 | | 3 |
| **Humanities** | | |
| Any Humanities elective (lower or upper level) | | 3 |
| Any Humanities Elective (Upper Level) | | 3 |
| **Social Sciences** | | |
| ECON 210 | Microeconomics | 3 |
| ECON 211 | Macroeconomics | 3 |
| **Physical and Life Science** | | |
| Any Physics/Biology/Meteorology/Chemistry | | 6 |
| **Mathematics** | | |
| STAT 211 | Statistics with Aviation Applications | 3 |
| or STAT 222 | Business Statistics | |
| Any College Algebra or Higher Math or any Statistics (Credit cannot be awarded for STAT 211 or STAT 222) | | 3 |
| **Computer Science** | | |
| Any Computer Science | | 3 |
| **Total Credits** | | **36** |

## Core/Major

| | | |
|---|---|---|
| **Major** | | |
| MGMT 201 | Principles of Management | 3 |
| ACCT 210 | Financial Accounting | 3 |
| MMIS 320 | Business Information Systems | 3 |
| MKTG 311 | Marketing | 3 |
| ACCT 312 | Managerial Accounting | 3 |
| OBLD 317 | Organizational Behavior | 3 |
| MGMT 325 | Social Responsibility and Ethics in Management | 3 |
| FINE 332 | Corporate Finance I | 3 |
| **Total Credits** | | **24** |
| **Total Degree Requirements** | | **60** |

## Plan of Study (ASABA)

The plan of study is an example. Term of admission, course offerings, and selected minor or major could impact a student's actual plan. Consult with your advisor.

### Year One

| | | |
|---|---|---|
| **Term 1** | | **Credits** |
| ENGL 123 | English Composition | 3 |
| | Any College Algebra or Higher Math | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ENGL 222 | Business Communication | 3 |
| STAT 211 | Statistics with Aviation Applications | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Physical and Life Science | 3 |
| | Speech and Communication Theory | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| ECON 210 | Microeconomics | 3 |
| MGMT 201 | Principles of Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Any Computer Science | 3 |
| ECON 211 | Macroeconomics | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Two

| | | |
|---|---|---|
| **Term 1** | | **Credits** |
| | Humanities elective (lower or upper level) | 3 |
| ACCT 210 | Financial Accounting | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ACCT 312 | Managerial Accounting | 3 |
| | Physical and Life Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| OBLD 317 | Organizational Behavior | 3 |
| MMIS 320 | Business Information Systems | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| FINE 332 | Corporate Finance I | 3 |
| MGMT 325 | Social Responsibility and Ethics in Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Humanities Elective (Upper Level) | 3 |
| MKTG 311 | Marketing | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |
| **Total Degree Requirements** | | **60** |

# A.S. in Technical Management

In today's workplace, a college degree has never been more important. Employers see it as a demonstration of knowledge, motivation, and persistence — qualities that will set you above and apart from the pack. The Associate in Science in Technical Management program will appeal to your background, interests, and talents and give you a competitive edge in your career, too.

The Associate in Science in Technical Management curriculum was developed to give students the skills to marshal the resources of any organization toward its goals. Over the course of this program, students learn to organize, plan, staff, and coordinate physical assets as well as personnel.

This program is accredited by the Association of Collegiate Business Schools and Programs (ACBSP).

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Explore research to solve business problems and effectively communicate the results.
- Evaluate business functions and processes.
- Assess key principles of business and management disciplines and their applications.

## DEGREE REQUIREMENTS

## General Education

| | | |
|---|---|---|
| **General Education** | | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, and Humanities and Social Sciences may be chosen from those listed, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | |
| ENGL 123 | English Composition | 3 |
| ENGL 222 | Business Communication | 3 |
| Any Communication Theory & Skills above ENGL 106 | | 3 |
| **Humanities** | | |
| Humanities elective (lower or upper level) | | 3 |
| Any Upper Level Humanities | | 3 |
| **Social Sciences** | | |
| ECON 210 | Microeconomics | 3 |
| ECON 211 | Macroeconomics | 3 |
| **Physical and Life Science** | | |

| | | |
|---|---|---|
| Physics/Biology/Meteorology | | 6 |
| **Mathematics** | | |
| STAT 211 | Statistics with Aviation Applications | 3 |
| or STAT 222 | Business Statistics | |
| Any College Algebra or Higher Math or any Statistics (Credit cannot be awarded for STAT 211 or STAT 222) | | 3 |
| **Computer Science** | | |
| Any Computer Science | | 3 |
| **Total Credits** | | **36** |

## Core/Major

| | | |
|---|---|---|
| **ASTM Core** | | |
| MGMT 201 | Principles of Management | 3 |
| MGMT 203 | Management for Aeronautical Science | 3 |
| ACCT 210 | Financial Accounting | 3 |
| MMIS 320 | Business Information Systems | 3 |
| **Total Credits** | | **12** |

## Electives

| | |
|---|---|
| **Technical Transfer Credit or COB Minor or MGMT Electives** | **9** |
| If technical transfer credit is not applicable, the 9 hours can ONLY be used toward College of Business (COB) minors. If no minor is chosen, then MGMT electives have to be courses at the 200-300-400 level. | |
| **Open Electives (Lower or Upper Level)** | **3** |
| **May be used for Minors in other Departments** | |
| May be used for College of Business or non College of Business Minors. | |
| **Total Degree Requirements** | **60** |

# B.S. in Aviation Business Administration

The curriculum blends aviation essentials with advanced business tactics, equipping students with industry prowess and executive-level business acumen.

It covers various business areas: accounting, economics, finance, marketing, management, global strategies, organizational behavior, and social responsibility. Upon graduation, students will be eligible and qualified candidates for desirable staff, operational, and executive positions within the military sector or civilian business community.

The 120-credit degree plan includes General Education, Common Business Core, Aviation Management Core, Electives, and options for a Minor or Marketing Major.

As part of the college of business undergraduate degree, students will take a comprehensive exam in MGMT 436 (Strategic Management).

Estimated Cost of Attendance: https://nextcatalog.erau.edu/worldwide/dean-of-students/california-student/cost/

This program is accredited by the Association of Collegiate Business Schools and Programs (ACBSP) and is ranked 41st best online bachelor's in business by U.S. News and World Report.

## Student Learning Outcomes

**Students will:**

- Analyze current societal trends and their impact on the aviation/aerospace industry.
- Apply business and leadership principles to lead teams ethically and effectively across business functions.
- Demonstrate proficiency in identifying and solving global problems related to aviation business administration specialties.
- Prepare business communications to effectively engage diverse audiences.
- Use research and data to develop reasoned, defendable solutions to business problems.

## DEGREE REQUIREMENTS

### General Education

| | | |
|---|---|---|
| **General Education** | | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, and Social Sciences may be chosen from those listed below, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | |
| ENGL 123 | English Composition | 3 |
| ENGL 222 | Business Communication | 3 |
| Any Communication Theory and Skills above ENGL 106 | | 3 |
| **Humanities*** | | |
| Any Humanities elective (lower or upper level) | | 3 |
| Any Humanities Elective (upper level) | | 3 |
| **Social Sciences** | | |
| ECON 210 | Microeconomics | 3 |
| ECON 211 | Macroeconomics | 3 |
| **Physical and Life Science** | | |
| Any Physics/Biology/Meteorology/Chemistry | | 6 |
| **Mathematics** | | |
| STAT 211 | Statistics with Aviation Applications | 3 |
| or STAT 222 | Business Statistics | |
| Any College Algebra or Higher Math or any Statistics (Credit cannot be awarded for STAT 211 or STAT 222) | | 3 |
| **Computer Science** | | |
| Computer Science Elective | | 3 |
| **Total Credits** | | **36** |

## Core/Major

| | | |
|---|---|---|
| **Common Business Core** | | |
| MGMT 201 | Principles of Management | 3 |
| MMIS 320 | Business Information Systems | 3 |
| MKTG 311 | Marketing | 3 |
| ACCT 210 | Financial Accounting | 3 |
| ACCT 312 | Managerial Accounting | 3 |
| OBLD 317 | Organizational Behavior | 3 |
| MGMT 325 | Social Responsibility and Ethics in Management | 3 |
| FINE 332 | Corporate Finance I | 3 |
| BUSW 335 | International Business | 3 |
| BUSW 390 | Business Law | 3 |
| LGMT 420 | Management of Production and Operations | 3 |
| MGMT 436 | Strategic Management | 3 |
| **Total Credits** | | **36** |

| | | |
|---|---|---|
| **Aviation Management Core** | | |
| BUSW 352 | Business Quantitative Methods | 3 |
| MGMT 415 | Airline Management | 3 |
| LGMT 410 | Management of Air Cargo | 3 |

| | | |
|---|---|---|
| LGMT 411 | Logistics Management for Aviation/Aerospace | 3 |
| BSAS 350 | Aircraft Crash and Emergency Management | 3 |
| MKTG 450 | Aviation/Airport Marketing | 3 |
| MGMT 408 | Airport Management | 3 |
| **Recommended to be taken prior to MGMT 436 Strategic Management | | |
| **Total Credits** | | **21** |

## Electives, Minor, or Major

| | |
|---|---|
| **Transfer credit hours, minor*, or electives** | **27** |

*Students have the option to structure electives such that a minor may be earned. Total credit hours in this category must add to at least 27 credit hours.

**View Possible Minors: https://nextcatalog.erau.edu/worldwide/minors/**

- OR -

| | | |
|---|---|---|
| **Aviation Marketing Major** | | |
| MKTG 320 | Consumer Behavior | 3 |
| MKTG 330 | Professional Selling | 3 |
| MKTG 400 | Social Media Marketing | 3 |
| MKTG 449 | Strategic Marketing Management | 3 |
| BUAN 428 | Business Analytics and Data Intelligence | 3 |
| **Choose Two** | | |
| ECON 315 | Managerial Economics | 3 |
| LGMT 444 | Principles of Supply Chain Management | 3 |
| COMD 360 | Public Relations | 3 |
| **Open Electives** | | **6** |
| **Total Credits** | | **27** |

| | |
|---|---|
| **Total Degree Requirements** | **120** |

## Plan of Study (BSABA)

The plan of study is an example. Term of admission, course offerings, and selected minor or major could impact a student's actual plan. Consult with your advisor.

### Year One

| **Term 1** | | **Credits** |
|---|---|---|
| ENGL 123 | English Composition | 3 |
| | Any College Algebra or Higher Math | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ENGL 222 | Business Communication | 3 |
| STAT 211 | Statistics with Aviation Applications | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Physical and Life Science | 3 |
| | Speech and Communication Theory | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| ECON 210 | Microeconomics | 3 |
| MGMT 201 | Principles of Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Any Computer Science | 3 |
| ECON 211 | Macroeconomics | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Two

| **Term 1** | | **Credits** |
|---|---|---|
| | Humanities elective 9lower or upper level) | 3 |
| ACCT 210 | Financial Accounting | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ACCT 312 | Managerial Accounting | 3 |
| | Physical and Life Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| OBLD 317 | Organizational Behavior | 3 |
| MMIS 320 | Business Information Systems | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| FINE 332 | Corporate Finance I | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Humanities Elective (Upper Level) | 3 |
| MKTG 311 | Marketing | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Three

| **Term 1** | | **Credits** |
|---|---|---|
| MGMT 415 | Airline Management | 3 |
| | Open Elective (Minor/Elective/Major) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| LGMT 410 | Management of Air Cargo | 3 |
| | Open Elective (Minor/Elective?Major) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| LGMT 411 | Logistics Management for Aviation/Aerospace | 3 |
| BUSW 352 | Business Quantitative Methods | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| BSAS 350 | Aircraft Crash and Emergency Management | 3 |
| | Open Elective (Minor/Elective/Major) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| BUSW 335 | International Business | 3 |
| | Open Elective (Minor/Elective/Major) | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Four

| **Term 1** | | **Credits** |
|---|---|---|
| MGMT 325 | Social Responsibility and Ethics in Management | 3 |
| | Open Elective (Minor/Elective/Major) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| BUSW 390 | Business Law | 3 |
| | Open Elective (Minor/Elective/Major) | 3 |
| | **Credits Subtotal** | **6.0** |

| | | |
|---|---|---|
| **Term 3** | | |
| LGMT 420 | Management of Production and Operations | 3 |
| | Open Elective (Minor/Elective/Major) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| MGMT 436 | Strategic Management | 3 |
| | Open Elective (Minor/Elective/Major) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Open Elective (Minor/Elective/Major) | 3 |
| | Open Elective (Minor/Elective/Major) | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

| | |
|---|---|
| **Total Degree Requirements** | **120** |

# B.S. in Business Analytics

Organizations are generating volumes of data. This data could be used to generate insight, mitigate risk, identify superior products, and solve business problems if it were properly analyzed. The Bachelor of Science in Business Analytics (BSBA) is grounded in the concepts of Evidence-Based Management and seeks to provide data-driven answers to today's organizational questions. Students will learn how to source, manipulate, and analyze data as well as generate insightful results all within an ethical framework. These results will include infographics, visualizations, and executive reports suitable for a business audience. In addition, students will learn the hands-on skills needed to use popular analytics software platforms and manage large volumes of data and communicate those results in impactful ways using aviation and aerospace examples and case studies. The goal of this degree is to enable students to look through a business lens, generate new insights with data, and influence key business decisions.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Describe underlying business challenges and determine/create appropriate sources of data/information.
- Describe the foundations and techniques of big data analytics in business as part of evidence-based management.
- Synthesize data output into clear, actionable insights that inform business problems and create executable solutions.
- Apply concepts in data presentation and visualization to effectively communicate results to a diverse audience.
- Identify different business opportunities, constraints, and needs for data analytics, including the ethical components involved.

## DEGREE REQUIREMENTS

## General Education

| | | |
|---|---|---|
| **General Education** | | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, and Social Sciences may be chosen from the list below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | |
| ENGL 123 | English Composition | 3 |
| ENGL 222 | Business Communication | 3 |
| Any Communication Theory and Skills above ENGL 106 | | 3 |
| **Humanities*** | | |
| Humanities elective (lower or upper level) | | 3 |
| Humanities Elective (upper level) | | 3 |
| **Social Sciences** | | |
| ECON 210 | Microeconomics | 3 |
| ECON 211 | Macroeconomics | 3 |
| **Physical and Life Science** | | |
| Physics/Biology/Meteorology/Chemistry/Environmental Science/ Astronomy | | 6 |
| **Mathematics** | | |
| STAT 211 | Statistics with Aviation Applications | 3 |
| or STAT 222 | Business Statistics | |
| Any College Algebra or Higher Math or any Statistics (Credit cannot be awarded for STAT 211 or STAT 222) | | 3 |
| **Computer Science** | | |
| CSCI 123 | Introduction to Computing for Data Analysis | 3 |
| **Total Credits** | | **36** |

## Core/Major

| | | |
|---|---|---|
| **Common Business Core** | | |
| MGMT 201 | Principles of Management | 3 |
| MMIS 320 | Business Information Systems | 3 |
| MKTG 311 | Marketing | 3 |
| ACCT 210 | Financial Accounting | 3 |
| ACCT 312 | Managerial Accounting | 3 |
| OBLD 317 | Organizational Behavior | 3 |
| MGMT 325 | Social Responsibility and Ethics in Management | 3 |
| FINE 332 | Corporate Finance I | 3 |
| BUSW 335 | International Business | 3 |
| BUSW 390 | Business Law | 3 |
| LGMT 420 | Management of Production and Operations | 3 |
| MGMT 436 | Strategic Management | 3 |
| **Total Credits** | | **36** |

| | | |
|---|---|---|
| **Business Analytics Core** | | |
| BUSW 352 | Business Quantitative Methods | 3 |
| BUAN 301 | Evidence-Based Management: The Need for Data | 3 |
| BUAN 302 | Communication and Ethics in Data Analysis | 3 |
| MMIS 385 | Programming Concepts | 3 |
| MMIS 392 | Database Management | 3 |
| BUAN 304 | Advanced Statistics and Analytics Concepts | 3 |
| BUAN 405 | Applied Analytics I -- Descriptive Analytics | 3 |
| BUAN 406 | Applied Analytics II -- Predictive Analytics | 3 |
| BUAN 407 | Business Intelligence in Industry Capstone | 3 |
| BUAN 428 | Business Analytics and Data Intelligence | 3 |
| **Total Credits** | | **30** |

## Electives

| | |
|---|---|
| **Transfer Credit -or- COB Minor -or- COB non-duplicated undergraduate level courses** | **15** |
| **Minors: https://catalog.erau.edu/worldwide/minors/** | |
| **Open Electives (Lower or Upper Level)** | **3** |
| **Total Degree Requirements** | **120** |

# B.S. in Logistics and Supply Chain Management

The Bachelor of Science in Logistics and Supply Chain Management is a 120 credit hour program that is available through the Embry-Riddle Worldwide Campus network. Curriculum is built upon a strong foundation of established coursework that will help you distinguish yourself as a leader in this fast-growing career field.

You will have the choice of multiple learning modes – online, face-to-face, video teleconference – to gain the advanced knowledge and skill sets that set you apart as an informed professional. Topics of study will include: technology, process, and people solutions for warehousing, distribution, and transportation operations; inventory management methods that optimize the supply chain; purchasing and procurement policies and procedures; metrics for tracking and analyzing supply chain performance; best practices, regulations, and professional ethics.

To prepare students for careers in this industry, students are required to become student members of the Institute of Supply Management (ISM). Further, the BSLSCM Program is aligned with the ISM Supply Chain Capability Model.

Successful completion of this program will provide you with a strong foundation of knowledge that will serve you on the job and prepare you for future training and education, including a Master's Degree or professional certifications such as the Certified Professional in Supply Management (CPSM) and Certified Professional in Supplier Diversity (CPSD) offered by the Institute for Supply Management (ISM); or the Certified Supply Chain Professional (CSCP) offered by Association for Supply Chain Management (ASCM); or Certified Professional Logistician (CPL) offered by the International Society of Logistics (SOLE). The certification process for the above can be found on each organization's website, and it involves taking exams on different topics and may also require a minimum number of years of professional experience.

Embry-Riddle Logistics and Supply Chain Management graduates are in great demand around the corner and around the world. Any industry that is impacted by manufacturing, warehousing, distribution, transportation, and/or inventory management, is in great need for logisticians and supply chain professionals. A career in Logistics and Supply Chain Management also pays very well. Source: Salary.com for average Supply Chain Manager salary.

As part of the college of business undergraduate degree, students will take a comprehensive exam in MGMT 436 (Strategic Management).

### SAP Student Recognition Award

Students who take the three-course sequence of SAP courses (LGMT 236, LGMT 400 and LGMT 430) will be eligible for SAP recognition. For more information, visit the SAP Student Recognition Award page.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Describe the methods of supply chain management.
- Evaluate procurement processes in supply chain management.
- Evaluate distribution processes in supply chain management.
- Evaluate operational processes in supply chain management.
- Describe the importance and challenges of supply chain integration.

## DEGREE REQUIREMENTS

## General Education

| | | |
|---|---|---|
| **General Education** | | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, and Social Sciences may be chosen from those listed below, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | |
| ENGL 123 | English Composition | 3 |
| ENGL 222 | Business Communication | 3 |
| Any Communication Theory and Skills above ENGL 106 | | 3 |
| **Humanities*** | | |
| Humanities elective (lower or upper level) | | 3 |
| Humanities Elective (Upper Level) | | 3 |
| **Social Sciences** | | |
| ECON 210 | Microeconomics | 3 |
| ECON 211 | Macroeconomics | 3 |
| **Physical and Life Science** | | |
| Physics/Biology/Meteorology | | 6 |
| **Mathematics** | | |
| STAT 211 | Statistics with Aviation Applications | 3 |
| or STAT 222 | Business Statistics | |
| Any College Algebra or Higher Math or any Statistics (Credit cannot be awarded for STAT 211 or STAT 222) | | 3 |
| **Computer Science** | | |
| Any Computer Science | | 3 |
| **Total Credits** | | **36** |

## Core/Major

| | | |
|---|---|---|
| **Business Core** | | |
| MGMT 201 | Principles of Management | 3 |
| MMIS 320 | Business Information Systems | 3 |
| MKTG 311 | Marketing | 3 |
| ACCT 210 | Financial Accounting | 3 |
| ACCT 312 | Managerial Accounting | 3 |
| OBLD 317 | Organizational Behavior | 3 |
| MGMT 325 | Social Responsibility and Ethics in Management | 3 |
| FINE 332 | Corporate Finance I | 3 |
| BUSW 335 | International Business | 3 |
| BUSW 390 | Business Law | 3 |
| LGMT 420 | Management of Production and Operations | 3 |
| MGMT 436 | Strategic Management | 3 |
| **Total Credits** | | **36** |
| **Logistics & Supply Chain Management Core** | | |
| BUSW 352 | Business Quantitative Methods | 3 |
| LGMT 200 | Introduction to Supply Chain Management and the Profession | 3 |
| LGMT 236 | Principles of Procurement Management | 3 |
| LGMT 331 | Transportation Principles | 3 |
| LGMT 400 | Business Process Integration | 3 |
| LGMT 430 | Business Process Configuration | 3 |
| LGMT 444 | Principles of Supply Chain Management | 3 |
| **Total Credits** | | **21** |

## Electives

| | |
|---|---|
| **Transfer Credit, Minor, or COB Electives** | **15** |
| Technical transfer credit, any Worldwide minor, or College of Business 200-300-400 level electives. | |
| **Open Electives** | **12** |
| **Minors: https://catalog.erau.edu/worldwide/minors/** | |
| **Total Degree Requirements** | **120** |

## Plan of Study (BSLSCM)

### Year One

| Term 1 | | Credits |
|---|---|---|
| ENGL 123 | English Composition | 3 |
| | Any College Algebra or Higher Math | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ENGL 222 | Business Communication | 3 |
| STAT 211 | Statistics with Aviation Applications | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Physical and Life Science | 3 |
| | Speech/Any Communication Theory | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| ECON 210 | Microeconomics | 3 |
| MGMT 201 | Principles of Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Any Computer Science | 3 |
| ECON 211 | Macroeconomics | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Two

| Term 1 | | Credits |
|---|---|---|
| | Humanities elective (lower or upper level) | 3 |
| ACCT 210 | Financial Accounting | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ACCT 312 | Managerial Accounting | 3 |
| | Physical and Life Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| OBLD 317 | Organizational Behavior | 3 |
| MMIS 320 | Business Information Systems | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| FINE 332 | Corporate Finance I | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Humanities Elective (Upper Level) | 3 |
| MKTG 311 | Marketing | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Three

| Term 1 | | Credits |
|---|---|---|
| BUSW 352 | Business Quantitative Methods | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| LGMT 200 | Introduction to Supply Chain Management and the Profession | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| LGMT 236 | Principles of Procurement Management | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| LGMT 331 | Transportation Principles | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| BUSW 335 | International Business | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Four

| Term 1 | | Credits |
|---|---|---|
| MGMT 325 | Social Responsibility and Ethics in Management | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| BUSW 390 | Business Law | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| LGMT 420 | Management of Production and Operations | 3 |
| LGMT 400 | Business Process Integration | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| MGMT 436 | Strategic Management | 3 |
| LGMT 430 | Business Process Configuration | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| LGMT 444 | Principles of Supply Chain Management | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

| | |
|---|---|
| **Total Degree Requirements** | **120** |

# B.S. in Project Management

From developing transformative technologies to launching bold new products, companies in every industry need projects delivered on time and on budget with minimal friction. Project managers have the opportunity to work on leading-edge ventures in fields of their choice. And the need for the expertise of these project leaders is only growing.

As one of the few undergraduate degree programs in this dynamic field, the Embry-Riddle Bachelor of Science in Project Management (BSPM) will help you master the skills to lead the new projects and strategic initiatives that keep companies ahead of the curve. The project management curriculum was developed entirely by certified PMPs®, industry leaders who possess the recognized global standard for project management knowledge and experience issued by the Project Management Institute® (PMI) – the worldwide leader in the development of standards for the dynamic profession of Project Management.

BSPM graduates will be equipped to lead, manage, and execute on vital projects required by companies today and in the future. They will also be prepared to pursue certification or continue on with higher education.

The Bachelor of Science in Project Management is accredited by the PMI Global Accreditation Center for Project Management Education Programs (GAC). Degree programs that achieve GAC accreditation must demonstrate and meet the GAC's rigorous global standards of accreditation, which include an assessment of each program's objectives and outcomes, faculty and student evaluations, onsite and online resources, annual self-evaluation, and proof of continuous improvements in the area of project management education. GAC accreditation ensures the quality of academic degree programs and their graduates in order to meet the standards of the rapidly growing field of project management.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Perform generally accepted project management techniques to plan and execute projects.
- Apply analytical tools for problem solving and effective project decision making.
- Apply ethical behavior and communications skills within the project team environment.
- Analyze project metrics for the purpose of project reporting and control.

# DEGREE REQUIREMENTS

## General Education

| | | |
|---|---|---|
| **General Education** | | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, and Social Sciences may be chosen from the list below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | |
| ENGL 123 | English Composition | 3 |
| ENGL 222 | Business Communication | 3 |
| Any Communication Theory and Skills above ENGL 106 | | 3 |
| **Humanities*** | | |
| Humanities elective (lower or upper level) | | 3 |
| Humanities Elective (Upper Level) | | 3 |
| **Social Sciences** | | |
| ECON 210 | Microeconomics | 3 |
| ECON 211 | Macroeconomics | 3 |
| **Physical and Life Science** | | |
| Physics/Biology/Meteorology/Chemistry, etc. | | 6 |
| **Mathematics** | | |
| STAT 211 | Statistics with Aviation Applications | 3 |
| or STAT 222 | Business Statistics | |
| Any College Algebra or Higher Math or any Statistics (Credit cannot be awarded for STAT 211 or STAT 222) | | 3 |
| **Computer Science** | | |
| Any Computer Science | | 3 |
| **Total Credits** | | **36** |

## Core/Major

| | | |
|---|---|---|
| **Common Business Core** | | |
| MGMT 201 | Principles of Management | 3 |
| MMIS 320 | Business Information Systems | 3 |
| MKTG 311 | Marketing | 3 |
| ACCT 210 | Financial Accounting | 3 |
| ACCT 312 | Managerial Accounting | 3 |
| OBLD 317 | Organizational Behavior | 3 |
| MGMT 325 | Social Responsibility and Ethics in Management | 3 |
| FINE 332 | Corporate Finance I | 3 |
| BUSW 335 | International Business | 3 |
| BUSW 390 | Business Law | 3 |
| LGMT 420 | Management of Production and Operations | 3 |
| MGMT 436 | Strategic Management | 3 |
| **Total Credits** | | **36** |

| | | |
|---|---|---|
| **Project Management Core** | | |
| PMGT 300 | The Project Management Profession | 3 |
| PMGT 391 | Project Planning 1 | 3 |
| PMGT 394 | Project Planning 2 | 3 |
| PMGT 400 | Project Risk and Control | 3 |
| PMGT 465 | Managing Troubled Projects | 3 |
| PMGT 470 | Agile Project Management | 3 |
| PMGT 490 | Project Management Capstone | 3 |
| **Total Credits** | | **21** |

## Electives

| | |
|---|---|
| **Transfer Credit, Minor, or COB Electives** | **15** |
| Technical Transfer Credit, Any Worldwide Minor, or College of Business 300-400 level electives. | |
| **Open Electives** | **12** |
| **Total Credits** | **27** |

**Minors: https://catalog.erau.edu/worldwide/minors/**

| | |
|---|---|
| **Total Degree Requirements** | **120** |

## Plan of Study (BSPM)

### Year One

| | | |
|---|---|---|
| **Term 1** | | **Credits** |
| ENGL 123 | English Composition | 3 |
| | Any College Algebra or Higher Math | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ENGL 222 | Business Communication | 3 |
| STAT 211 | Statistics with Aviation Applications | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| | Physical and Life Science | 3 |
| | Speech and Communication Theory | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| ECON 210 | Microeconomics | 3 |
| MGMT 201 | Principles of Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Any Computer Science | 3 |
| ECON 211 | Macroeconomics | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Two

| Term 1 | | Credits |
|---|---|---|
| | Humanities elective (lower or upper level) | 3 |
| ACCT 210 | Financial Accounting | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| ACCT 312 | Managerial Accounting | 3 |
| | Physical and Life Science | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| OBLD 317 | Organizational Behavior | 3 |
| MMIS 320 | Business Information Systems | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| FINE 332 | Corporate Finance I | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Humanities Elective (Upper Level) | 3 |
| MKTG 311 | Marketing | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year Three

| Term 1 | | Credits |
|---|---|---|
| PMGT 300 | The Project Management Profession | 3 |
| | Open Elective (Minor/Elective) | |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| PMGT 391 | Project Planning 1 | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| PMGT 394 | Project Planning 2 | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| PMGT 400 | Project Risk and Control | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| BUSW 335 | International Business | 3 |
| | Open Elective (Minor Elective) | |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **24.0** |

### Year Four

| Term 1 | | Credits |
|---|---|---|
| MGMT 325 | Social Responsibility and Ethics in Management | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| BUSW 390 | Business Law | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| LGMT 420 | Management of Production and Operations | 3 |
| PMGT 465 | Managing Troubled Projects | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| MGMT 436 | Strategic Management | 3 |
| PMGT 470 | Agile Project Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Project Management Capstone | 3 |
| | Open Elective (Minor/Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

| | |
|---|---|
| **Total Degree Requirements** | **120** |

## B.S. in Technical Management

Many working adults with a background in a technical specialty are looking for opportunities to transition into a management or supervisory position as a way of advancing in their careers. For these individuals, Embry-Riddle Aeronautical University's Bachelor of Science in Technical Management programs could be the key to gaining the experience and knowledge to make the transition to management.

The business, management, and technology courses enable students to develop their management, leadership, and organizational behavior skills and apply them to a modern organization.

This degree opens career opportunities in numerous fields enhanced by the chosen major. Regardless of background, Technical Management students gain valuable skills, learning how to organize, plan, staff, and coordinate organizational resources and drive towards the organization's goals and objectives.

This degree is also well suited for the transfer student who has either completed an appropriate associate degree at an accredited college or university (generally 60 credit hours) or has a minimum of 60 hours in coursework from the general education categories of Communication Theory and Skills, Mathematics, Physical Sciences, Computers, Humanities, and Social Sciences.

The Bachelor of Science in Technical Management curriculum offers general education, common undergraduate business core, plus different majors and minors that take students deeper into their areas of interest.

Note: As part of the college of business undergraduate degree, students will take a comprehensive exam in MGMT 436 (Strategic Management).

### BSTM Program Notes:

1) Students in the Human Resources Management Major should complete HRMD 314 Human Resource Management before taking other courses in the Major.

This program is accredited by the Association of Collegiate Business Schools and Programs (ACBSP).

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

### Student Learning Outcomes

**Students will:**

- Employ supervisory and management skills needed to effectively lead and support others within a team environment across business functions.
- Apply a research skillset to solve business problems and communicate the results effectively.

- Use established methodologies and standards to critically evaluate business functions and processes, identify needs, and structure business approaches.
- Know key principles of business and management disciplines and their business applications, and the possible interrelationships to technical management practices especially in the field of aviation and aerospace.
- Solve problems related to the specialty areas of aviation management, business cybersecurity, human resources management, or leadership and their interrelationships to business and technical management practices.

# DEGREE REQUIREMENTS

## General Education

| | | |
|---|---|---|
| **General Education** | | |
| Embry-Riddle courses in the general education categories of Communication Theory and Skills, Humanities, and Social Sciences may be chosen from the list below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified. | | |
| **Communication Theory and Skills** | | |
| ENGL 123 | English Composition | 3 |
| ENGL 222 | Business Communication | 3 |
| Any Communication Theory and Skills above ENGL 106 | | 3 |
| **Humanities**** | | |
| Humanities elective (lower or upper level) | | 3 |
| Any Upper Level Humanities | | 3 |
| **Social Sciences** | | |
| ECON 210 | Microeconomics | 3 |
| ECON 211 | Macroeconomics | 3 |
| **Physical and Life Science** | | |
| Physics/Biology/Meteorology/Chemistry, etc. | | 6 |
| **Mathematics** | | |
| STAT 211 | Statistics with Aviation Applications | 3 |
| or STAT 222 | Business Statistics | |
| Any College Algebra or Higher Math or any Statistics (Credit cannot be awarded for STAT 211 or STAT 222) | | 3 |
| **Computer Science** | | |
| Any computer Science | | 3 |
| **Total Credits** | | **36** |

## Core/Major

| | | |
|---|---|---|
| **Common Business Core** | | |
| MGMT 201 | Principles of Management | 3 |
| MMIS 320 | Business Information Systems | 3 |
| MKTG 311 | Marketing | 3 |
| ACCT 210 | Financial Accounting | 3 |
| ACCT 312 | Managerial Accounting | 3 |
| OBLD 317 | Organizational Behavior | 3 |
| MGMT 325 | Social Responsibility and Ethics in Management | 3 |
| FINE 332 | Corporate Finance I | 3 |
| BUSW 335 | International Business | 3 |
| BUSW 390 | Business Law | 3 |
| LGMT 420 | Management of Production and Operations | 3 |
| MGMT 436 | Strategic Management | 3 |
| **Total Credits** | | **36** |

| | |
|---|---|
| **Choose Major:** | **21** |
| Technical Management Major | |
| Aviation Management Major | |
| Business Cybersecurity Major | |
| Leadership Major | |
| Human Resources Management Major | |

## Electives

| | |
|---|---|
| **Transfer Credit -or- Minor -or- MGMT Electives** | **12** |
| If technical transfer credit is not applicable, the 12 hours can ONLY be used toward Minors. If no Minor is chosen, then MGMT electives 200-300-400 level courses. | |
| **Open Electives (Lower or Upper Level) may be used for Minors in other departments.** | **15** |

## Available Minors: https://catalog.erau.edu/worldwide/minors/

Students have the option to structure electives such that a Minor may be earned.

| | |
|---|---|
| **Total Degree Requirements** | **120** |

## Technical Management Major

| | | |
|---|---|---|
| Technical Management Major | | |
| MMIS 494 | Aviation Information Systems | 3 |
| BUAN 428 | Business Analytics and Data Intelligence | 3 |
| PMGT 325 | Concepts and Practices of Project Management | 3 |
| MISA 394 | Information Security Operations Management | 3 |
| LGMT 411 | Logistics Management for Aviation/Aerospace | 3 |
| LGMT 444 | Principles of Supply Chain Management | 3 |
| MKTG 449 | Strategic Marketing Management | 3 |
| **Total Credits** | | **21** |

## Aviation Management Major

| | | |
|---|---|---|
| Aviation Management Major | | |
| The Aviation Management Major is designed to provide students interested in pursuing an aviation-focused management discipline in the aviation, defense, and aerospace fields with a detailed and relevant flow of courses. Students taking courses in this Major will receive a depth of knowledge in a wide array of aviation, airport, and airline management areas. In addition, this major features a course that will concentrate on today's trends, opportunities and problems in air transportation. The aviation-related management courses should be both rewarding and challenging to the students participating in this Major and also help prepare students for the MS in Airline Management or MS in Airport Management programs. | | |
| MGMT 408 | Airport Management | 3 |
| MGMT 412 | Airport Planning and Design | 3 |
| MGMT 415 | Airline Management | 3 |
| AMNT 416 | Aviation Maintenance Management: A Global Perspective | 3 |
| LGMT 410 | Management of Air Cargo | 3 |
| MGMT 426 | International Aviation Management | 3 |
| MKTG 450 | Aviation/Airport Marketing | 3 |
| **Total Credits** | | **21** |

## Business Cybersecurity Major

Business Cybersecurity Major

Information is the lifeblood of every business and every organization in every industry. Cybersecurity for business involves achieving the right mix of resiliency, safety, privacy, and compliance, while ensuring the organization can afford to stay in business and achieve its goals and objectives. Students completing this major build knowledge they can use to help develop, carry out, and manage cybersecurity strategies, tactics, and operations across a wide range of organizational architectures and contexts. The curriculum prepares students to pursue globally-recognized cybersecurity certifications such as CompTIA's SEC+, Microsoft Certified Security, Compliance, and Identity Fundamentals, (ISC)2's Certified in Cybersecurity, Systems Security Certified Professional (SSCP), and others.

| | | |
|---|---|---|
| CYBR 335 | Information Security Tools and Techniques | 3 |
| MISA 387 | IT/OT System Vulnerability & Risk Mgmt | 3 |
| CYBR 365 | Introduction to Digital Forensics | 3 |
| CYBR 235 | Computer and Network Technologies | 3 |
| MISA 394 | Information Security Operations Management | 3 |
| MISA 403 | IT Audit and Control | 3 |
| MISA 404 | IT/OT Incident Response, Continuity, and Disaster Recovery | 3 |
| **Total Credits** | | **21** |

## Leadership Major

Leadership Major

The Leadership Major is for high-performing individuals looking to make a difference in their organizations. Organizational leaders and employers often point to the need for employees to develop "soft" skills to advance their careers. Students develop the critical competencies to lead in today's increasingly complex environment. Students learn foundational and contemporary leadership theories. Additionally, students will explore various leadership topics such as critical thinking, emotional intelligence, communication, coaching, mentoring, ethics, diversity, equity, and inclusion. This major ensures that students have the appropriate skills to contribute as a leader in all aspects of society.

| | | |
|---|---|---|
| OBLD 275 | Critical Thinking for Leadership | 3 |
| OBLD 285 | The Evolution of Leadership | 3 |
| OBLD 304 | Coaching and Mentoring | 3 |
| OBLD 310 | Mediation, Negotiation, and Conflict Resolution | 3 |
| OBLD 315 | Contemporary Leadership Theories | 3 |
| OBLD 402 | Ethics, Values, and Differences | 3 |
| OBLD 407 | Driving Change in Organizations | 3 |
| **Total Credits** | | **21** |

## Human Resources Management Major

Human Resources Management Major

The Human Resources Management major was developed for students interested in pursuing careers in Human Resources in public, private and non-profit sectors inside the aviation industry. Students will also be well prepared to obtain leading industry Human Resources certificates and credentials. Graduates in this major can seek employment as compensation and benefits specialists, recruitment and retention specialists, human resources generalists, and other, related occupations. Human Resources Management is an ever growing field and spans all industry and geographic boundaries.

| | | |
|---|---|---|
| HRMD 314 | Human Resource Management | 3 |
| HRMD 324 | Aviation Labor Relations | 3 |
| OBLD 310 | Mediation, Negotiation, and Conflict Resolution | 3 |
| OBLD 427 | Management of the Multicultural Workforce | 3 |
| HRMD 482 | Human Resources Training and Development | 3 |
| HRMD 483 | Compensation and Benefits | 3 |
| HRMD 495 | Staffing and Workforce Planning | 3 |
| **Total Credits** | | **21** |

See BSTM Program Notes.

# M.B.A. in Aviation

The MBAA program has three modules. The first, 9 credit hours, focuses on high reliability organizations (HRO), emphasizing risk management and resilience applicable in aviation and other industries.

The second module, the MBAA's business core, was informed based on input from industry. The core equips students with skills essential for managing functional departments and beyond.

The third module offers students two choices: Option 1 includes a 12-credit-hour certificate in their chosen subject, meeting accrediting standards. Total degree requirement is 36 credit hours. Option 2 allows 6 credit hours of non-duplicated COB graduate courses or approved graduate ERAU courses. Approval is required by the MBAA department chair. Total requirement: 30 credit hours.

A common non-certificate option related to sustainability uses course from the College of Aviation. Consider two of these courses: AASI 600, AASI 605, AASI 625, and AASI 639. Prerequisite waivers may be required for certain courses.

The MBAA program is ACBSP accredited, ensuring peer-reviewed quality meeting ACBSP standards. The MBAA is also recognized by the Royal Aeronautical Society.

## Program-Specific Criteria

### Admissions Criteria

In addition to the standard graduate admission requirements, applicants for admission to the MBAA program must submit two (2) letters of recommendation, at least one of which must be from a professional contact.

Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/

### Prerequisite Knowledge

Graduate course enrollment requires subject knowledge. Prerequisites vary; students must meet them to enroll. No business undergraduate degree is needed for admission. However, ACBSP requires knowledge in accounting, finance, etc. This can be gained in multiple ways. A short MBAA Preflight Orientation Course ensures all students have necessary knowledge before starting. Completing the orientation is mandatory before taking the first MBAA course.

Other methods for meeting course prerequisites (mainly for certificate seekers):

1. Passed relevant undergraduate or graduate courses with validated transcripts;
2. Finished a third-party leveling course with proof of completion;
3. Completed a course from the National or ACE Guide with recommended academic credit;
4. Achieved minimum scores on CLEP, DSST/DANTES, PEP, etc. exams in required subjects;
5. Holds a business undergraduate degree;
6. Approval from department chair.

**Other Program Information:**
As part of MBAA degree students will take a comprehensive exam in BUSW 635, Business Strategy for Managers.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Demonstrate knowledge of general business acumen.
- Work collaboratively to develop and apply business strategy.
- Apply ethics and appropriate business expertise to solve business problems.
- Apply effective business communication skills using a variety of modalities.

# DEGREE REQUIREMENTS

## Core/Major

| | | |
|---|---|---|
| **High Reliability Organization** | | |
| HROM 510 | Enterprise Risk Management | 3 |
| HROM 520 | Organizational Resilience | 3 |
| HROM 530 | Modeling and Decision-Making | 3 |
| **Total Credits** | | **9** |

| | | |
|---|---|---|
| **Business Core** | | |
| MKTG 510 | Economics of Marketing | 1.5 |
| MKTG 511 | Science of Selling | 1.5 |
| MKTG 512 | Delivering Customer Solutions | 1.5 |
| ACCT 510 | Business Accounting | 1.5 |
| FINE 518 | Corporate Finance | 3 |
| OBLD 519 | Organizational and Employee Behavior | 1.5 |
| HRMD 549 | Personnel Management | 1.5 |
| BUSW 635 | Business Strategy for Managers | 3 |
| **Total Credits** | | **15** |

## Certificate Option

| | |
|---|---|
| Certificate Options: (Choose from list) | 12 |
| **Total Degree Requirement (With Certification)** | **36** |

- Airline Management
- Business Intelligence and Analytics
- Finance
- Human Resources
- International Business
- Leadership
- Marketing
- Project Management

**-OR-**

## Non-Certificate Option

| | |
|---|---|
| **Non-Certificate Option:** | **6** |

6 credit hours of non-duplicated COB or other ERAU college graduate courses of student's choice. For courses outside of the COB or transfer credit, Department Chair approval is required.

| | |
|---|---|
| **Total Degree Requirements (Non-Certificate)** | **30** |

## Fast Track Plan of Study (Non-Certificate Option - MBAA)

The plan of study is ***an example.*** Term of initial enrollment and course offerings, would impact a student's actual plan. ***Certificate courses and 1.5 credit hour courses are not offered each term***. Consult with your advisor.

### Year One

| | | |
|---|---|---|
| **Term 1** | | **Credits** |
| ACCT 510 | Business Accounting | 1.5 |
| MKTG 510 | Economics of Marketing | 1.5 |
| HROM 510 | Enterprise Risk Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| MKTG 511 | Science of Selling | 1.5 |
| MKTG 512 | Delivering Customer Solutions | 1.5 |
| HROM 520 | Organizational Resilience | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| HROM 530 | Modeling and Decision-Making | 3 |
| FINE 518 | Corporate Finance | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| OBLD 519 | Organizational and Employee Behavior | 1.5 |
| HRMD 549 | Personnel Management | 1.5 |
| | Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| BUSW 635 | Business Strategy for Managers | 3 |
| | Elective | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

## Fast Track Plan of Study (Certification Option - MBAA)

The plan of study is ***an example.*** Term of initial enrollment, course offerings, and selected certificate would impact a student's actual plan. ***Certificate courses and 1.5 credit hour courses are not offered each term.*** Consult with your advisor.

### Year One

| | | |
|---|---|---|
| **Term 1** | | **Credits** |
| ACCT 510 | Business Accounting | 1.5 |
| MKTG 510 | Economics of Marketing | 1.5 |
| HROM 510 | Enterprise Risk Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| MKTG 511 | Science of Selling | 1.5 |
| MKTG 512 | Delivering Customer Solutions | 1.5 |
| HROM 520 | Organizational Resilience | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| HROM 530 | Modeling and Decision-Making | 3 |
| | Certificate Course | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| OBLD 519 | Organizational and Employee Behavior | 1.5 |
| HRMD 549 | Personnel Management | 1.5 |
| | Certificate Course | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| FINE 518 | Corporate Finance | 3 |

| | | |
|---|---|---|
| | Certificate Course | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

### Year 2

| **Year Two** | | |
|---|---|---|
| **Term 1** | | **Credits** |
| BUSW 635 | Business Strategy for Managers | 3 |
| | Certificate Course | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **6.0** |

| | |
|---|---|
| **Total Credit Hours** | **36** |

# M.S. in Airline Management

***Program offered starting 1/1/2025.***

In an increasingly complex and competitive global aviation industry, the Master of Science in Airline Management (MSALM) equips students with the specialized knowledge and skills necessary to navigate the intricate operational, financial, and strategic challenges facing modern airlines.

Through a comprehensive curriculum grounded in aviation-specific case studies and real-world examples crafted by airline executives, students will gain a deep understanding of airline operations, regulatory frameworks, fleet management, route optimization, passenger experience management, and resilience and sustainability strategies. By integrating rigorous academic theory with practical industry insights, this program prepares graduates to excel in a variety of management and leadership roles within airlines, aviation consulting firms, regulatory agencies, and related organizations, driving innovation and sustainable growth in the dynamic aviation sector.

## Program-Specific Criteria

### Admissions Criteria

In addition to the standard graduate admission requirements, applicants for admission to the Master of Science in Airline Management Degree Program must submit two (2) letters of recommendation, at least one of which must be from a professional contact.

Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Analyze different strategic approaches within the airline industry, including route planning, fleet management, alliances, and partnerships, in order to recommend effective strategies that align with market trends and competitive forces.
- Integrate financial principles to make informed decisions related to airline financial management, including cost control, revenue optimization, budgeting, investment analysis, and risk management, with a focus on maximizing profitability and sustainability.
- Examine the complex regulatory and legal frameworks governing the aviation environment, both domestically and internationally, and evaluate their impact on operational and strategic decision-making, while ensuring compliance and minimizing legal risks.
- Formulate agile and comprehensive crisis management and business continuity plans that address various operational disruptions, such as natural disasters, security threats, and global health crises, by assessing their potential impacts, devising response strategies, and ensuring continued operations/business continuity.
- Utilize analytical tools and methods to assess and optimize various operational aspects of airlines, including aircraft scheduling, maintenance, ground operations, passenger services, and customer experience with a focus on new technologies designed to enhance efficiency.
- Integrate leadership and managerial theories and practices to effectively lead diverse teams, demonstrating advanced interpersonal and communication skills, conflict resolution abilities, and an understanding of organizational behavior dynamics including HR best practices and labor unions.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| AVMG 501 | Aviation Law and Regulation | 3 |
| AVMG 502 | Airline Management | 3 |
| AVMG 503 | Aviation Technology and Innovation | 3 |
| AVMG 504 | Customer Experience | 3 |
| AVMG 505 | Human Resource Management and Labor Relations | 3 |
| AVMG 612 | Airline Operations | 3 |
| AVMG 614 | TechOps and MRO's | 3 |
| AVMG 616 | Airline Fleet, Network, and Route Planning | 3 |
| AVMG 618 | Airline Pricing and Revenue Management | 3 |
| AVMG 620 | Airline Sustainability and Operational Resilience | 3 |
| **Total Degree Requirements** | | **30** |

# M.S. in Airport and Air Mobility Management

***Program offered starting 1/1/2025.***

Airports have transformed into transportation hubs, economic engines, and business centers. The Master of Science in Airport and Air Mobility Management (MSAAMM) offers a comprehensive pathway for students to become adept leaders in the dynamic realm of airport operations and administration.

Rooted in a multifaceted understanding of airport infrastructure, regulatory compliance, safety protocols, security measures, Urban Air Mobility (UAM), and passenger services, this program equips students with the specialized knowledge and practical skills needed to effectively manage the complexities of airport environments. Through a blend of rigorous coursework, hands-on experiential learning opportunities (where available), and industry-partnered case studies, students will develop expertise in areas such as airport planning and design, traffic management, revenue generation, environmental sustainability, and crisis management as well as other general business functions. Graduates of this program will emerge as strategic thinkers capable of navigating the evolving challenges and opportunities facing airports worldwide, driving innovation, enhancing operational efficiency, and ensuring the seamless functioning of vital air transportation hubs.

**Program-Specific Criteria**

### Admissions Criteria

In addition to the standard graduate admission requirements, applicants for admission to the Master of Science in Airport and Air Mobility Management Degree Program must submit two (2) letters of recommendation, at least one of which must be from a professional contact.

Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Demonstrate both traditional and futuristic approaches to airport operations, airport management, and air mobility management considering factors such as hub size and surrounding landscape.
- Integrate financial principles to make informed decisions related to airport financial management, including cost control, revenue optimization, budgeting, investment analysis, and risk management, with a focus on setting and meeting operational goals.
- Examine the complex regulatory and legal frameworks governing the aviation environment, both domestically and internationally, and their impact on operational and strategic decision-making, while ensuring compliance and minimizing legal risks.
- Formulate agile and comprehensive crisis management and business continuity plans that address various operational disruptions, such as natural disasters, security threats, and global health crises, by assessing their potential impacts, devising response strategies, and ensuring continued operations/business continuity.
- Utilize analytical tools and methods to assess and optimize various operational aspects of airports including airside and landside operations, maintenance, safety, disruptions, and customer experience with a focus on new technologies designed to enhance efficiency.
- Integrate leadership and managerial theories and practices to effectively lead diverse teams, demonstrating advanced interpersonal and communication skills, conflict resolution abilities, and an understanding of organizational behavior dynamics including HR best practices and labor unions.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| AVMG 501 | Aviation Law and Regulation | 3 |
| AVMG 502 | Airline Management | 3 |
| AVMG 503 | Aviation Technology and Innovation | 3 |
| AVMG 504 | Customer Experience | 3 |
| AVMG 505 | Human Resource Management and Labor Relations | 3 |
| AVMG 601 | Evolution of Airports | 3 |
| AVMG 603 | Airport Operations | 3 |
| AVMG 605 | Airport Planning and Development | 3 |
| AVMG 607 | Airport Funding and Revenue Management | 3 |
| AVMG 609 | Airport Sustainability and Resilience | 3 |
| **Total Degree Requirements** | | **30** |

# M.S. in Engineering Management

The Master of Science in Engineering Management (MSEM) degree is designed for working professionals who desire to add management skill to their prior degrees in engineering, math, physical science, computer science, or another STEM field. The degree is designed to assist those students to move into managerial roles in technical organizations. The degree expands on the student's existing technical abilities, adding management knowledge and skills.

Technical organizations require managers who understand the technical nature of the firm's business. Upon completion of the multi-disciplinary degree, students will have the knowledge to become managers in a technical organization.

The degree program will be comprised of three sections. The first section will be comprised of 9 credit hours focused on high reliability organizations (HRO). High reliability organizations focus on risk, managing risk and resiliency. Concepts from these courses can be applied to all organizations. The second block of the MSEM will be the engineering management core. The third block consist of a certificate in the area of the student's choice and provides the opportunity for students to focus their studies to match their career goals.

## Program-Specific Criteria

### Admissions Criteria

In addition to the standard graduate admission requirements, applicants for admission to the Master of Science in Engineering Management Degree Program must submit two (2) letters of recommendation, at least one of which must be from a professional contact.

Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/

The Master of Science in Engineering Management with a certificate in Project Management is accredited by the PMI Global Accreditation Center for Project Management Education Programs (GAC). Degree programs that achieve GAC accreditation must demonstrate and meet the GAC's rigorous global standards of accreditation, which include an assessment of each program's objectives and outcomes, faculty and student evaluations, onsite and online resources, annual self-evaluation, and proof of continuous improvements in the area of project management education. GAC accreditation ensures the quality of academic degree programs and their graduates in order to meet the standards of the rapidly growing field of project management.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Apply management techniques tailored to the STEM environment.
- Perform financial analysis for engineering projects and ongoing technical operations.
- Employ quantitative analysis to solve engineering management problems.
- Evaluate the role of ethics and professional responsibility in engineering management.
- Appraise quality management systems.
- Develop plans for global STEM projects and operations.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| **High Reliability Organization** | | |
| HROM 510 | Enterprise Risk Management | 3 |
| HROM 520 | Organizational Resilience | 3 |
| HROM 530 | Modeling and Decision-Making | 3 |
| **Total Credits** | | **9** |

| | | |
|---|---|---|
| **Engineering Management Core** | | |
| EMGT 500 | Managing in the STEM Environment | 3 |
| EMGT 520 | Quality for Projects and Operations | 3 |
| EMGT 530 | Project Scheduling and Risk Management | 3 |
| FINE 610 | Budgeting and Finance for R&D | 3 |

| | | |
|---|---|---|
| EMGT 620 | Technology and Innovation Management | 3 |
| **Total Credits** | | **15** |

## Certificate Option

| | |
|---|---|
| **Certificate Options: (Choose from list)** | **12** |
| Total Degree Requirement (With Certification) | 36 |

- Airworthiness Engineering
- Business Intelligence and Analytics
- Finance
- Human Resources
- International Business
- Leadership
- Marketing
- Project Management
- Systems Engineering

-OR-

## Non-Certificate Option

| | |
|---|---|
| **Non-Certificate Option:** | **6** |
| 6 credit hours of graduate level course work options include the capstone (EMGT 690), ERAU courses, or transfer credit. | |
| **Total Degree Requirements** | **30** |

## Plan of Study (MSEM)

### Year One

| Term 1 | | Credits |
|---|---|---|
| HROM 510 | Enterprise Risk Management | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| HROM 520 | Organizational Resilience | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| HROM 530 | Modeling and Decision-Making | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| EMGT 500 | Managing in the STEM Environment | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| EMGT 530 | Project Scheduling and Risk Management | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

### Year Two

| Term 1 | | Credits |
|---|---|---|
| EMGT 520 | Quality for Projects and Operations | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| EMGT 620 | Technology and Innovation Management | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| FINE 610 | Budgeting and Finance for R&D | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| | Elective/Certificate | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| | Capstone/Elective/Certificate | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

| | |
|---|---|
| **Total Degree Requirements** | **30** |

## Fast Track Plan of Study (MSEM)

### Year One

| Term 1 | | Credits |
|---|---|---|
| EMGT 500 | Managing in the STEM Environment | 3 |
| HROM 510 | Enterprise Risk Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| EMGT 530 | Project Scheduling and Risk Management | 3 |
| HROM 520 | Organizational Resilience | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| EMGT 520 | Quality for Projects and Operations | 3 |
| HROM 530 | Modeling and Decision-Making | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| EMGT 620 | Technology and Innovation Management | 3 |
| | Elective/Certificate | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| FINE 610 | Budgeting and Finance for R&D | 3 |
| | Capstone/Elective/Certificate | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

# M.S. in Leadership

Many companies look the same from the outside, but on the inside, there are dramatic differences in culture and performance. It all starts with leadership.

Good leaders develop high-performing teams that consistently outperform their competition. These teams capitalize on their strengths, draw inspiration from diversity, and hold each other accountable to achieving their mission.

Good leadership is not a fluke. Good leaders are systematically developed and high performing organizations are constructed around, seek out, and embrace good leadership. The Master of Science in Leadership degree helps students develop the competencies that are essential for leading an organization effectively.

Through this comprehensive curriculum, you will learn how to:

- Communicate powerfully and develop additional sources of influence.
- Understand your leadership capacities and minimize your blind spots.
- Analyze and diagnose organizational issues that impact your team's performance.
- Anticipate the need for organizational change and renewal.
- Establish and foster a high-performing culture across your organization.

In addition to preparing you for today's most challenging leadership positions, this degree will equip you with the skill and vision to become one of the architects of tomorrow.

## Program-Specific Criteria

### Admissions Criteria

In addition to the standard graduate admission requirements, applicants for admission to the Master of Science in Leadership Degree Program must submit two (2) letters of recommendation, at least one of which must be from a professional contact.

Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Evaluate essential leadership knowledge, competencies, skills, and behaviors.
- Defend a need for differentiated leadership within diverse workforces, cultures, organizations, and contexts.
- Analyze leadership styles and skills suitable to the organizational context and internal and external environmental conditions.
- Create leadership strategies that address organizational effectiveness and performance.
- Assess the impact of leader ethics, behavior and communication on stakeholders.
- Evaluate actions necessary for leading highly reliable teams and organizations to succeed in volatile, uncertain, complex, and ambiguous (VUCA) environments.

## DEGREE REQUIREMENTS

## Core/Major

| Leadership Core | | |
|---|---|---|
| OBLD 500 | Leadership Foundations in Research | 3 |
| OBLD 511 | Organizational Leadership | 3 |
| OBLD 521 | Leadership Communication | 3 |
| OBLD 535 | Leadership & Organizational Design | 3 |
| OBLD 632 | Strategic Decision-Making for Leaders | 3 |
| OBLD 633 | Adaptive Leadership in Complex Environments | 3 |
| OBLD 634 | Leadership Ethics and Corporate Social Responsibility | 3 |
| OBLD 635 | Organizational Change | 3 |
| OBLD 641 | Resonant Leadership: Leading Change | 3 |
| OBLD 690 | Graduate Leadership Capstone | 3 |
| **Total Credits** | | **30** |

## Fast Track Plan of Study (MSL)

### Year One

| Term 1 | | Credits |
|---|---|---|
| OBLD 500 | Leadership Foundations in Research | 3 |
| OBLD 511 | Organizational Leadership | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| OBLD 521 | Leadership Communication | 3 |
| OBLD 535 | Leadership & Organizational Design | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| OBLD 632 | Strategic Decision-Making for Leaders | 3 |
| OBLD 633 | Adaptive Leadership in Complex Environments | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| OBLD 634 | Leadership Ethics and Corporate Social Responsibility | 3 |
| OBLD 635 | Organizational Change | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| OBLD 641 | Resonant Leadership: Leading Change | 3 |
| OBLD 690 | Graduate Leadership Capstone | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

# M.S. in Logistics and Supply Chain Management

Globalization is affecting almost every aspect of the world's economy – and the world's economy is sustained by global logistics and supply chain management. As a result, the demand for qualified logistics and supply chain professionals is higher than ever. Competition is fierce for the most prominent positions.

The right education can distinguish you from other professionals in your field and make you more marketable in both the public and private sectors.

A Master of Science degree in Logistics and Supply Chain Management will benefit you even more by providing you with:

- An excellent foundation for professional certification such as the Certified Professional in Supply Management (CPSM) and Certified Professional in Supplier Diversity (CPSD) offered by the Institute for Supply Management (ISM); or the Certified Supply Chain Professional (CSCP) offered by Association for Supply Chain Management (ASCM); or Certified Professional Logistician (CPL) offered by the International Society of Logistics (SOLE). The certification process for the above can be found on each organization's website, and it involves taking exams on different topics and may also require a minimum number of years of professional experience.
- A career that pays very well. Source: Salary.com see average Supply Chain Director salary.
- Additionally, to prepare students for careers in this industry, students are required to become student members of the Institute of Supply Management (ISM). Further, the MSLSCM Program is aligned with the ISM Supply Chain Capability Model.

## Program-Specific Criteria

### Admissions Criteria

In addition to the standard graduate admission requirements, applicants for admission to the Master of Science in Logistics and Supply Chain Management Degree Program must submit two (2) letters of recommendation, at least one of which must be from a professional contact.

Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/

### SAP Student Recognition Award

Students who take the three-course sequence of SAP courses (LGMT 540, LGMT 600 and LGMT 630) will be eligible for SAP recognition. For more information, visit the SAP Student Recognition Award page.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Develop effective problem-solving and decision-making skills in managing supply chains.

- Analyze current distribution and transport network design solutions in supply chains.
- Adopt appropriate inventory management strategies to optimize inventories across the supply chains.
- Utilize appropriate metrics and data analytics tools to track and optimize the performance of supply chain networks.
- Appraise purchasing and procurement policies and procedures and propose effective sourcing strategies.
- Apply sales and operations planning in managing supply chain operations.
- Propose appropriate risk mitigation strategies to increase the resilience in supply chains.
- Evaluate the structures of international trade and complexities involved in extending supply chain operations globally.
- Analyze how emerging trends may affect the future landscape of logistics and supply chain management.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| LGMT 500 | Introduction to Supply Chain Management and the Profession | 3 |
| LGMT 525 | Management Science for Operations | 3 |
| LGMT 526 | Business Analytics for Operations | 3 |
| LGMT 540 | Procurement for Logistics Managers | 3 |
| LGMT 550 | Production and Material Control | 3 |
| LGMT 560 | Transportation | 3 |
| LGMT 651 | Supply Chains in the Global Environment | 3 |
| LGMT 692 | Logistics and Supply Chain Management Simulation | 3 |
| **Total Credits** | | **24** |

### Electives

| | |
|---|---|
| **Electives:** | **6** |
| Open electives – 6 graduate credit hours | |
| Optional SAP Sequence: The following Course are required: LGMT 600 and LGMT 630 | |
| **Total Degree Requirements** | **30** |

### Plan of Study (MSLSCM)

#### Year One

| Term 1 | | Credits |
|---|---|---|
| LGMT 500 | Introduction to Supply Chain Management and the Profession | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| LGMT 525 | Management Science for Operations | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| LGMT 526 | Business Analytics for Operations | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| LGMT 540 | Procurement for Logistics Managers | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| LGMT 550 | Production and Material Control | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

#### Year Two

| Term 1 | | Credits |
|---|---|---|
| LGMT 560 | Transportation | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| LGMT 651 | Supply Chains in the Global Environment | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| LGMT 600 | Enterprise Process Integration using SAP S/4 HANA | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| LGMT 630 | Enterprise Process Configuration using SAP S/4 HANA | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| LGMT 692 | Logistics and Supply Chain Management Simulation | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

| | |
|---|---|
| **Total Degree Requirements** | **30** |

* The Logistics and Supply Chain Management Simulation is the last course taken in the MSLSCM program.

### Fast Track Plan of Study (MSLSCM)

#### Year One

| Term 1 | | Credits |
|---|---|---|
| LGMT 500 | Introduction to Supply Chain Management and the Profession | 3 |
| LGMT 540 | Procurement for Logistics Managers | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| LGMT 525 | Management Science for Operations | 3 |
| LGMT 600 | Enterprise Process Integration using SAP S/4 HANA (OR - Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| LGMT 526 | Business Analytics for Operations | 3 |
| LGMT 630 | Enterprise Process Configuration using SAP S/4 HANA (OR - Elective) | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| LGMT 550 | Production and Material Control | 3 |
| LGMT 560 | Transportation | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| LGMT 651 | Supply Chains in the Global Environment | 3 |
| LGMT 692 | Logistics and Supply Chain Management Simulation | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

*Prerequisites are waived for students in the Fast Track option.

** The Logistics and Supply Chain Management Simulation is the last course taken in the MSLSCM program.

# M.S. in Management

The Master of Science in Management (MSM) degree program provides students with a greater focus on the theory and practice of management than a more general business degree. Whether you are interested in promoting into management, transitioning from the military or already have a management position, this program introduces you to future focused management concepts.

The MSM program is action-oriented. You will learn how to analyze problems, research and implement solutions, be a change agent, use data to drive decisions, communicate effectively, and manage people and business processes.

The degree program includes three sections. The first section is comprised of 9 credit hours focused on high reliability organizations (HRO). High reliability organizations focus on risk, managing risk and resiliency. Concepts learned in these courses can be applied to all organizations. The second section of this degree is the Management Core and has been structured based on input from industry to provide students with the skills necessary to advance their careers. The third section consists of a certificate in the area of the student's choice and provides the opportunity for students to focus their studies to match their career goals.

The Master of Science in Management program is accredited by the Accreditation Council for Business Schools & Programs (ACBSP). This achievement means that the program has been peer-reviewed, scrutinized, and meets the stringent requirements set forth by the ACBSP.

The Society for Human Resources Management (SHRM) has acknowledged that the Master of Science in Management program when combined with the Human Resources Certificate as fully aligning with SHRM's *HR Curriculum Guidebook and Templates.* Students enjoy many benefits of this alignment beyond the curriculum itself through ERAU's relationship with SHRM.

## Program-Specific Criteria

### Admissions Criteria

In addition to the standard graduate admission requirements, applicants for admission to the Master of Science in Management Degree Program must submit two (2) letters of recommendation, at least one of which must be from a professional contact.

Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/

### Prerequisite Knowledge:

The program does not require an undergraduate degree in business for admissions. However, as required by ACBSP, prerequisite knowledge in accounting, finance, economics, marketing, management, and business statistics is required. This will be accomplished through a short MSM Preflight Orientation Course that welcomes students to the degree program through interactive activities and provides the prerequisite knowledge needed to be successful in the program. Students must complete the Preflight Orientation prior to taking their first MSM course

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Adapt to the vast array of global differences including corporate and international cultures and geopolitical differences from which to manage within multinational enterprises and virtual teams.
- Apply quantitative thinking and analysis to demonstrate data-driven managerial decision making using different types of organizational data.
- Define and solve complex organizational problems by managing projects and human resources using both critical thinking and managerial best practices.
- Demonstrate advanced management concepts and skills in organizational behavior, decision making and action strategy, and organizational process including managerial excellence.
- Executive quality reports that are both informative and persuasive using the best available data from which decisions can be made including visualizations.

## DEGREE REQUIREMENTS

### Core/Major

| | | |
|---|---|---|
| **High Reliability Organization** | | |
| HROM 510 | Enterprise Risk Management | 3 |
| HROM 520 | Organizational Resilience | 3 |
| HROM 530 | Modeling and Decision-Making | 3 |
| **Total Credits** | | **9** |

| | | |
|---|---|---|
| **Business Core** | | |
| MGMT 510 | Management and the Organization | 3 |
| MGMT 550 | Managerial Communications | 3 |
| MGMT 610 | Business Process Management | 3 |
| MGMT 680 | Strategic Action | 3 |
| PMGT 549 | Applied Project Management | 1.5 |
| HRMD 549 | Personnel Management | 1.5 |
| **Total Credits** | | **15** |

### Certificate

| | |
|---|---|
| **Certificate Options: (Choose from list)** | **12** |
| **Total Degree Requirement (With Certification)** | **36** |

- Business Intelligence and Analytics
- Finance
- Human Resources
- International Business
- Leadership
- Marketing
- Project Management

**-OR-**

### Non-Certificate Option

| | |
|---|---|
| **Non-Certificate Option:** | **6** |

6 credit hours of non-duplicated COB or other ERAU college graduate courses of student's choice. For courses outside of the COB or transfer credit, Department Chair approval is required.

| | |
|---|---|
| **Total Degree Requirements (Non-Certificate)** | **30** |

## Plan of Study (MSM)

**Year One**

| **Term 1** | | **Credits** |
|---|---|---|
| HROM 510 | Enterprise Risk Management | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| HROM 520 | Organizational Resilience | 3 |
| | **Credits Subtotal** | **3.0** |

| | | |
|---|---|---|
| **Term 3** | | |
| HROM 530 | Modeling and Decision-Making | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| MGMT 510 | Management and the Organization | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| PMGT 549 | Applied Project Management | 1.5 |
| HRMD 549 | Personnel Management | 1.5 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

## Year Two

| **Term 1** | | **Credits** |
|---|---|---|
| MGMT 550 | Managerial Communications | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| MGMT 610 | Business Process Management | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| MGMT 680 | Strategic Action | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| | Elective/Certificate | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| | Elective/Certificate | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

| | |
|---|---|
| **Total Degree Requirements** | **30** |

## Fast Track Plan of Study (MSM)

### Year One

| **Term 1** | | **Credits** |
|---|---|---|
| MGMT 510 | Management and the Organization | 3 |
| HROM 510 | Enterprise Risk Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| PMGT 549 | Applied Project Management | 1.5 |
| HRMD 549 | Personnel Management | 1.5 |
| HROM 520 | Organizational Resilience | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| MGMT 550 | Managerial Communications | 3 |
| HROM 530 | Modeling and Decision-Making | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| MGMT 610 | Business Process Management | 3 |
| | Elective/Certificate | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| MGMT 680 | Strategic Action | 3 |
| | Elective/Certificate | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

# M.S. in Management Information Systems

For the modern business enterprise, the ability to utilize information effectively is key to creating a competitive advantage. The most successful and sought-after leaders are those who understand how data can be used to drive profits, plans and projections.

With a focus on the critical intersection of information and business management, the Master of Science in Management Information Systems (MSMIS) program is designed for professionals who are interested in how information is applied to achieve bottom-line results.

Individuals with business, managerial and/or technical backgrounds will benefit from this program's design which builds in a student-selected certificate as part of the degree. While students may choose any offered certificate, the Business Intelligence and Analytics certificate is a SAS© approved specialization and best compliments the MSMIS program's design. Students who complete this pathway will also earn a recognized badge credential from SAS© in Business Intelligence and Analytics.

**MSMIS Program Notes:**

1) It is strongly suggested that MMIS 501 and then MMIS 531 be the first two courses a student takes in their degree program. Many other classes build on this knowledge.
2) Students are encouraged to have a Windows-based PC or the ability to emulate a Windows-based PC. In the absence of such, open-source software may need to be downloaded to complete certain activities.
3) BUAN 505 will count for both the degree core and certificate for students who choose the Business Intelligence and Analytics certificate making the degree 30 credit hours.

## Program-Specific Criteria

### Admissions Criteria

In addition to the standard graduate admission requirements, applicants for admission to the Master of Science in Management Information Systems Degree Program must submit two (2) letters of recommendation, at least one of which must be from a professional contact.

Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Evaluate the role of information and knowledge in organizations and apply system development and project management principles to support the accomplishment of organizational goals and objectives.
- Integrate the principles of quality management to implement continuous business process improvements that achieve information systems' reliability and robustness in sustainable ways.
- Apply systems engineering principles to the requirements analysis, design, development, implementation and operational support of enterprise systems.
- Integrate various ethical, legal, technological and professional perspectives, both local and global, throughout the various management information systems decision making and managerial and leadership processes.
- Evaluate the various aspects of information and technology alternatives, stewardship and governance within different organizational and mission contexts.

## DEGREE REQUIREMENTS

### Core/Major

| Management Information Systems Core | | |
|---|---|---|
| MMIS 501 | Business Systems: Managing the IS Enterprise | 3 |
| MMIS 503 | Data & Information Modeling & Management | 3 |
| BUAN 505 | Information Analytics and Visualization in Decision Making | 3 |
| MMIS 506 | Systems Analysis and Design | 3 |
| MMIS 507 | Information Systems Strategic Planning | 3 |
| MMIS 531 | Information Systems Project Management | 3 |
| MMIS 690 | Management Information Systems Capstone | 3 |
| **Total Credits** | | **21** |

### Certificate

| Certificate Options | 9-12 |
|---|---|

Certificate: Choose any College of Business Graduate Certificate

- Business Intelligence and Analytics
- Finance
- Human Resources
- International Business
- Leadership
- Marketing
- Project Management

### -OR-

### Non-Certificate Option

| Non-Certificate Option | 12 |
|---|---|

12 credit hours of non-duplicated COB or other ERAU college graduate courses of student's choice. For courses outside of the COB or transfer credit, Department Chair approval is required.

| Total Degree Requirements | 30-33 |
|---|---|

### Fast Track Plan of Study (MSMIS)

#### Year One

| Term 1 | | Credits |
|---|---|---|
| MMIS 501 | Business Systems: Managing the IS Enterprise | 3 |
| MMIS 503 | Data & Information Modeling & Management | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| BUAN 505 | Information Analytics and Visualization in Decision Making | 3 |
| | Elective/Certificate | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| MMIS 531 | Information Systems Project Management | 3 |
| MMIS 507 | Information Systems Strategic Planning | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| MMIS 506 | Systems Analysis and Design | 3 |
| | Elective/Certificate | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| MMIS 690 | Management Information Systems Capstone | 3 |
| | Elective/Certificate | 3 |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

#### Year Two

| Term 1 | | Credits |
|---|---|---|
| | Elective/Certificate | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **3.0** |

| Total Credit Hours | 33 |
|---|---|

# M.S. in Project Management

Project management within the aviation industry faces unique challenges and constraints including risk and safety concerns, a wide array of stakeholders, and a rigorous regulatory environment. In addition, aviation project managers face a wide array of project categories such as MRO (Maintenance, Repair and Overhaul), construction, product development, and advanced software and systems such as navigation and avionics. For this reason, the Master of Science in Project Management program introduces Embry-Riddle Worldwide's own aviation project management framework that extends global project management practices championed by the Project Management Institute as well as other global standards. The Aviation Project Management Framework employed in the program prepares aviation project managers for success in the field of aviation—and in doing so—prepares graduates for successful management of high-risk, highly constrained projects found in any field.

After earning a Master of Science in Project Management (MSPM), you'll be able to generate plans, execute projects, and capture your initiatives' successes in order to increase project efficiencies.

Much of the course work is collaborative – just as it is in the workplace. The program curriculum was developed entirely by certified PMPs®, the recognized global standard for project management knowledge and experience issued by the PMI®. PMI® is the worldwide leader in the development of standards for the evolving profession of Project Management.

For your Graduate Capstone Project, you will participate in a scenario and experience the entire life-cycle of a project. You will apply your project management mastery by showcasing the skills and abilities developed throughout your educational experience. This degree doesn't just give you an understanding of projects – it gives you the skills needed to lead projects.

The Master of Science in Project Management is accredited by the PMI Global Accreditation Center for Project Management Education Programs (GAC). Degree programs that achieve GAC accreditation must demonstrate and meet the GAC's rigorous global standards of accreditation, which include an assessment of each program's objectives and outcomes, faculty and student evaluations, onsite and online resources, annual self-evaluation, and proof of continuous improvements in the area of project management education. GAC accreditation ensures the quality of academic degree programs and their graduates in order to meet the standards of the rapidly growing field of project management.

The MSPM program relies heavily on use of current PMIS (Project Management Information Systems) software and other common-use software for word processing, presentation, and computation. While the use of some of these PMIS programs will be the subject of learning exercises within the program, the successful student will be expected to show proficient skill in word processing, spreadsheet usage, and presentation graphics.

**Program-Specific Criteria**

### Admissions Criteria

In addition to the standard graduate admission requirements, applicants for admission to the Master of Science in Project Management Degree Program must submit two (2) letters of recommendation, at least one of which must be from a professional contact.

Applicants may utilize the following link to access the ***Graduate Program Recommendation Form:*** https://webforms.erau.edu/private/student-services/recommendation/

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Execute projects through all phases of the lifecycle using appropriate ethical and methodological practices.
- Deploy advanced project decision-making techniques to balance cost, schedule, scope, quality, and risks to achieve project objectives.
- Apply behavioral and communications skills to engage the project stakeholder community.
- Operationalize the critical businesses processes of project management in the development and implementation of strategy and competitive advantage.

**DEGREE REQUIREMENTS**
**Core/Major**

| | | |
|---|---|---|
| PMGT 505 | Aviation Project Management and Frameworks | 3 |
| PMGT 515 | The Project Lifecycle and Methodologies | 3 |
| PMGT 600 | Organizational Decisions for Project Preparation and Launch | 3 |
| PMGT 610 | Aviation Project Planning | 3 |
| PMGT 620 | Advanced Project Planning | 3 |
| PMGT 630 | Project Execution - Predictive | 3 |
| PMGT 640 | Project Execution - Agile | 3 |
| PMGT 690 | Project Management Capstone | 3 |
| * The Project Management Capstone is the last course taken in the MSPM program. | | |
| **Total Credits** | | **24** |

## Two-Course Track Option

### Project Management Professional Track

| | | |
|---|---|---|
| PMGT 550 | Project Management Professional | 3 |
| PMGT 650 | Advanced Project Management Professional | 3 |
| **Total Credits** | | **6** |

### Construction Project Professional Track

| | | |
|---|---|---|
| PMGT 560 | Construction Project Professional | 3 |
| PMGT 660 | Advanced Construction Project Professional | 3 |
| **Total Credits** | | **6** |

### Agile Project Management Professional Track

| | | |
|---|---|---|
| PMGT 575 | Agile Project Management Professional | 3 |
| PMGT 675 | Advanced Agile Project Management Professional | 3 |
| **Total Credits** | | **6** |

### Maintenance, Repair and Overhaul Project Management Professional Track

| | | |
|---|---|---|
| MAVM 605 | Global Maintenance Resource Management | 3 |
| MAVM 615 | Strategic Management of Global Maintenance, Repair and Overhaul (MRO) Operations | 3 |
| **Total Credits** | | **6** |

## Non-Track Option

### Electives

| | |
|---|---|
| **Electives:** | **6** |
| Open electives / Transfer credit – 6 graduate credit hours | |
| **Total Degree Requirements** | **30** |

## Plan of Study (MSPM)

### Year One

| **Term 1** | | **Credits** |
|---|---|---|
| PMGT 505 | Aviation Project Management and Frameworks | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| PMGT 515 | The Project Lifecycle and Methodologies | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| PMGT 600 | Organizational Decisions for Project Preparation and Launch | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| PMGT 610 | Aviation Project Planning | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| PMGT 620 | Advanced Project Planning | 3 |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

### Year Two

| **Term 1** | | **Credits** |
|---|---|---|
| PMGT 630 | Project Execution - Predictive | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 2** | | |
| PMGT 640 | Project Execution - Agile | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 3** | | |
| | Project Management track/course/elective/ transfer credit | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 4** | | |
| | Project Management track course/elective/ transfer credit | 3 |
| | **Credits Subtotal** | **3.0** |
| **Term 5** | | |
| PMGT 690 | Project Management Capstone | 3 |
| | * The Project Management Capstone (PMGT 690) is the last course taken in the MSPM program. | |
| | **Credits Subtotal** | **3.0** |
| | **Credits Total:** | **15.0** |

| | |
|---|---|
| **Total Degree Requirements** | **30** |

## Fast Track Plan of Study (MSPM)

### Year One

| Term 1 | | Credits |
|---|---|---|
| PMGT 505 | Aviation Project Management and Frameworks | 3 |
| PMGT 610 | Aviation Project Planning | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 2** | | |
| PMGT 515 | The Project Lifecycle and Methodologies | 3 |
| PMGT 620 | Advanced Project Planning | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 3** | | |
| PMGT 600 | Organizational Decisions for Project Preparation and Launch | 3 |
| PMGT 630 | Project Execution - Predictive | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 4** | | |
| PMGT 640 | Project Execution - Agile | 3 |
| | Project Management track course/elective/ transfer credit | 3 |
| | **Credits Subtotal** | **6.0** |
| **Term 5** | | |
| | Project Management track course/elective/ transfer credit | 3 |
| PMGT 690 | Project Management Capstone | 3 |
| | *The Project Management Capstone (PMGT 690) is the last course taken in the MSPM program. | |
| | **Credits Subtotal** | **6.0** |
| | **Credits Total:** | **30.0** |

# Minor in Air Cargo Management

The goal of the Air Cargo Management Minor is to provide the students with supplemental knowledge and tools required to be successful in the evolving air cargo industry. The target audience for this minor will be the students who are currently working in this field and those students who aspire to be part of the workforce of this ever growing field. The areas of study include Air Transportation Systems, Economics of Air Transportation, International Aviation Management, Aviation Maintenance Management, Airport Management, and Airline Management.

With the upward trend of online shopping and commerce, the demand for air cargo management expertise is expected to increase in the years to come. A minor in air cargo management will expose students to all facets of both domestic and international air cargo logistics operations. The Air Cargo Management Minor will provide students a competitive edge with the differentiated knowledge, skills, and abilities that compliments their major program of study.

### Air Cargo Management

| | | |
|---|---|---|
| LGMT 410 | Management of Air Cargo | 3 |
| MGMT 408 | Airport Management | 3 |
| MGMT 415 | Airline Management | 3 |
| MGMT 426 | International Aviation Management | 3 |
| ECON 420 | Economics of Air Transportation | 3 |
| **Total Credits** | | **15** |

# Minor in Airport Management

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

## Airport Management Minor

| | | |
|---|---|---|
| ASCI 254 | Aviation Legislation | 3 |
| MGMT 408 | Airport Management | 3 |
| MGMT 412 | Airport Planning and Design | 3 |
| Select two of the following: | | 6 |
| BSAS 345 | Aviation Safety Program Management | |
| BSAS 350 | Aircraft Crash and Emergency Management | |
| BSAS 409 | Aviation Safety | |
| ASCI 404 | Applications in Aviation & Aerospace Law | |
| ASCI 412 | Corporate and Business Aviation | |
| HRMD 324 | Aviation Labor Relations | |
| LGMT 331 | Transportation Principles | |
| LGMT 410 | Management of Air Cargo | |
| MGMT 426 | International Aviation Management | |
| MGMT 436 | Strategic Management | |
| MGMT 499 | Special Topics in Management | |
| FINE 418 | Airport Administration & Finance | |
| SCTY 400 | Aviation Security | |
| SCTY 488 | National Security Issues and Terrorism | |
| **Total Credits** | | **15** |

# Minor in Aviation Management

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Only available to Worldwide undergraduate students enrolled in degree programs other than BS in Aviation Business Administration and BSTM-Aviation Management Major.*

| | | |
|---|---|---|
| MGMT 408 | Airport Management | 3 |
| MGMT 415 | Airline Management | 3 |
| FINE 418 | Airport Administration & Finance | 3 |
| MGMT 426 | International Aviation Management | 3 |
| MKTG 450 | Aviation/Airport Marketing | 3 |
| **Total Credits** | | **15** |

# Minor in Human Resources

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Not open to BS in Technical Management-Human Resources Management Major students.*

| | | |
|---|---|---|
| HRMD 314 | Human Resource Management | 3 |
| HRMD 324 | Aviation Labor Relations | 3 |
| HRMD 482 | Human Resources Training and Development | 3 |
| HRMD 483 | Compensation and Benefits | 3 |
| OBLD 427 | Management of the Multicultural Workforce | 3 |
| **Total Credits** | | **15** |

# Minor in Leadership

The Minor in Leadership offers individuals looking to impact organizational practices from an applied leadership lens. Organizational leaders and employers often point to the need for employees to develop "soft" skills to advance their careers. Students develop the critical competencies to lead in today's increasingly complex environment.

*Not open to students pursuing BS in Leadership or BS in Technical Management- Leadership Major.*

| | | |
|---|---|---|
| OBLD 304 | Coaching and Mentoring | 3 |
| OBLD 310 | Mediation, Negotiation, and Conflict Resolution | 3 |
| OBLD 315 | Contemporary Leadership Theories | 3 |
| OBLD 402 | Ethics, Values, and Differences | 3 |
| OBLD 407 | Driving Change in Organizations | 3 |
| **Total Credits** | | **15** |

# Minor in Logistics Management

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Not open to BS in Logistics & Supply Chain Management students.*

| | | |
|---|---|---|
| LGMT 200 | Introduction to Supply Chain Management and the Profession | 3 |
| LGMT 331 | Transportation Principles | 3 |
| LGMT 410 | Management of Air Cargo | 3 |
| LGMT 411 | Logistics Management for Aviation/Aerospace | 3 |
| LGMT 444 | Principles of Supply Chain Management | 3 |
| **Total Credits** | | **15** |

# Minor in Management

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Not open to students pursuing College of Business undergraduate degrees or BS in Aviation Maintenance-Management Specialization. Students pursuing College of Business undergraduate degrees cannot take minors that are in the same field as their majors.*

| | | |
|---|---|---|
| ECON 210 | Microeconomics | 3 |
| or ECON 211 | Macroeconomics | |
| MGMT 201 | Principles of Management | 3 |
| ACCT 210 | Financial Accounting | 3 |
| MKTG 311 | Marketing | 3 |
| Specified Electives in Management | | 3 |
| Choose any upper-level MGMT course. | | |
| **Total Credits** | | **15** |

# Minor in Management Information Systems

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Not open to BS in Technical Management – Management Information Systems Major students*

| | | |
|---|---|---|
| MMIS 392 | Database Management | 3 |
| MMIS 494 | Aviation Information Systems | 3 |
| MISA 387 | IT/OT System Vulnerability & Risk Mgmt | 3 |
| MISA 394 | Information Security Operations Management | 3 |
| BUAN 428 | Business Analytics and Data Intelligence | 3 |
| **Total Credits** | | **15** |

# Minor in Marketing

Explore the dynamic world of marketing through our undergraduate minor. Gain essential skills in market analysis, consumer behavior, branding, and advertising strategies. Enhance your understanding of business principles and prepare for diverse career opportunities in marketing and related fields.

| | | |
|---|---|---|
| MKTG 311 | Marketing | 3 |
| Choose 4 of the following: | | |
| MKTG 320 | Consumer Behavior | 3 |
| MKTG 330 | Professional Selling | 3 |
| MKTG 400 | Social Media Marketing | 3 |
| MKTG 449 | Strategic Marketing Management | 3 |
| MKTG 450 | Aviation/Airport Marketing | 3 |
| **Total Credits** | | **15** |

# Minor in Project Management

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Not open to BS in Project Management students*

| | | |
|---|---|---|
| PMGT 300 | The Project Management Profession | 3 |
| PMGT 391 | Project Planning 1 | 3 |
| PMGT 394 | Project Planning 2 | 3 |
| PMGT 400 | Project Risk and Control | 3 |
| BUSW 352 | Business Quantitative Methods | 3 |
| **Total Credits** | | **15** |

# Minor in Technical Management

Minor courses of study are academic programs designed to satisfy students' personal interest and to meet their professional needs. Students explore, in some depth, the offerings in a field of study.

A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter. To gain the greatest value from their academic experience, students are encouraged to select minors that complement their degree program and/or other minors that they are pursuing.

The student becomes subject to the requirements of the minor as stated in the catalog that are in effect at the time the minor is declared. The department/program chair responsible for a particular minor determines how students fulfill deficits in credits for a minor and certifies that students are qualified to receive the minor.

*Only available to Worldwide undergraduate students enrolled in degree programs other than BS in Technical Management*

| | | |
|---|---|---|
| OBLD 310 | Mediation, Negotiation, and Conflict Resolution | 3 |
| PMGT 325 | Concepts and Practices of Project Management | 3 |
| MISA 394 | Information Security Operations Management | 3 |
| LGMT 444 | Principles of Supply Chain Management | 3 |
| MKTG 449 | Strategic Marketing Management | 3 |
| **Total Credits** | | **15** |

# Graduate Certificate in Business Intelligence and Analytics

The Business Intelligence and Analytics Certificate enables students to develop analytics strategies to solve complex business problems. This includes sourcing data, analyzing data, visualizations and infographics as well as using analytics software.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Business Intelligence and Analytics Certificate

| | | |
|---|---|---|
| BUAN 505 | Information Analytics and Visualization in Decision Making | 3 |
| BUAN 522 | Business Analytics, Social Network and Web Analytics | 3 |
| BUAN 523 | Data Mining for Business Analytics | 3 |
| BUAN 524 | Applied Business Intelligence and Analytics | 3 |
| **Total Credits** | | **12** |

In addition to an ERAU certificate, the above coursework is approved by SAS as part of the SAS Specialization Program. A SAS Digital Badge in Business Intelligence and Analytics will be issued by ERAU and SAS upon completion of this coursework. After completing the above coursework, students can apply for their badge using the SAS Digital Badge Request Form.

Estimated Cost of Attendance: https://nextcatalog.erau.edu/worldwide/dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Develop analytics strategies to solve complex business problems.
- Identify data sources and analysis tools to generate actionable business intelligence.
- Manipulate data in database form to clean data and prepare it for analysis.
- Interpret analytics results in the form of infographics, dashboards, and other visualization useful to a variety of audiences.

# Graduate Certificate in Finance

The Finance Certificate enables students to enhance their financial skills. Each course studies a specific area of finance equipping students with practical skills and theoretical insights. Gain applicable knowledge for career advancement.

***Certificate prerequisites***: **FINE 518** or **FINE 610** or **FINE 332** or equivalent course or documented competence and approval from the Department Chair.

*Incorporating the ISTAT certificate into the Finance certificate *may* be an option. Contact the Department of Business Administration for additional information.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

### Finance Certificate

| | | |
|---|---|---|
| FINE 615 | Investments | 3 |
| FINE 618 | Advanced Corporate Finance | 3 |
| FINE 628 | Introduction to Financial Engineering: Futures and Options | 3 |
| FINE 653 | International Finance | 3 |
| **Total Credits** | | **12** |

Certificate courses have limited offerings. Please consult with your advisor when planning your course/term enrollments.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

### Student Learning Outcomes

**Students will:**

- Apply appropriate analytical techniques to make optimal financial decisions.
- Value various types of financial assets.
- Apply financial strategies that enhance the firm's value.

## Graduate Certificate in Human Resources

The Human Resources Certificate enables students to develop or refine different organizational Human Resources programs. These programs include staffing and workforce development, compensation and benefits, as well as training and development functions. Courses include the latest in organizational HR trends for both domestic and multinational firms.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

### Human Resources Certificate

| | | |
|---|---|---|
| HRMD 607 | Human Resource Development | 3 |
| HRMD 608 | Human Resources Management | 3 |
| HRMD 678 | Talent Acquisition and Workforce Planning | 3 |
| HRMD 679 | Comprehensive Reward Systems | 3 |
| **Total Credits** | | **12** |

Estimated Cost of Attendance: https://nextcatalog.erau.edu/worldwide/dean-of-students/california-student/cost/

### Student Learning Outcomes

**Students will:**

- Analyze the roles and responsibilities of different facets of HRM including compensation and benefits, talent management, organizational training and development, and workforce planning.
- Analyze critical HRM issues that impact domestic and multinational enterprises.
- Using job analysis tools create a strategic workforce staffing plan.

## Graduate Certificate in International Business

Unlock global opportunities with our Graduate International Business Certificate. Explore key areas to develop expertise applying business subjects in international settings.

***Prerequisites*** as noted for each course or equivalent course(s) or documented competence and approval from the Department Chair.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

### International Business Certificate

| | | |
|---|---|---|
| MKTG 632 | Global Marketing | 3 |
| | Prerequisite: MKTG 510, MKTG 511, MKTG 512 or MKTG 311 or equivalent. | |
| FINE 653 | International Finance | 3 |
| | Prerequisite: FINE 518 or FINE 610 or FINE 332 or equivalent. | |
| FINE 673 | Global Economic Analysis | 3 |
| BUSW 604 | International Business Administration | 3 |
| | Prerequisites: as noted above or documented competence with approval of department chair. | |
| **Total Credits** | | **12** |

Certificate courses have limited offerings. Please consult with your advisor when planning your course/term enrollments.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

### Student Learning Outcomes

**Students will:**

- Analyze different factors that influence global strategy.
- Analyze the internal success factors to operate in the global marketplace.
- Analyze the external success factors to operate in the global marketplace.

## Graduate Certificate in Leadership

The Leadership Certificate enables students to obtain high-value leadership skills such as communicating for influence, applying leadership concepts to the organization, and leading in complex, global environments.  Courses are focused on specific and actionable things a leader can do to successfully drive an organization forward.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

| | | |
|---|---|---|
| OBLD 511 | Organizational Leadership | 3 |
| OBLD 521 | Leadership Communication | 3 |
| OBLD 535 | Leadership & Organizational Design | 3 |
| OBLD 633 | Adaptive Leadership in Complex Environments | 3 |
| ~OBLD 500 will be waived for non-Leadership degree seeking students | | |
| **Total Credits** | | **12** |

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

### Student Learning Outcomes

**Students will:**

- Apply the proper leadership theories to real-world cases in a broad range of contexts to improve organizational outcomes.
- Evaluate different leadership perspectives within broad and diverse populations to address future organizational needs based on changing social, cultural, and organizational norms to include globalization.

# Graduate Certificate in Marketing

Master marketing essentials Gain skills in content marketing, optimization and usage, and innovation and ethical approaches for marketing strategy development.

***Certificate prerequisites:*** MKTG 510, MKTG 511, MKTG 512 or MKTG 311 or documented competence and approval from the Department Chair.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

Choose 4 of 5 courses listed below.

## Marketing Certificate

| | | |
|---|---|---|
| MKTG 514 | Professional Service Marketing | 3 |
| MKTG 630 | Customer Value | 3 |
| MKTG 632 | Global Marketing | 3 |
| MKTG 633 | Digital Marketing | 3 |
| MKTG 640 | Analytics in Marketing Decision-Making | 3 |
| **Total Credits (choose 4 of 5 courses)** | | **12** |

Certificate courses have limited offerings. Please consult with your advisor when planning your course/term enrollments.

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Apply marketing analytical tools with an emphasis on content marketing, optimizations and usage.
- Apply innovation and ethical approaches when developing marketing strategy and communications with stakeholders.

# Graduate Certificate in Project Management

The Project Management Certificate introduces the student to the profession of project management and provides a solid foundation in project planning and project risk management. The certificate complements the stackable master's programs with a certificate accredited by the Project Management Institute Global Accreditation Center (GAC). Additionally, the courses may be taken as a standalone certificate as a means of rapid entry into a growing and dynamic field.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Project Management

## Certificate

| | | |
|---|---|---|
| PMGT 500 | Foundations of Project Management | 3 |
| PMGT 520 | Fundamentals of Project Scope, Schedule, Cost, and Resource Management | 3 |
| PMGT 530 | Fundamentals of Project Quality, Communication, Stakeholder, Resource, and Procurement Management | 3 |
| PMGT 613 | Assessing and Managing Project Risk | 3 |
| **Total Credits** | | **12** |

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/ dean-of-students/california-student/cost/

## Student Learning Outcomes

**Students will:**

- Perform generally accepted project management techniques to plan and execute projects.
- Apply analytical tools for problem solving and effective project decision-making.
- Apply ethical, behavioral, and communications skills within the project team environment.
- Analyze project metrics for the purpose of reporting and control of projects.

# Graduate Certificate in Airline Management (IATA)

The International Air Transport Association (IATA) certificate is a partnership certificate and delivered by IATA.

Airline Management Certificate credits can be applied to the MBAA. MBAA applicants completing the certificate must meet its admissions criteria. The certificate is part of MBAA in collaboration with IATA. More details can be found at MBAA-IATA Partnership.

The courses are offered only in these terms:

- AIRM 600 – October
- AIRM 610 – January
- AIRM 605 – March
- AIRM 615 – May

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## Airline Management

## Certificate

| | | |
|---|---|---|
| AIRM 600 | Airline Cost Efficiency Practices and Value-add Strategies | 3 |
| AIRM 610 | Airline Business Diversification: Generating Ancillary Revenues | 3 |
| AIRM 605 | Revenue Management and Pricing with Simulation in Times of Crises | 3 |
| AIRM 615 | Airline Business Models and Competitive Strategies | 3 |
| **Total Credits** | | **12** |

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

Certificate courses have limited offerings. Please consult with your advisor when planning your course/term enrollments.

## Student Learning Outcomes

**Students will:**

- Optimize revenue management for an airline.
- Develop cost efficiency plans.
- Evaluate ancillary revenues.
- Apply strategic thinking in airlines.

# Graduate Certificate in International Society of Transport Aircraft Trading (ISTAT)

The ISTAT certificate is a partnership certificate and will be issued by ISTAT and not Embry-Riddle.

The ISTAT certificate is designed for students who have completed an undergraduate degree in business, accounting, finance or economics, or related transportation fields of study looking for a rewarding and challenging career in the aircraft financing, leasing and other ISTAT member industries.

Students only pursuing the ISTAT certificate should apply as non-degree seeking graduate students. Students who wish to pursue the certificate as part of their degree program should coordinate any potential credit toward a degree with the appropriate college and program chair.

In addition to Embry-Riddle admission requirements, students must be vetted through ISTAT University and meet the ISTAT admission requirements.

Non-degree seeking ISTAT applicants with educational experience outside the United States will be reviewed on a case-by-case basis by the Program Chair after completing the ISTAT application process. Enrollment will be limited to the ISTAT courses only (FIND 695A, FIND 695B and FIND 695C). For students who subsequently apply for entry into a degree program, additional documentation may be required and applicants must be admitted in accordance with all applicable international admissions requirements.

*Note: Certificate programs are not eligible for Title IV Federal Financial Aid unless taken as part of a degree program.*

## International Society of Transport Aircraft Trading (ISTAT)

### Certificate

| | | |
|---|---|---|
| FIND 695A | Topics in Aircraft Finance I | 2 |
| FIND 695B | Topics in Aircraft Finance II | 2 |
| FIND 695C | Topics in Aircraft Finance III | 2 |
| **Total Credits** | | **6** |

Estimated Cost of Attendance: https://catalog.erau.edu/worldwide/dean-of-students/california-student/cost/

Certificate courses have limited offerings. Please consult with your advisor when planning your course/term enrollments.

# General Education

## General Education Program

Embry-Riddle's General Education Program prepares students with a strong foundation in skill development and a broad base of knowledge across disciplines to complement their educational journey. Through its eight competencies, the General Education Program ensures that students possess the attributes expected of all university graduates.

Foundational General Education courses help students refine life skills in critical thinking and reasoning. The skills and concepts taught in general education courses elevate students' ability to conduct meaningful research, work together in diverse and complex teams, and analyze and communicate both scientific and cultural concepts. Students also develop and enhance their understanding of a range of topics, including economics, history, information technology, psychology, physical sciences, and much more.

As they progress into their degree courses and eventually the workplace, students will be challenged to apply their general education competencies in unlimited ways, such as graduate research, business presentations, and personal and professional decision-making. Completion of the General Education Program helps students make informed value judgments, expand knowledge and understanding of themselves, and lead meaningful, responsible, and satisfying lives as individuals, professionals, and concerned members of their society and the world.

ERAU's General Education Program provides students with the opportunity to develop the following competencies:

**Collaborative Learning**
Students will participate effectively in teams.

**Communication**
Students will express ideas effectively for a variety of audiences, contexts, and purposes.

**Critical Thinking**
Students will evaluate information from multiple perspectives to develop reasoned conclusions.

**Cultural Literacy**
Students will analyze how practices, values, or artifacts shape and/or are shaped by culture.

**Information Literacy**
Students will synthesize information appropriately to explore problems.

**Quantitative Reasoning**
Students will interpret data from numeric, tabular, graphical, and related formats to solve problems or infer conclusions.

**Scientific Literacy**
Students will evaluate scientific concepts, findings, and methodologies to draw logical conclusions.

**Technological Literacy**
Students will evaluate technology for appropriate applications.

### Associate Degree General Education Requirements

Candidates for AS degrees must complete the general education credit hours required by their respective programs. The university is committed to ensuring that students possess a general education knowledge that will help them be successful in whatever degree program they select.

### State of Minnesota Course Requirement

Worldwide Campus students residing in the State of Minnesota are required to comply with Minnesota Degree Standards which require students to complete four (4) credits in Humanities. Embry-Riddle Aeronautical University – Worldwide baccalaureate degree programs require a minimum of three (3) credits in Humanities, so an additional one (1) hour of Humanities credit is required for students in these programs. Students should seek the assistance of their Academic Advisor if there are questions. Worldwide Academic Advisors are assigned based on the student's college affiliation (COAS, COA, COB) and primary program of study. Assigned Academic Advisor contact information can be found in the Campus Solutions Student Center.

### State of Nevada Course Requirement

All students who obtain their degree from an Embry-Riddle Worldwide Campus in Nevada must complete a course that covers the United States and State Constitution. Students may satisfy this requirement by completing GOVT 320 American National Government or through transfer credit of an equivalent course from another institution. This requirement does not apply to students taking courses through the Online Campus outside Nevada.

## Program Requirements

Candidates for bachelor's degrees must complete course work in the following areas:

| | |
|---|---|
| **Communication** | **9** |
| The study of how information, meaning, identity, and culture are constructed and shared by means of speaking, writing, or common behaviors | |
| **Computer Science/Information Technology** | **3** |
| Computer Science: The study of computers and computational systems | |
| Information Technology: The use of hardware, software, services, and supporting infrastructure to manage and deliver information using voice, data, and video | |
| **Mathematics** | **6** |
| The study of assumptions, properties, and applications | |
| **Physical and Life Sciences** | **6** |
| Physical Sciences: The study of the inorganic world | |
| Life Sciences: The study of living things and life processes; broader than the definition of the physical sciences and includes the biological sciences | |
| **Humanities and Social Sciences** | **12** |
| Humanities: The study of world cultures and the artistic expressions of the human experience from an analytical perspective | |
| Social Sciences: The scientific study of human society and social relations | |
| 3 hours of lower-level Humanities | |
| 3 hours of lower-level Social Science | |
| 3 hours of lower-level or upper-level Humanities or Social Science | |
| 3 hours of upper-level Humanities or Social Science | |
| **Total Credits** | **36** |

## General Education Program Courses

General Education courses may be chosen from the list below, assuming prerequisites are met. New courses added to the General Education list may be used for previous catalogs, as long as the previous catalog requirement allows selection of any course from the General Education course list rather than a specific course. See degree programs for recommended courses in Mathematics, Computer Science, and Physical/Life Sciences.

| **Communication Theory and Skills (9)** | | |
|---|---|---|
| COMD 180 | Media Literacy | 3 |
| COMD 219 | Speech | 3 |
| COMD 225 | Science and Technology Communication | 3 |
| COMD 265 | Introduction to Newswriting and Reporting | 3 |
| COMD 295 | Rhetorical Strategies and Analysis | 3 |
| COMD 322 | Aviation and Aerospace Communication | 3 |

| | | |
|---|---|---|
| COMD 350 | Environmental Communication | 3 |
| COMD 362 | Communication and Organizational Culture | 3 |
| COMD 420 | Applied Cross Cultural Communication | 3 |
| ENGL 123 | English Composition | 3 |
| ENGL 143 | Introduction to Rhetoric | 3 |
| ENGL 221 | Technical Report Writing | 3 |
| ENGL 222 | Business Communication | 3 |
| ENGL 223 | Collaborative Writing & Presenting | 3 |
| ENGL 355 | Creative Writing | 3 |
| SSES 224 | Analytic Tradecraft Writing | 3 |
| **Mathematics (6)** | | |
| DSCI 310 | Data Storytelling | 3 |
| MATH 111 | Pre-calculus for Aviation | 3 |
| MATH 112 | Applied Calculus for Aviation | 3 |
| MATH 140 | College Algebra | 3 |
| MATH 142 | Trigonometry | 3 |
| MATH 143 | Precalculus Essentials | 3 |
| MATH 201 | Learning to Reason: Art and Quotient | 3 |
| MATH 202 | Learning to Reason: Commerce and Flux | 3 |
| MATH 241 | Calculus and Analytical Geometry I | 4 |
| MATH 242 | Calculus and Analytical Geometry II | 4 |
| MATH 243 | Calculus and Analytical Geometry III | 4 |
| MATH 345 | Differential Equations and Matrix Methods | 4 |
| STAT 211 | Statistics with Aviation Applications | 3 |
| STAT 222 | Business Statistics | 3 |
| **Computer Science/Information Technology (3)** | | |
| CSCI 109 | Introduction to Computers and Applications | 3 |
| CSCI 123 | Introduction to Computing for Data Analysis | 3 |
| CSCI 251 | Introduction to Programming for Data Science | 3 |
| CYBR 235 | Computer and Network Technologies | 3 |
| ENGR 115 | Introduction to Computing for Engineers | 3 |
| **Physical and Life Sciences (6)** | | |
| CHEM 110 | General Chemistry I | 3 |
| CHEM 110L | General Chemistry I Laboratory | 1 |
| PHSC 301 | Introduction to Public Health Science | 3 |
| PHYS 102 | Explorations in Physics | 3 |
| PHYS 123 | Science of Flight | 3 |
| PHYS 142 | Introduction to Environmental Science | 3 |
| PHYS 150 | Physics I for Engineers | 3 |
| PHYS 160 | Physics II for Engineers | 3 |
| PHYS 199 | Special Topics in Physical Science | 1-4 |
| PHYS 224 | Astronomy | 3 |
| PHYS 250 | Physics III for Engineers | 3 |
| PHYS 253 | Physics Laboratory for Engineers | 2 |
| PHYS 299 | Special Topics in Physics | 1-4 |
| PHYS 304 | Environmental Science | 3 |
| PHYS 359 | Self-Directed Exploration of Environmental Science | 3 |
| PHYS 399 | Special Topic Physical Sciences | 3 |
| PHYS 499 | Special Topic Physical Science | 1-4 |
| WEAX 201 | Meteorology I | 3 |
| **Humanities and Social Sciences (12)** | | |
| **Humanities** | | |
| ENGL 143 | Introduction to Rhetoric | 3 |
| HUMN 142 | Studies in Literature | 3 |
| HUMN 154 | Artificial Intelligence Rhetorics | 3 |
| HUMN 200 | Warriors in World Literature | 3 |
| HUMN 210 | World Culture | 3 |
| HUMN 213 | Introduction to Islamic Studies | 3 |
| HUMN 220 | Asian Studies | 3 |
| HUMN 250 | Generative Artificial Intelligence in Real-World Contexts | 3 |
| HUMN 240 | History of Communication Technologies | 3 |
| HUMN 241 | Introduction to Digital Humanities | 3 |
| HUMN 256 | Baseball History and Statistics | 3 |
| HUMN 299 | Special Topics in Humanities | 1-6 |
| HUMN 300 | World Literature | 3 |
| HUMN 310 | American Literature | 3 |
| HUMN 322 | Imagining Space in Literature and Film | 3 |
| HUMN 330 | Values and Ethics | 3 |
| HUMN 333 | How Fiction, Film and Popular Culture Represent Science and Mathematics | 3 |
| HUMN 340 | Aviators and Aviation in Film | 3 |
| HUMN 350 | War in Contemporary American Literature | 3 |
| HUMN 399 | Special Topics in Humanities | 1-6 |
| HUMN 400 | Science and Aviation/Aerospace Technology in Society | 3 |
| HUMN 430 | Ethics in Aviation | 3 |
| HUMN 431 | Ethics and Artificial Intelligence | 3 |
| HUMN 499 | Special Topics in Humanities | 1-6 |
| **Social Sciences** | | |
| BSHF 300 | Human Factors I: Principles and Fundamentals | 3 |
| ECON 210 | Microeconomics | 3 |
| ECON 211 | Macroeconomics | 3 |
| ECON 450 | Econometrics through the Lens of Data Science | 3 |
| GOVT 320 | American National Government | 3 |
| GOVT 325 | International Studies | 3 |
| GOVT 331 | Current Issues in America | 3 |
| GOVT 340 | U.S. Foreign Policy | 3 |
| GOVT 363 | Inter-American Relations | 3 |
| GOVT 401 | American Constitutional Law | 3 |
| GOVT 402 | Globalization and World Politics | 3 |
| HIST 119 | U.S. History to 1865 | 3 |
| HIST 130 | History of Aviation in America | 3 |
| HIST 299 | Special Topics in History | 1-6 |
| HIST 310 | History of Space Exploration | 3 |
| HIST 302 | Evolution of Scientific Thought | 3 |
| HIST 331 | Moments of Crisis in U.S. Military History | 3 |
| PSYC 220 | Introduction to Psychology | 3 |
| PSYC 320 | Aviation Psychology | 3 |
| PSYC 355 | The Psychology of Creativity and Innovation | 3 |
| PSYC 360 | Cultural Psychology | 3 |
| PSYC 440 | The Psychology of Resilience | 3 |
| RSCH 200 | Inquiry & Discovery: Exploring Academic Sources | 3 |
| RSCH 310 | Applications of Artificial Intelligence in Research | 3 |
| SOCI 210 | Introduction to Sociology | 3 |
| SSES 110 | Critical Thinking in Contemporary Problems | 3 |
| SSES 111 | Countering Human Trafficking | 3 |
| SSES 440 | Geographic Information Systems for Disaster and Security Studies | 3 |

# Undergraduate Courses

Courses numbered 1-99 are basic skills courses and do not apply toward degree requirements. Courses numbered 100-299 are lower-division courses and are generally taken in the freshman and sophomore years. Many lower-division courses serve as prerequisites for other coursework, and students are urged to plan ahead to meet necessary prerequisites. Undergraduate prerequisite courses taken with Embry-Riddle must be completed with a grade of C or better.

Courses numbered 300-499 are upper-division courses, reflecting advanced levels of technical skills and disciplinary knowledge. Upper-division work is generally taken in the junior and senior years. Graduate courses are numbered at 500 and above.

Numbers in parentheses, immediately following course titles and numbers, indicate lecture and laboratory hours that a class meets each week. For example, (3,0) signifies that the course consists of three lecture hours and zero laboratory hours weekly.

## Accounting (ACCT)

### Courses

**ACCT 210 Financial Accounting 3 Credits (3,0)**
The use of financial accounting information in business operations. The accounting cycle; adjusting entries; merchandising operations; inventory; depreciation; accounting for assets, liabilities, and stockholder's equity; financial statement analysis.

**ACCT 312 Managerial Accounting 3 Credits (3,0)**
The use of managerial accounting information in business operations. Job order costing, process costing; cost management systems; cost-volume-profit analysis; costing methods; business decisions; budgets; control activities; performance measurement. Pre-Requisite: if student is in 2021-2022 catalog or newer
**Prerequisites:** ACCT 210

## Aeronautical Engineering (AERO)

### Courses

**AERO 309 Aerodynamic Performance of Flight Vehicles 3 Credits (3,0)**
This course includes a history of atmospheric flight, properties of the atmosphere, concepts of fluid flows, dimensional analysis, airfoil and wing aerodynamics, propulsion including reciprocating and gas turbines, airplane performance, and stability and control.
**Prerequisites:** ENGR 115 and ESCI 305 and ENGL 221 and ESCI 204

## Aeronautical Science (ASCI)

### Courses

**ASCI 110 Introduction to Space Flight 3 Credits (3,0)**
This course provides the student with a background in the major aspects of space flight. Topics covered include the history of space flight; propulsion theory; orbital mechanics fundamentals; space transportation operations; U.S. space policy; and present and future commercial, industrial, and military applications in space.

**ASCI 121 Private Pilot Operations 5 Credits (5,0)**
This course develops the aeronautical knowledge required for certification as a Private Pilot with an Airplane Single Engine Land rating. Topics include; regulations, safety, pre-solo operations, cross-country planning, airspace, chart use, communications, weather, performance, weight and balance, aerodynamics and decision-making. Co-Requisite: ASCI 121L (not required for sUAS minor students)

**ASCI 121L Airmen Knowledge Test Preparation 1 Credit (0,1)**
This course supports the aeronautical knowledge testing preparation required as part of the certification for the appropriate FAA certification or ratings. Students are introduced to airman's knowledge testing (AKT) employed by the FAA and are also exposed to the electronic testing software and testing procedures.
**Corequisites:** ASCI 121

**ASCI 199 Special Topics in Aeronautical Science 1-3 Credit (1-3,0)**
Individual independent or directed studies of selected topics in general aviation. Prerequisites: Consent of instructor and approval of department and program chairs. May be repeated with a change of subject. Special topics courses involving flight training are offered in selected areas for the purpose of gaining proficiency in required pilot operations for various certificates and ratings.

**ASCI 202 Introduction to Aeronautical Science 3 Credits (3,0)**
An introductory course in aeronautical sciences that provides students an orientation in aviation topics appropriate to Aeronautical Science degree programs. Subjects include: the aviation profession, the science of flight, safety, security and human factors; aviation resources; the aviation environment; and meteorology.

**ASCI 221 Introduction to Flight Physiology 3 Credits (3,0)**
This course is an introduction to the fundamental concepts and topics of flight physiology. The course will explore basic anatomical systems, physiological effects on the human body such as vision and hearing, atmospheric effects, physical stressors, and physiological challenges to flight operations, including disorientation, loss of situational awareness, hypoxia, decompression, impairment and incapacitation.

**ASCI 222 Instrument Pilot Operations 3 Credits (3,0)**
This course develops aeronautical knowledge required for addition of an Instrument Airplane rating to a Private Pilot certificate. Topics include instrument flying regulations, safety, operations, navigation systems, chart use, weather, flight planning, decision-making, and crew resource management. A grade of C or better is required in any program requiring ASCI 222.
**Prerequisites:** ASCI 121

**ASCI 254 Aviation Legislation 3 Credits (3,0)**
This course examines the evolution of federal civil aviation regulations in the United States. Students will examine the past and present problems prompting regulation of the industry, the resultant safety, legislation, airport development, funding legislation and international aviation legislation.

**ASCI 299 Special Topics in Aeronautical Science 1-3 Credit (1-3,0)**
Individual independent or directed studies of selected topics in general aviation. Prerequisites: Consent of instructor and approval of department and program chairs. May be repeated with a change of subject. Special topics courses involving flight training are offered in selected areas for the purpose of gaining proficiency in required pilot operations for various certificates and ratings.

**ASCI 301 Introduction to Air Traffic Control 3 Credits (3,0)**
An introduction to the operating environment of air traffic control; overview of major governing authorities including the Federal Aviation Administration, the International Civil Aviation Organization, the Civil Aviation Authority of Singapore, Eurocontrol, and Brazil's Department of Airspace Control along with other controlling agencies, including the mission, organization and operations, regulations, publications, manuals, maps, charts, and regulations used by pilots and air traffic controllers. ATC procedures, and future air traffic control systems are also discussed.

**ASCI 303 Tower and Radar for Air Traffic Control and Management 3 Credits (3,0)**
Basic applications in air traffic control (ATC) procedures for tower terminal operations and terminal radar ATC facilities. Duties and responsibilities of the terminal radar air traffic controller are integrated into an understanding of how the total ATC system works. Fundamental knowledge of tower operations within the air traffic control system and content knowledge to include control tower equipment and operating positions; the airport traffic area; navigation aids; airspace; traffic patterns; controller/pilot phraseology; aircraft taxi instructions; interagency communications and intra-facility coordination; aviation regulations; notification and handling of emergency aircraft.

**ASCI 309 Aerodynamics 3 Credits (3,0)**
Students are provided with an opportunity to explore incompressible flow airfoil theory and wing theory. Topics center on calculation of stall speed, drag and basic performance criteria, configuration changes, high and low speed conditions, special flight conditions, and an introduction to compressible flow.
**Prerequisites:** MATH 112 or MATH 142 or MATH 143

**ASCI 317 Rotorcraft 3 Credits (3,0)**
Historical development of rotorcraft operations; both military and civilian design, manufacturing, materials, systems and configurations including management and maintenance perspectives. Rotorcraft operations and airworthiness regulations, airspace and facilities requirements, and environmental considerations.

**ASCI 333 Commercial Pilot Operations 3 Credits (3,0)**
Aeronautical knowledge required for certification as a Commercial Pilot; includes flying in VFR and IFR environments, high altitude, night, winter, and mountain; regulations, safety, weather, aerodynamics, weight and balance, performance, aircraft systems, navigation facilities, chart use, and decision-making.
**Prerequisites:** ASCI 121

**ASCI 357 Flight Physiology 3 Credits (3,0)**
This course explores aero-medical information; causes, symptoms, prevention, and treatment of flight environment disorders; altitude effects, spatial disorientation, body heat imbalance, visual anomalies, and psychological factors are included as they relate to pilot performance and survival effectiveness.

**ASCI 378 Helicopter Flight Environments 3 Credits (3,0)**
Foundation in helicopter operations in terrain flight in varying environmental conditions. Adverse weather, day and night environments pertaining to take off, cruise and landing. Emphasis on principles of flight close to the Earth, hazards both natural and man-made, helicopter flight in and around mountains, snow, desert and overwater operations. Introduction to visual references and how to adjust perceptions to maintain safe, low-level flight in and around hazardous conditions present in commercial helicopter operations.
**Prerequisites:** ASCI 317

**ASCI 388 Helicopter Flight Planning 3 Credits (3,0)**
Examination of the foundation of Federal Aviation Regulations (FAR) as they relate to flight planning and navigation for various operations. Regulatory and operational considerations used in helicopter flight operations to include remote location operations, low level flight, navigation procedures, cargo planning for internal and external operations. Knowledge in concepts necessary for effective flight planning and operation in the commercial helicopter industry.
**Prerequisites:** ASCI 317

**ASCI 399 Special Topics in Aeronautical Science 1-3 Credit (1-3,0)**
Individual independent or directed studies of selected topics in general aviation. Prerequisites: Consent of instructor and approval of department and program chairs. May be repeated with a change of subject. Special topics courses involving flight training are offered in selected areas for the purpose of gaining proficiency in required pilot operations for various certificates and ratings.

**ASCI 403 Air Traffic Management 3 Credits (3,0)**
Applications in air traffic flow management definitions, concepts, technologies (current and planned for future air traffic systems and operations) and applications required to perform system analysis of the constraints and their impact on efficiency of traffic flows within the air traffic airspace. Technology, collaboration and innovation in Air Traffic Control (ATC) and Air Traffic Management (ATM) included in Global Air Navigation Plan (GANP), governance restrictions, regulatory capabilities, ATM systems, sustainable infrastructure, and environmental impacts. Interactions between global managers of International Civil Aviation Organization (ICAO) Member States.

**ASCI 404 Applications in Aviation & Aerospace Law 3 Credits (3,0)**
Aviation and aerospace law development, federal and state regulatory functions, rights and liabilities of pilots, maintenance personnel, aircraft manufacturers, and airport and aircraft operators. Case histories, liens and security interest in aircraft, as well as international conferences, bilateral and multilateral agreements, and criminal statutes. Legal aspects of uncrewed autonomous systems, as well as space commercialization.

**ASCI 406 Airborne Law Enforcement 3 Credits (3,0)**
Airborne law enforcement impacts on the criminal justice system; historical and modern issues that shape present day airborne law enforcement organizations; operational issues, including management and safety of airborne law enforcement units; preventing and responding to terrorist threats. Aviation laws and civil/criminal laws effecting airborne law enforcement operations; pilot and crew duties, aircraft selection and emerging technologies that impact present day airborne law enforcement organizations.

**ASCI 411 Human Factors in ATM 3 Credits (3,0)**
Emphasis on the air traffic controller (human being) as the major human causative agent in aircraft accidents and incidents. Concentration is placed on the psychological and physiological factors that increase the accident probability. Performance limitations of air traffic controllers are examined to assess how these limitations are impacted by different variables in the ATC environment. Investigation into human factors that lead to human error mitigation using strategies in efficiency, effectiveness, and safety.

**ASCI 412 Corporate and Business Aviation 3 Credits (3,0)**
The course is designed to provide the student with an understanding of the operation of a corporate flight department, value of management mobility, aircraft and equipment evaluation, maintenance, flight operations, administration, and fiscal considerations.

**ASCI 426 Airport Management in ATM 3 Credits (3,0)**
Emphasis on the facilities that comprise an airport system, including airspace, airfield, terminal and global air traffic management systems that are directly linked to airports. Operational aspects of air traffic systems and international air navigation system components; WAAS, ADS-B and PBN and other international modernized air navigation systems on airports.

**ASCI 428 Advanced Helicopter Systems and Functions 3 Credits (3,0)**
The principles and functions of advanced helicopter systems with an emphasis on automatic flight control systems and associated pilot interface mechanisms, power and rotor systems, avionics, environmental systems and structures.
**Prerequisites:** ASCI 317 and ASCI 388

**ASCI 438 Advanced Helicopter Operations 3 Credits (3,0)**
Foundation into advanced and specialized commercial helicopter operations. Emphasis on knowledge in organization, budgeting, airframe selection, mission support, insurance, maintenance, ground support operations, safety and training programs, recordkeeping, regulatory compliance and interactions among professionals in the aviation industry.
**Prerequisites:** ASCI 317 and ASCI 388 and ASCI 378

**ASCI 491 Operational Applications in Aeronautics 3 Credits (3,0)**
Culminating experience for students in the Aeronautics degree program. Students to explore how their chosen career field fits into the broader aviation industry while examining more deeply issues related to their minor field of study. Macro-level review of the aviation industry and how to prepare to meet industry expectations for those entering the profession. Contemporary issues and emerging trends within the industry. Assignments will challenge student critical thinking, collaborative problem solving, written and oral communications, and lifelong learning skills. Pre-Requisite: Course listed and Senior Standing.
**Prerequisites:** Senior Standing

**ASCI 499 Special Topics in Aeronautical Science 1-3 Credit**
Individual independent or directed studies of selected topics in general aviation. Pre-Requisite: Consent of instructor and approval of department and program chairs. May be repeated with a change of subject. Special topics courses involving flight training are offered in selected areas for the purpose of gaining proficiency in required pilot operations for various certificates and ratings.

# Air Force Aerospace Studies (USAF)

## Courses

**USAF 101 DAF Professionalism 1 Credit (1,0)**
DAF Professionalism" is to cultivate a foundational understanding and appreciation of the Department of the Air Force's (DAF) core values, culture, and the essential personal attributes that define professionalism within this unique environment. This course is meticulously designed to bridge theoretical knowledge with practical skills, fostering a cadre of well-rounded students ready to excel in the DAF ecosystem. Upon completion of this course, students will have a solid grasp of the DAF culture and the personal and professional qualities necessary for success within it. They will understand the significance of self-mastery, the dynamics of effective followership, and the importance of innovative problem-solving. With these foundational skills and knowledge, students will be better prepared to embark on their journey to become future leaders of the DAF.
**Corequisites:** USAF 101L

**USAF 101L Leadership Laboratory 0 Credits (0,2)**
LLAB is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force second lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander.
**Corequisites:** USAF 101

**USAF 102 Competition and Security 1 Credit (1,0)**
Competition and Security" is to introduce students to the concept of national security from a broad perspective, encompassing the military's involvement in securing national interests through a range of activities from cooperation to armed conflict. This course is designed to lay a solid foundation for understanding the multifaceted nature of global security and the critical role of the DAF in maintaining peace and security. By the end of this course, students will have a solid grasp of the nature of conflict and the continuum of competition, appreciating the nuanced roles the military plays in both peacetime and wartime efforts to secure national interests. Students should understand the DoD structure and the specific contributions of the DAF, grounded in a comprehensive view of national security strategies.
**Prerequisites:** USAF 101 **Corequisites:** USAF 102L

**USAF 102L Leadership Laboratory 0 Credits (0,2)**
LLAB is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force second lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander.
**Corequisites:** USAF 102

**USAF 201 Team and Leadership Fundamentals 1 Credit (1,0)**
Provides a fundamental understanding of both leadership and team building. The lessons and course flow are designed to prepare students for field training and leadership positions in the detachment.
**Prerequisites:** USAF 102 **Corequisites:** USAF 201L

**USAF 201L Leadership Laboratory 0 Credits (0,2)**
LLAB is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force second lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander.

**USAF 202 Team and Leadership Fundamentals 1 Credit (1,0)**
Continuation of USAF 201. Provides a fundamental understanding of both leadership and team building. The lessons and course flow are designed to prepare students for field training and leadership positions in the detachment.
**Prerequisites:** USAF 201 **Corequisites:** USAF 202L

**USAF 202L Leadership Laboratory 0 Credits (0,2)**
LLAB is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force second lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander.
**Corequisites:** USAF 202

**USAF 301 Leading People and Effective Communication 3 Credits (3,0)**
Utilizes student's field training experience to take a more in-depth look at leadership. Special emphasis is placed on enhancing communication skills, and why that is important as a leader. Students have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors.
**Prerequisites:** USAF 202 **Corequisites:** USAF 301L

**USAF 301L Leadership Laboratory 0 Credits (0,2)**
LLAB is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force second lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander.
**Corequisites:** USAF 301

**USAF 302 Leading People and Effective Communication 3 Credits (3,0)**
Continuation of USAF 301. Utilizes student's field training experience to take a more in-depth look at leadership. Special emphasis is placed on enhancing communication skills, and why that is important as a leader. Students have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors.
**Prerequisites:** USAF 301 **Corequisites:** USAF 302L

**USAF 302L Leadership Laboratory 0 Credits (0,2)**
LLAB is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force second lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander.
**Corequisites:** USAF 302

**USAF 401 National Security/Commissioning Preparation 3 Credits (3,0)**
Designed for college seniors and gives them the foundation to understand their role as military officers and how they are directly tied to our National Security Strategy. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level.
**Prerequisites:** USAF 302 **Corequisites:** USAF 401L

**USAF 401L Leadership Laboratory 0 Credits (0,2)**
LLAB is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force second lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander.
**Prerequisites:** USAF 401

**USAF 402 National Security/Commissioning Preparation 3 Credits (3,0)**
Continuation of USAF 401. Designed for college seniors and gives them the foundation to understand their role as military officers and how they are directly tied to our National Security Strategy. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level.
**Prerequisites:** USAF 401 **Corequisites:** USAF 402L

**USAF 402L Leadership Laboratory 0 Credits (0,2)**
LLAB is a dynamic and integrated grouping of leadership developmental activities designed to meet the needs and expectations of prospective Department of the Air Force second lieutenants and complement the AFROTC academic program. It is a student planned, organized, and executed practicum conducted under the supervision of the Detachment Commander and Operations Flight Commander.
**Corequisites:** USAF 402

**USAF 404L Leadership Laboratory 0 Credits (0,0)**
Development of personal leadership and managerial abilities. Examination and demonstration of Air Force customs and courtesies, drill and ceremonies and standards of discipline and conduct.

# Aviation Maintenance (AMNT)

*AMNT courses designated as Part 65 are available at the Worldwide Campus only.*

## Courses

**AMNT 240 General Aeronautics and Applications 3 Credits (3,0)**
Introduction to general aeronautics, physical mathematics, weight and balance, government regulations regarding aircraft maintenance, common and special tools and measuring devices, fluid lines, hardware, aircraft servicing, and related documentation.

**AMNT 260 Aircraft Electrical Systems Theory 3 Credits (3,0)**
Introduction to aircraft electrical systems; the principles and concepts of basic DC and AC electrical theory, magnetism, batteries, generators, motors, voltage regulators, circuit protection and electrical component installations.

**AMNT 265 Aeronautical Electronics for Aviation Maintenance Technicians 3 Credits (3,0)**
Radio laws and regulations, aircraft radio communication, radar systems, radio wave propagation, electronic and electronic principles, radio practice, circuit components, and practical circuits, signal and emissions, radar systems and antennas and power feeder lines. Use various types of equipment and troubleshoot procedures.

**AMNT 270 Airframe Structures and Applications 3 Credits (3,0)**
This course is an introduction to airframe structures, appropriate applications and repairs. The study of aircraft wood, dope, fabric, sheet metal, welding theory and methods of fabrication are included in this course.

**AMNT 271 Airframe Systems and Applications 3 Credits (3,0)**
This course is an introduction to airframe systems and applications. The study of airframe systems such as aircraft electrical systems, fuel systems, cabin atmosphere control systems, instrument systems, communication and navigations systems, ice and rain control systems, fire protection systems, and aircraft inspection are included in this course.

**AMNT 272 Fundamentals of Aircraft Avionics 3 Credits (3,0)**
This course is an introduction to aircraft avionics systems. It includes a study of the principles, theories, and concepts of basic solid-state devices, electronic bridges, synchros, bridges, servos, gyros, compass systems, navigation systems, instrument landing systems, autopilot controls and system, flight management computers, weather/airborne radar, and communications systems. Students taking this course should have significant aviation maintenance experience or permission of the instructor.

**AMNT 280 Reciprocating Engine Theory and Applications 3 Credits (3,0)**
Introduction into the characteristics of the reciprocating engine, theory of operation, construction, propeller systems, fuel metering, lubrication, exhaust, engine installation, overhaul, and operational maintenance procedures.

**AMNT 281 Turbine Engine Theory and Applications 3 Credits (3,0)**
Aircraft jet propulsion systems and applications. Theory and principles of operation, controls and systems for propellers and turbine engines are analyzed.

**AMNT 290 Introduction to Aerospace Composites 3 Credits (3,0)**
This introductory course explores the basic concepts of composite materials commonly used in the aerospace industry. This course provides the basic knowledge of composite materials and technology that form the essential underpinnings for further exploration, regardless of discipline, e.g. maintenance, engineering, or unmanned systems. Students will learn general properties, advantages, and possible disadvantages to composite systems common in the aerospace industry as well as common design concerns, technologies and techniques for manufacturing and inspection of composite structures with a special emphasis on repair scenarios and practices. This course also identifies current and emerging health and safety issues pertinent to working with composite materials.

**AMNT 322 Aircraft Inspection and Scheduled Maintenance Programs 3 Credits (3,0)**
Aircraft inspection programs and scheduled maintenance processes. National and international regulations governing aircraft inspection and maintenance. Preflight, Post flight, hourly, calendar, cycles, annual, progressive, and phase inspection program requirements. Types and techniques involving non-destructive inspection, industry practices in managing scheduled maintenance and aircraft reliability, life cycle management, and trend analysis.

**AMNT 416 Aviation Maintenance Management: A Global Perspective 3 Credits (3,0)**
Maintenance policies, procedures and practices employed in the management of aviation maintenance programs in a global, multi-organizational industry. Maintenance management, organizational management, planning, forecasting, cost control, reliability, flight scheduling, and safety.

**AMNT 424 Maintenance Repair and Overhaul in Aviation 3 Credits (3,0)**
The requirements, policies, and procedures necessary for the operation of a Maintenance Repair and Overhaul (MRO) organization. Airline maintenance operations, engineering, maintenance in the repair of structures, systems, and aircraft components. MRO financing, domestic and off-shore operations, regulatory requirements, logistics, supply chain support, human resources and industry oversight.

**AMNT 429 Advanced Technologies in Design and Production of Aircraft Structures and Systems 3 Credits (3,0)**
Technologies used in the design, production, and certification of aircraft structures and systems. Structural materials, advanced composites and alloys, and the design and production of automated systems utilized throughout the aircraft. National and international aviation regulations and airworthiness standards governing the design, production, and certification of aircraft structures and systems.

**AMNT 491 Operational Applications in Aviation Maintenance 3 Credits (3,0)**
Culminating experience for students in the Aviation Maintenance degree program. Comprehensive examination of organizational maintenance policies, programs, and procedures with an emphasis on airworthiness requirements, planning, reliability, safety, and Operations Specifications (OpSpecs). Proficiency in broad field of aviation maintenance operations. Incorporates Flight Operations, Safety Science, and Maintenance Management disciplines. Holistic view of aviation maintenance industry and associated challenges.

# Aviation Safety (BSAS)

## Courses

**BSAS 210 Introduction to Aerospace Safety 3 Credits (3,0)**
Examination of the theories, concepts, applications and practices in aerospace safety, human factors, mechanical factors, accident investigation, safety programs and safety statistics interactions.

**BSAS 299 Special Topics in Safety 1-3 Credit (1-3,0)**
These courses consist of individual independent or directed studies of selected topics in safety. Pre-Requisite: Consent of instructor, approval of department and program chairs, and 12 hours of SFTY courses.

**BSAS 320 Human Factors in Aviation Safety 3 Credits (3,0)**
Emphasis on the major causative agent in aircraft accidents: the human being. Importance is placed on psychological and physiological factors that increase the accident probability. Examination of ergonomics (human engineering) and its influence in aviation design.

**BSAS 330 Aircraft Accident Investigation 3 Credits (3,0)**
Evaluation of methods and procedures involved in aircraft accident investigation. Organization, duties and procedures of an aircraft accident investigation board; probable cause analytical techniques employed by the trained accident investigator; role of the specialized laboratory; reporting procedures and the critical follow-up work designed to avoid similar or related aircraft accidents.

**BSAS 335 Mechanical and Structural Factors in Aviation Safety 3 Credits (3,0)**
The influences of design, manufacturing, metallurgy and maintenance on aircraft accidents, including the detailed analysis of the failure process; stress and design loading, fatigue, corrosion, and the envelope of operation.

**BSAS 345 Aviation Safety Program Management 3 Credits (3,0)**
Examination of principles in the development and management of an effective safety program. Philosophy and historical development of major concepts with emphasis on concern in organizational accident prevention. Influence of morale, education, training, the role of the supervisor, and other interactions between valuable program elements for safety manager.

**BSAS 350 Aircraft Crash and Emergency Management 3 Credits (3,0)**
Theory, practices and techniques utilized in the response phase of aircraft crashes and emergencies are examined. Introduction to the field of emergency response at the CFR agency level, the airport response and administration levels. Interactions between related and associated entities involved in aircraft mishaps.

**BSAS 399 Special Topics in Safety 1-3 Credit (1-3,0)**
These courses consist of individual independent or directed studies of selected topics in safety. Pre-Requisite: Consent of instructor, approval of department and program chairs, and 12 hours of SFTY courses.

**BSAS 409 Aviation Safety 3 Credits (3,0)**
Aviation safety program examination, including flight and ground operations safety. Impact of accidents on the industry with a focus on human factors, basic accident prevention programs, and roles of government and industry organizations.

**BSAS 499 Special Topics in Safety 1-3 Credit (1-3,0)**
These courses consist of individual independent or directed studies of selected topics in safety. Pre-Requisite: Consent of instructor, approval of department and program chairs, and 12 hours of SFTY courses.

# Baggage Handling Systems Implementation (BHSI)

## Courses

**BHSI 325 Homeland Security and Regulatory Policy Management in Aviation 3 Credits (3,0)**
In-depth overview of the U.S. Department of Homeland Security and its partners in aviation safety and security roles, in relation to all airport stakeholders, and international aviation systems.

**BHSI 401 Baggage Handling System Design 3 Credits (3,0)**
Introduces airport baggage handling systems. Industry best practices for design; focus on emerging technologies; fundamentals of system planning and sizing; safety and security requirements; implementation elements.

**BHSI 402 Baggage Handling System Management 3 Credits (3,0)**
Lifecycle of baggage handling systems; requirements and regulations; collaboration with airport stakeholders; compliance with industry standards; procurement methodologies; total cost of ownership.

# Biology, Life Science (BIOL)

## Courses

**BIOL 120 Foundations of Biology I 3 Credits (3,0)**
A biological science course introducing the fundamentals of biology and essential structures, components, and processes of life. Emphasis placed on biochemistry; cell structure, function, organization, and division; sources and uses of biological energy; as well as genetics and inheritance.

# Business (BUSW)

## Courses

**BUSW 335 International Business 3 Credits (3,0)**
Attention is focused on the impact of foreign trade on the broader aviation industry and their contribution to economic development. Analysis of economic development and international trade with an examination of the opportunities and threats of the complex environment of international business and current U.S. relations with other nations.
**Prerequisites:** MGMT 201

**BUSW 352 Business Quantitative Methods 3 Credits (3,0)**
Development, implementation, and utilization of business models for managerial decision making. Various techniques for modeling, such as statistical analyses techniques, data analysis, regression and correlation analysis, forecasting, simulation, and optimization models are covered. Developing models needed in decision support systems using Microsoft Excel.
**Prerequisites:** STAT 211 or STAT 222

**BUSW 390 Business Law 3 Credits (3,0)**
A survey of the legal aspects of business transactions is provided. Areas covered include contracts, partnerships, corporations, consumer credit, and the government's influence over business law.
**Prerequisites:** MGMT 201

# Business Analytics (BUAN)

## Courses

**BUAN 301 Evidence-Based Management: The Need for Data 3 Credits (3,0)**
Students are introduced to the theories of Evidence-Based Management (EBM) and the importance of making data-driven decisions. Through several course examples, students will be asked to look for publicly available data sets to address their working hypothesis as well as bridge existing data sets to form new data relationships. Students will be exposed to consumer, economic, demographic, sales, and other types of data often used in making business decisions with prescriptive analytics. Students will also be exposed to the scientific method and the role of quantitative and qualitative analysis in generating business intelligence.
**Prerequisites:** MMIS 320 and CSCI 123

**BUAN 302 Communication and Ethics in Data Analysis 3 Credits (3,0)**
This course focuses on how data is communicated as well as best practices in data ethics. Understanding ethics, the ethical use of data, and the role of ethics in communicating data will be explored as well as common pitfalls in the overall presentation of data. Students will use recent casesthat involve communications and ethical challenges from which to explore and understand how properly communicating data can be as important as the analysis itself.
**Prerequisites:** BUAN 301

**BUAN 304 Advanced Statistics and Analytics Concepts 3 Credits (3,0)**
This course builds on the math core and business statistics to focus on mathematical models, simulation models, and forecasting tools that enable the student to work with big data in an applied business format. The student will use data cleansing concepts and prepare data for analysis and chose the propermethod of analysis based on the structure of the data. Students will use the SAS suite of products and learn the hands-on skills for data cleansing, model building and forecasting using real life scenarios.
**Prerequisites:** BUAN 301 and BUSW 352

**BUAN 405 Applied Analytics I -- Descriptive Analytics 3 Credits (3,0)**
This course focuses on descriptive analysis of a large data set to test a hypothesis. Sentiment analysis will also be introduced to manage qualitative data and obtain additional insights from qualitative sources. Live data dashboards will be introduced as an integrative bridge between descriptive analytics and data presentation. Complete analysis models will be built and tested using a variety of different data sets using the SAS suite of products as well as less structured programming languages.
**Prerequisites:** BUAN 304

**BUAN 406 Applied Analytics II -- Predictive Analytics 3 Credits (3,0)**
This course uses the SAS suite of products to make predictions and forecast results from large data sets. Students will understand the different predictive nodes of SAS suit products to include neural networks, regression models, and other predictive concepts and how to apply those models to a data set and interpret model comparison output. Students will also utilize compiled and/or interpreted coding languages to build applications for predictions.
**Prerequisites:** BUAN 405

**BUAN 407 Business Intelligence in Industry Capstone 3 Credits (3,0)**
This Capstone experience will include a student-selected project that encompasses the entire problemsolving process from data sourcing through the presentation of results using data visualizations. The project will require a report-out to an executive audience including decision recommendations. Students will also be introduced to the application of business intelligence concepts within the aviation industry as well as be exposed to marketing metrics, psychometrics, etc. and how business can use big data in everyday operations.
**Prerequisites:** BUAN 406

**BUAN 428 Business Analytics and Data Intelligence 3 Credits (3,0)**
The massive growth of the Internet and the rapid expansion of communication and information technology have resulted in a great flow of data -- both structured and unstructured, and while accessing and gathering data is important, analyzing and making sense of that data is even more important. This course introduces students to how businesses can use applications and technologies to effectively manage, analyze, and distribute enterprise data to arrive to more accurate analysis that can lead to more confident decision making and greater operational efficiencies, cost reduction, greater revenue, and reduced risks.
**Prerequisites:** MMIS 320

# Chemistry (CHEM)

## Courses

**CHEM 110 General Chemistry I 3 Credits (3,0)**
Fundamental principles of general chemistry to include inorganic nomenclature, stoichiometry, atomic structure, periodic relationships, chemical bonding, geometry of molecules, properties of gases, chemical thermodynamics, and properties of solutions.

**CHEM 110L General Chemistry I Laboratory 1 Credit (0,1)**
Experiments parallel the materials in the associated chemistry lecture course. Topics include chemical stoichiometry, states of matter, solutions, and thermodynamics.
**Prerequisites:** CHEM 110 **Corequisites:** CHEM 110

# Co-Operative Education & Internship (COIN)

## Courses

**COIN 494 Co-Operative Education 1-4 Credit (1-4,0)**
The student will gain practical learning experience in full-time or part-time employment that is related to the student's degree program and career goals. Course title and level are based on work assignment.

**COIN 495 Co-Operative Education 1-4 Credit (1-4,0)**
The student will gain practical learning experience in full-time or part-time employment that is related to the student's degree program and career goals. Course title and level are based on work assignment.

**COIN 496 Co-Operative Education 1-4 Credit (1-4,0)**
The student will gain practical learning experience in full-time or part-time employment that is related to the student's degree program and career goals. Course title and level are based on work assignment.

**COIN 497 Co-Operative Education 1-4 Credit (1-4,0)**
The student will gain practical learning experience in full-time or part-time employment that is related to the student's degree program and career goals. Course title and level are based on work assignment. Continuation of COIN 496.

**COIN 498 Co-Operative Education 1-4 Credit (1-4,0)**
The student will gain practical learning experience in full-time or part-time employment that is related to the student's degree program and career goals. Course title and level are based on work assignment. Continuation of COIN 497.

# Communication (COMD)

## Courses

**COMD 180 Media Literacy 3 Credits (3,0)**
An overview of the structure and effects of mass media. Critical evaluation of messages and media outlets across various modalities.

**COMD 219 Speech 3 Credits (3,0)**
Foundational theories and practices of communication, including public speaking, content, delivery, and design. Section emphasis may vary by instructor.

**COMD 225 Science and Technology Communication 3 Credits (3,0)**
This course introduces the practices of communicating news and issues in science and technology to a variety of publics through magazine-style writing and public speaking. Guest speakers will present research questions, methodologies and issues within the sciences. Coursework also includes readings from successful science and technology communicators, illustrating various solutions to writing about complex subjects. Special topics include identifying science and technological stories, evaluating sources and information, and communicating findings clearly, comprehensibly and accurately for publication and speaking engagements.
**Prerequisites:** ENGL 123

**COMD 230 Digital Photography 3 Credits (3,0)**
This course introduces fundamental photographic skills through digital technologies. Emphasis is placed on the tools, techniques, and aesthetics of a range of photographic applications pertaining to graphic design and interactive media.

**COMD 260 Introduction to Media 3 Credits (3,0)**
The structure of professional opportunities in, and social sciences arising from media industries. Required of all Communication students. Must be taken within the first year of entering the program.
**Prerequisites:** ENGL 123

**COMD 265 Introduction to Newswriting and Reporting 3 Credits (3,0)**
Introduction to the fundamentals, theories and practice of news writing and reporting. Identify what constitutes news, as demonstrated by daily news media, conduct interviews, generate story ideas, and write and report news stories using Associated Press style, inverted pyramid organization, and the five Ws of news writing content. Introduction to how editorial departments in contemporary news organizations operate, to the legal, ethical and cultural issues in the news business, the evolution of digital and social media in the news media, and various news-writing strategies beyond the inverted pyramid.
**Prerequisites:** ENGL 123

**COMD 295 Rhetorical Strategies and Analysis 3 Credits (3,0)**
An examination of the theory and practice of effective persuasion for the purposes of shaping public opinion and policy. Students study the principles of Aristotelian rhetoric, and examine how they are applied in public discourse by opinion writers, politicians, political parties, public policy advocates, special interest groups, and documentary film-makers. This writing-intensive course also focuses on effective composition of rhetorical analysis essays.
**Prerequisites:** ENGL 123

**COMD 320 Mass Communication Law and Ethics 3 Credits (3,0)**
A case study-based Communication course introducing students to the legal and ethical environments underpinning First Amendment rights in the United States from the nation's founding to the present. Topics in law include intents of the framers, prior restraint, libel, privacy, obscenity, freedom of information laws, shield laws, copyright and broadcast and cable regulation. Practices of journalists, media relations practitioners and Internet communication will be examined. Topics in ethics concentrate on models for decision making in difficult situations.
**Prerequisites:** ENGL 123

**COMD 322 Aviation and Aerospace Communication 3 Credits (3,0)**
This course introduces the practices of communicating news and issues in aviation and aerospace to a variety of publics through magazine-style writing and public speaking. Students will learn how to recognize the news value of contemporary aviation issues, to gain an understanding of those issues through research and interviews with experts, and to write about and discuss the issues. Coursework also includes readings from respected aviation writers that illustrate aviation's economic and social impact on society. Special topics include safety, airport security and congestion, emerging legal issues, and international aviation trends.
**Prerequisites:** ENGL 123 and COMD 265

**COMD 335 Technology and Modern Civilization 3 Credits (3,0)**
This course is a humanistic analysis of technology, with attention to its influence upon modern American culture in a global context. Topics include the history and development of technology; the influence of technology upon certain philosophies such as determinism and utilitarianism; the influence of technology on the ecosphere; and the depiction of technology in imaginative literature and the fine arts.

**COMD 350 Environmental Communication 3 Credits (3,0)**
An examination of a specific national and/or regional environmental issue, including such topics as climate change, pollution, conservation, policy-making and policy change. Course focuses on food as a specific environmental issue. Students' individual interests determine their research focus.
**Prerequisites:** ENGL 123

**COMD 360 Public Relations 3 Credits (3,0)**
This course focuses on different theories of persuasive communication and the construction of persuasive messages. Individual instructors may explore persuasive communication in public service and political campaigns, interpersonal communication, social movements, persuasive writing, or advertising. Students are evaluated on their ability to recognize, apply, and evaluate the communication theories used to design persuasive messages.
**Prerequisites:** COMD 265

**COMD 362 Communication and Organizational Culture 3 Credits (3,0)**
Analysis of organizational culture, a study of theory, as well as application of research methods in communication. Allows students to assess particular organizations and to increase their ability to initiate organizational change. Entails a variety of research methods, including rhetorical, qualitative and quantitative methods.
**Prerequisites:** ENGL 123

**COMD 363 Communication and Society 3 Credits (3,0)**
An examination of human communication with specific focus on gender and sexuality. Analysis of verbal discourses, non-verbal communication, symbolic imagery and media as means of constructing identity and social norms.

**COMD 364 Visual Design 3 Credits (3,0)**
This course presents principles of visual design applying to print and electronic publications, including unity, emphasis, balance, line, shape, value, color, and texture. Special topics include ethics, typography, semiotics, and layout. Students analyze existing graphical artifacts and create print and electronic projects focused on communicating science and technology, using professional design software.
**Prerequisites:** ENGL 221 ENGL 222 or ENGL 223

**COMD 365 Communication for Resilience 3 Credits (3,0)**
An examination of the role of communication in building resilience from individual to organizational levels, including how communication practices and processes contribute to societal resilience capacity in individuals and groups in various types of crises.

**COMD 415 Nonverbal Communication 3 Credits (3,0)**
Communication behaviors not involving written or spoken words. Personal appearance, vocal qualities, body language including posture, gestures, facial and eye behaviors, the use of space and territoriality, and touch in interpersonal gender and workplace contexts. Research strategies for observing, measuring, analyzing, and understanding nonverbal phenomena.
**Prerequisites:** COMD 219 and ENGL 221 or ENGL 222

**COMD 420 Applied Cross Cultural Communication 3 Credits (3,0)**
Communication across cultures and identities in interpersonal, social, professional, and media contexts. Strategies for cooperation and positive use of cultural differences.

**COMD 460 Crisis Communication 3 Credits (3,0)**
Mastery of writing and speaking genres in media relations with an emphasis on crisis communication.
**Prerequisites:** ENGL 221 or ENGL 222

**COMD 480 Advanced Seminar in Crisis and Risk Communication 3 Credits (3,0)**
An advanced study of risk and crisis communication theory and practice, including organizational strategies, research methods for evaluation, the role of mass media, and ethical issues in risk and crisis communication. Individual independent or directed studies of selected topics.
**Prerequisites:** COMD 460

**COMD 495 Senior Project 3 Credits (3,0)**
One option for the capstone experience for the communication program. Provides students with the opportunity to integrate and exhibit knowledge and communication skills acquired during their program of study. Allows students to select from a number of project options, such as researching, writing, and presenting a conference paper; developing a website; creating and delivering a workshop; engaging in a service-learning project; and conducting an empirical study. Requires students to assemble a professional eportfolio that illustrates the depth and breadth of work completed in the program. Pre-Requisite: Senior status.

# Computer Engineering (CESC)

## Courses

**CESC 220 Digital Circuit Design 3 Credits (3,0)**
Provides a knowledge and facility in logic design, interfacing digital circuits, Boolean algebra, combinatorial logic circuits, circuit minimization techniques, flip-flop storage elements, shift registers, counting devices, sequential logic circuits, state machines and computer structure. Requires concurrent registration in CESC 222 except for Engineering Sciences Major in BS in Technical Management.
**Prerequisites:** ENGR 101 **Corequisites:** CESC 222

**CESC 222 Digital Circuit Design Laboratory 1 Credit (0,1)**
This course enables students to perform laboratory experiments in the measurement and verification of digital circuits, discrete and integrated logic circuit design analysis and measurements.
**Corequisites:** CESC 220

**CESC 300 Computing in Aerospace and Aviation 3 Credits (3,0)**
Computer engineering aspects of systems ranging from embedded sensor and actuator controllers to high-performance computing systems used in air traffic control and weather forecasting; engineering techniques and practices; database, human-computer interaction, and network of systems.
**Prerequisites:** CPSC 223

**CESC 320 Microprocessor Systems 3 Credits (3,0)**
Microprocessor or microcontroller organizations and programming. Members of a current microprocessor or microcontroller family. Assembly language programming techniques for microprocessors or microcontrollers. General purpose input and output, serial communications, and other peripherals. Hardware and software relationships.
**Prerequisites:** CESC 220 **Corequisites:** CESC 322

**CESC 322 Microprocessor Systems Laboratory 1 Credit (0,1)**
Hands-on experience with a microprocessor is provided through weekly experiments involving hardware and software techniques.
**Prerequisites:** CESC 222 **Corequisites:** CESC 320

**CESC 450 Real-Time Embedded Systems 3 Credits (3,0)**
Overview of real-time embedded systems. Concepts of real-time systems from the user and designer viewpoint. The requirements, design, implementation, and basic properties of real-time embedded application software. Related topics: interrupts, concurrent task synchronization, sharing resources, and software reliability.
**Prerequisites:** CPSC 225 and CESC 320

**CESC 470 Computer Architecture 3 Credits (3,0)**
Von Neuman computer architecture, which includes processors, memory, input/ output, and transfer of information; machine language, assembly language, microprogramming, and operating systems; additional topics in advanced computer architecture and computer systems.
**Prerequisites:** CESC 320 and CESC 222

# Computer Science (CSCI)

## Courses

**CSCI 109 Introduction to Computers and Applications 3 Credits (3,0)**
Overview of skills needed for office productive software (word processing, spreadsheets and presentation tools), the structures of computer networking and the utilization of the internet; computer literacy supported through lectures, discussions, and readings on the computer process, the impact of computers on society, emerging technologies, and hardware and software purchasing decisions.

**CSCI 123 Introduction to Computing for Data Analysis 3 Credits (3,0)**
Introduce techniques for turning data into actionable information; utilize advanced features of office productivity tools; modify programming scripts; present data-based information for decision-making. No previous programming experience is required.

**CSCI 251 Introduction to Programming for Data Science 3 Credits (3,0)**
Introduces basic programming concepts needed to format large data sets and complete elementary data analysis on large data sets. Appropriate for students with little to no programming experience.

**CSCI 399 Special Topics in Computer Science 1-6 Credit (1-6,0)**
These are individual independent or directed studies of selected topics in computer science. Consent of the instructor and the department chair is required.

**CSCI 499 Special Topics in Computer Science 1-6 Credit (1-6,0)**
These are individual independent or directed studies of selected topics in computer science. Consent of the instructor and the department chair is required.

# Computer Science Engineering (CPSC)

## Courses

**CPSC 222 Introduction to Discrete Structures 3 Credits (3,0)**
An introduction to the fundamental algebraic, logical, and combinatorial concepts of mathematics that provide a foundation for the study of computer science.

**CPSC 223 Scientific Programming in C 3 Credits (3,0)**
C programming for scientists and engineers. Problem-solving approach for developing algorithms. Data types; input/output; control structures; functions; arrays; files; strings.

**CPSC 225 Computer Science II 3 Credits (3,0)**
Program design, style, data abstraction, information hiding, and testing; advanced programming features. Introduction to object-oriented concepts, basics of algorithm analysis, exception handling, string processing, recursion, pointers, and simple data structures.
**Prerequisites:** CPSC 223

**CPSC 227 Computer Science II Laboratory 1 Credit (0,1)**
Program design, style, data abstraction, information hiding, and testing; advanced programming features. Introduction to object-oriented concepts, basics of algorithm analysis, exception handling, string processing, recursion, pointers, and simple data structures. Laboratory activities dealing with the computing environment, the software development process, and programming exercises.
**Corequisites:** CPSC 225

**CPSC 315 Data Structures and Analysis of Algorithms 3 Credits (3,0)**
Design, implementation, and analysis of algorithms dealing with searching, sorting, graphs, trees, and disk files.
**Prerequisites:** CPSC 222 and CPSC 225

**CPSC 317 Files and Database Systems 3 Credits (3,0)**
Theory of database systems, various database models, and the design of a database system; real-life problems requiring cooperation, problem formulation, and problem-solving skills.
**Prerequisites:** CPSC 222 and CPSC 225

**CPSC 332 Organization of Programming Languages 3 Credits (3,0)**
Study of different programming paradigms; various programming languages; formal language concepts.
**Prerequisites:** CPSC 222 and CPSC 225

**CPSC 335 Introduction to Computer Graphics 3 Credits (3,0)**
Computer graphics, algorithms, graphics programming, graphics design, use of graphic packages, and applications of computer graphics to aviation, business, and scientific problems.
**Prerequisites:** MATH 241

**CPSC 362 Computing Theory 3 Credits (3,0)**
Theoretical foundations of autonomous computation: formal languages, grammars, models of computation, computability, and computational complexity. The relationships between languages, grammars, models of computation; properties of languages and classification in the Chomsky Hierarchy.
**Prerequisites:** CPSC 222

**CPSC 420 Operating Systems 3 Credits (3,0)**
Development, structure, and functions of operating systems; demand service models; development of concurrent models.
**Prerequisites:** CPSC 225

**CPSC 432 Information and Computer Security 3 Credits (3,0)**
Overview of larger context of information security; aspects of personnel and operational security; technical basis and practical difficulties of computing security.
**Prerequisites:** CPSC 420

**CPSC 455 Artificial Intelligence 3 Credits (3,0)**
Artificial intelligence and its application to real-world problems; agent-based systems, problem solving algorithms, expert systems, fuzzy logic, feed forward back propagating artificial neural networks, and ethical issues of intelligent systems.
**Prerequisites:** CPSC 225

**CPSC 462 Computer Networks 3 Credits (3,0)**
Modern computer network analysis and design using a structured approach based on the implementation of the ISO/OSI model and current standardized protocols. Network architectural layers above the physical layer - only a brief overview is presented on the physical layer.
**Prerequisites:** CESC 320

# Cybersecurity (CYBR)

## Courses

**CYBR 235 Computer and Network Technologies 3 Credits (3,0)**
Introduction to the technology that underlies computers and communication networks, Understanding of how computers operate; how users interact with computers; how computers store data; how computers communicate with other computers; the building blocks of communications networks; the Internet, and TCP/IP communications protocols and applications.

**CYBR 335 Information Security Tools and Techniques 3 Credits (3,0)**
Introduction to the tools and techniques used to secure computers; data networks; and digital information. How attackers view and identify vulnerabilities; weaknesses. Methods to attack and secure operating systems; communications infrastructures; and data networks including TCP/IP and the Internet; including attacker applications. Demonstration and hands-on exercises.
**Prerequisites:** CYBR 235

**CYBR 365 Introduction to Digital Forensics 3 Credits (3,0)**
Introduction to the field of digital forensics; its use in gathering evidence; information interpretation for criminal and civil courts; use for intelligence gathering; in research; and incident response. Legal aspects governing search and seizure; the role of file systems and operating systems and how they interrelate; basic tools for computer, network, and mobile forensics acquisition, analysis, and reporting. Demonstration and hands-on exercises.
**Prerequisites:** CYBR 335

**CYBR 465 Cybercrime and Cyberlaw 3 Credits (3,0)**
Types of criminal behavior in cyberspace, such as identify theft, white collar crimes, fraud, child sexual exploitation, intellectual property theft, and online scams. Laws governing cyberspace, defining criminal activity and guiding law enforcement investigations; U.S. decisional law guiding search and seizure of digital devices and information; international laws related to computer crime and privacy.
**Prerequisites:** CYBR 335 and CYBR 365

**CYBR 485 War, Terrorism, and Diplomacy in Cyberspace 3 Credits (3,0)**
Cyberdiplomacy; cyberwar; cyberterrorism, definitions and examples and uses in illegal, violent actions against people for purposes of furthering ideological, economic, or political objectives. Impact of cyberspace on modern views of warfare, terrorism, and diplomacy.
**Prerequisites:** CYBR 465

# Data Science (DSCI)

## Courses

**DSCI 201 Introduction to Data Science Applications 3 Credits (3,0)**
Introduces fundamental Machine Learning data analysis concepts and procedures.
**Prerequisites:** MATH 112 or higher and CSCI 251

**DSCI 310 Data Storytelling 3 Credits (3,0)**
Introduction to tools, topics and best practices in data visualization. Ethical data handling; exploratory and explanatory data visualization techniques for data storytelling; evaluating the graphical design elements of published visualizations. Concepts are presented using real world data.
**Prerequisites:** STAT 211 or 222 with minimum of C

**DSCI 411 Applied Data Science Capstone 3 Credits (3,0)**
Completion of a term-long data project will be supported through work processes that mirror the workplace environment. Peer review and instructor comments will serve to polish each phase of the work. The final report will be written and presented virtually to the class.
**Prerequisites:** CSCI 251 and STAT 320 and DSCI 201 with minimum of C in each

**DSCI 440 Data Mining 3 Credits (3,0)**
Data Mining is to gather, assimilate, and make sense of large amounts of data. The course includes techniques, algorithms, and open-source software to automatically classify data, to discover novel and useful patterns, and to help predict future outcomes.
**Prerequisites:** MATH 243 and CSCI 251

# Economics (ECON)

## Courses

**ECON 210 Microeconomics 3 Credits (3,0)**
This course is an introduction to the economic principles of free enterprise supply and demand, private and social implications of revenue maximization, cost minimization, profit maximization, market structure, and resource markets. Current microeconomic issues in aviation (such as elasticity, pricing, taxes, subsidies, market implications, liability reform, evolution of airline completion, etc.) are discussed.
**Prerequisites:** MATH 111 or MATH 140 or MATH 143 or MATH 241 and ENGL 123 or ENGL 143

**ECON 211 Macroeconomics 3 Credits (3,0)**
This course is an introductory analysis of employment, inflation, recession, GDP economic growth, national income/output and international trade with an emphasis on practical policy alternatives. Macroeconomic aviation applications such as the counter-cyclical growth of start-up airlines and consideration of ATC privatization are incorporated.
**Prerequisites:** MATH 111 or MATH 140 or MATH 143 or MATH 241 and ENGL 123 or ENGL 143

**ECON 225 Engineering Economics 3 Credits (3,0)**
This course is an introduction to microeconomic principles, problems, and policies as well as basic financial principles such as time value of money, capital budgeting, and cost of capital. The course will provide the engineering graduate with the tools needed for success in the workplace.

**ECON 312 Money and Banking 3 Credits (3,0)**
This course is a preliminary investigation of the financial institutions of the US and the relationship of monetary policy to income and price stabilization. Analyses of international capital flows will also be undertaken.
**Prerequisites:** ECON 210 and ECON 211

**ECON 315 Managerial Economics 3 Credits (3,0)**
This course presents an analytical approach to the manager's role in understanding pricing, costing, production and forecasting. This course emphasizes the quantitative and qualitative applications of economic principles to business analysis. Aviation related topics commonly discussed include airport privatization and employee ownership of airlines, forecasting passenger demand, airline production and cost analysis, optimal pricing and production decisions, sensitivity analysis, and capital budgeting.
**Prerequisites:** ECON 210 and STAT 211 or STAT 222

**ECON 399 Special Topics in Economics 1-4 Credit (1-4,0)**
These courses are individual independent or directed studies of combinations of selected topics in economics. Pre-Requisite: Consent of instructor and approval of the department chair.

**ECON 411 International Economics 3 Credits (3,0)**
This course introduces the student to the theories of international macroeconomics. Topics include international trade, comparative advantage, tariffs, quotas, export subsidies, and trade agreements. The course studies and analyzes current issues such as the U.S. trade deficit, harmonization of fiscal and monetary policies among countries, and policies toward multination firms.
**Prerequisites:** ECON 210 and ECON 211

**ECON 420 Economics of Air Transportation 3 Credits (3,0)**
In this course, students will explore the economic aspects of airline service with consideration given to the impact of federal aid and regulation, types of aircraft, airport problems, consumer interests and competitive practices.

**Prerequisites:** ECON 210 and ECON 211

**ECON 450 Econometrics through the Lens of Data Science 3 Credits (3,0)**
Introduction to Econometrics with a focus on leveraging Data Science methodologies. Develops skills in data analysis, interpretation, and critical reflection on analyses conducted in class. Integration of Data Science principles with hands-on experience handling large datasets using programming languages.

**ECON 499 Special Topics in Economics 1-4 Credit (1-4,0)**
These courses are individual independent or directed studies of combinations of selected topics in economics. Pre-Requisite: Consent of instructor and approval of the department chair.

# Electrical Engineering (ELEC)

## Courses

**ELEC 220 Circuits 3 Credits (3,0)**
Introduction of the fundamentals of electrical engineering. Circuit theory and variables. Voltage-current relationship for passive elements. Circuit analysis and network solutions. Phasors and frequency-domain analysis. Transient analysis of first and second order systems. Equivalent circuits and power.
**Prerequisites:** ENGL 221 and MATH 345 and PHYS 250 and PHYS 253
**Corequisites:** ELEC 221

**ELEC 221 Circuits Laboratory 1 Credit (0,1)**
Lab experiments for ELEC 220 using resistors, inductors, capacitors, operational amplifiers, and DC and AC sources. Hardware and Software circuit simulations will be used.
**Corequisites:** ELEC 220

**ELEC 230 Electronics 3 Credits (3,0)**
Diodes Characteristics, and Applications, Full-Wave rectifiers, Half-Wave rectifiers, Switching; Field Effect Transistors (FET); Bipolar Junction Transistors(BJT); Models, Characteristics, Applications, Biasing, DC Analysis, Small Signal Analysis; Operational Amplifiers and Integrated circuits.
**Prerequisites:** ELEC 220 and ELEC 221 **Corequisites:** ELEC 231

**ELEC 231 Electronics Laboratory 1 Credit (0,1)**
Lab experiments for ELEC 230. Using both hardware and software simulations with Diodes, Field Effect Transistors (FET) and Bipolar Junction Transistors (BJT) to design rectifiers, biasing networks, and small signal amplifiers.
**Corequisites:** ELEC 230

# Emergency Management (EMGY)

## Courses

**EMGY 310 Fundamentals of Emergency Management 3 Credits (3,0)**
Phases and functions of emergency management. Historical development of emergency management in the United States; major disaster events; laws and policies for emergency management at local, state, and federal levels. Risk and hazard analysis; emergency management cycle; national preparedness system; all-of-nation and whole-community approaches.

**EMGY 400 Introduction to Incident Command System 3 Credits (3,0)**
The primary focus of this course is to introduce the history, features and principles, and organizational structure of Emergency Management and the Incident Command System (ICS) as a systematic tool used in the command, control, and coordination of emergency response. The course defines and explains the relationship between ICS and the National Incident Management System (NIMS), a standardized approach to incident management developed by the Department of Homeland Security; and the National Response Framework (NRF), a part of the National Strategy for Homeland Security that provides a unified national response to disasters and emergencies.

**EMGY 405 Disaster Policy and Management 3 Credits (3,0)**
Disaster Policy & Management introduces principles of disaster management, the understanding of disaster policy, and the global organization of disaster and crisis public management. This course focuses on disaster management in the United States and its relationship between disaster management and public management; through case studies and other activities students will gain a thorough understanding of national disaster policy and crisis management at all levels of government.

**EMGY 430 Emergency Management and Contingency Planning 3 Credits (3,0)**
Comprehensive overview of emergency management practices in government and private organizations; focus on planning and leadership roles during natural, adversarial, and technological hazards; interaction between government and private organizations; review of the National Response Framework and National Incident Management System; business contingency planning in the private sector.

# Emergency Services (ESVS)

## Courses

**ESVS 201 Fire-Related Human Behavior 3 Credits (3,0)**
An introduction of fire-related human behavior combining disciplines in social sciences and engineering to predict human behavior during fire and other emergencies. Occupant characteristics, social environment, and building characteristics influence how humans react in different situations.

**ESVS 299 Current Topics in Fire and Emergency Services 1-3 Credit (1-3,0)**
These courses consist of individual independent or directed studies of selected topics in Fire science. Pre-Requisite: Consent of Instructor, Approval of Department and Program Chairs, and 12 Hours of ESVS Courses.

**ESVS 301 Community Risk Reduction for the Fire and Emergency Services 3 Credits (3,0)**
This course provides a theoretical framework for the understanding of the ethical, sociological, organizational, political, and legal components of community risk reduction, and a methodology for the development of a comprehensive community risk reduction plan.

**ESVS 302 Fire Dynamics 3 Credits (3,0)**
This course examines fire dynamics within the context of firefighting and its applications to fire situations, including combustion, flame spread, flashover, and smoke movement, as well as applications to building codes, large-loss fires, and fire modeling.

**ESVS 303 Fire Protection Structures and Systems 3 Credits (3,0)**
This course examines design principles involved in structural fire protection and automatic suppression systems, including fire resistance and endurance, flame spread evaluation, smoke control, alarm systems, sprinkler innovations, evaluation of sprinkler system designs, and specialized suppression systems.

**ESVS 304 Fire Investigation and Analysis 3 Credits (3,0)**
This course examines technical, investigative, legal, and managerial approaches to the arson problem, including principles of incendiary fire analysis and detection, environmental and psychological factors of arson, gang-related arson, legal considerations and trial preparations, managing the fire investigation unit, intervention and mitigation strategies, and shaping the future.

**ESVS 305 Fire Prevention Organization and Management 3 Credits (3,0)**
Factors influencing fire risk and tools for prevention: risk reduction education, codes and standards, inspection, research, master planning.

**ESVS 399 Current Topics in Fire and Emergency Services 1-3 Credit (1-3,0)**
These courses consist of individual independent or directed studies of selected topics in Fire science. Prerequisites: Consent of Instructor, Approval of Department and Program Chairs, and 12 Hours of ESVS Courses.

**ESVS 400 Analytical Approaches to Public Fire Protection 3 Credits (3,0)**
This course examines the tools and techniques of rational decision making in fire and emergency services agencies, including data collection, statistics, probability, decision analysis, utility modeling, resource allocation, and cost-benefit analysis.

**ESVS 401 Applications of Fire Research 3 Credits (3,0)**
This course examines the basic principles of research and methodology for analyzing current fire-related research. The course also provides a framework for conducting and evaluating independent research in the following areas: fire dynamics, fire test standards and codes, fire safety, fire modeling, structural fire safety, life safety, firefighter health and safety, automatic detection and suppression, transportation fire hazards, risk analysis and loss control, fire service applied research and new trends in fire-related research.
**Prerequisites:** RSCH 202

**ESVS 402 Fire and Emergency Services Administration 3 Credits (3,0)**
This course is designed to be a progressive primer for students who want more knowledge about fire and emergency services administration. The course demonstrates the importance of the following skills, necessary to manage and lead a fire and emergency services department through the challenges and changes of the 21st century: Persuasion and influence, accountable budgeting, anticipation of challenges and the need for change, and using specific management tools for analyzing and solving problems. A central part of the course focuses on how the leadership of a fire and emergency services department develops internal and external cooperation to create a coordinated approach to achieving the department's mission.

**ESVS 403 Disaster Planning and Control 3 Credits (3,0)**
This course examines concepts and principles of community risk assessment, planning, and response to fires and natural and human-caused disasters, including National Incident Management System--Incident Command Systems (NIMS ICS), mutual aid and automatic response, training and preparedness, communications, civil disturbances, terrorist threats/incidents, hazardous materials planning, mass casualty incidents, earthquake preparedness, and disaster mitigation and recovery.

**Prerequisites:** RSCH 202

**ESVS 404 Managerial Issues in Hazardous Materials 3 Credits (3,0)**
This course presents current issues in management of a department-wide hazardous materials program. It includes issues that are pertinent to officers and managers in public safety departments, including regulations and requirements for hazardous materials (HAZMAT) preparedness, response, storage, transportation, handling and use, and the emergency response to terrorism threat/incident. Subjects covered include State, local and federal emergency response planning, personnel and training, and operational considerations such as determining strategic goals and tactical objectives.

**ESVS 405 Personnel Management for Fire and Emergency Services 3 Credits (3,0)**
This course examines relationships and issues in personnel administration and human resource development within the context of fire-related organizations, including personnel management, organizational development, productivity, recruitment and selection, performance management systems, discipline, and collective bargaining.

**ESVS 406 Political and Legal Foundations of Fire Protection 3 Credits (3,0)**
This course examines the legal aspects of the fire service and the political and social impacts of legal issues. This course includes a review of the American legal system and in-depth coverage of legal and political issues involving employment and personnel matters, administrative and operational matters, planning and code enforcement, and legislative and political processes with regard to the fire service.

**ESVS 480 Advanced Principles in Fire and Emergency Services Safety and Survival 3 Credits (3,0)**
This course examines the 16 Firefighter Life Safety Initiatives (FLSI)--what they mean and how they can be adapted by every fire and emergency service organization. The 16 FLSI were developed by the National Fallen Firefighters Foundation (NFFF) with the support and consultation of virtually every major United States fire service organization. The goal of this course, set at the supervisory and managerial level, is to formulate and put into practice health and safety procedures that address firefighter injuries and fatalities. The course will also focus on the need for a culture change, especially regarding how decisions made at the managerial and operational levels can exert influence to ensure that "everyone goes home".

**ESVS 499 Current Topics in Fire and Emergency Services 1-3 Credit (1-3,0)**
These courses consist of individual independent or directed studies of selected topics in Fire science. Pre-Requisite: Consent of Instructor, Approval of Department and Program Chairs, and 12 Hours of ESVS Courses.

# Engineering (ENGR)

## Courses

**ENGR 101 Introduction to Engineering 3 Credits (3,0)**
A project-based, design experience for engineering majors. Introduces the interdisciplinary aspects of engineering through team projects. Pre-Requisite: or qualifying score on the mathematics skills assessment
**Prerequisites:** MATH 142 or MATH 143 or qualifying score on the mathematics skills assessment

**ENGR 115 Introduction to Computing for Engineers 3 Credits (3,0)**
An introductory course in computer programming for scientists and engineers. Introducing aspects of algorithm design and software development including specification of the problem, design of a solution, implementation of code, and testing.
**Prerequisites:** ENGR 101

**ENGR 120 Graphical Communications 3 Credits (3,0)**
Hand-sketched drawings; 3D CAD generated part models and assemblies; ANSI-standard engineering part and assembly drawings, engineering lettering, line types, orthographic projection, isometric, and special views, dimensions and tolerances.
**Prerequisites:** ENGR 101

**ENGR 330 Signals & Systems 3 Credits (3,0)**
Signal representations; response due to various inputs: using convolution, Fourier series, Fourier transforms, Laplace transforms, Z-transform; filter design.
**Prerequisites:** ELEC 220 **Corequisites:** ENGR 331

**ENGR 331 Signals & Systems Laboratory 1 Credit (0,1)**
Lab for ENGR 330. The student will gain hands-on experience with programming in MATLAB. MATLAB will enable the students to link the theory they will gain in ENGR 330 to real software implementations. The lab will cover convolution, Fourier series, Fourier transforms, Laplace transforms, Z-transform, and filter design.
**Corequisites:** ENGR 330

**ENGR 350 Project Management for Engineered Systems 3 Credits (3,0)**
Students will study systems thinking and lifecycle considerations in the completion of project initiation, planning, monitoring, control, and closeout activities for engineering systems. Additional topics include various roles in engineering project teams, effective communication and systematic planning and evaluation of project activities, costs, quality, risks and performance.
**Prerequisites:** ENGR 120 and ECON 225

**ENGR 400 Fundamentals of Energy Systems 3 Credits (3,0)**
Single phase power, three phase power, magnetics circuits, transformers, DC machines, induction motors and synchronous machines, introduction to alternative energy, computer based projects will be assigned.
**Prerequisites:** PHYS 160 and ENGR 330

**ENGR 404 Mechatronics 3 Credits (3,0)**
This course is an introduction to mechatronics with emphasis on integration of mechanical, electrical, and computer systems. Topics include the applications and interfacing of microcontrollers, sensors, actuators, and other electrical components commonly used in smart electromechanical devices.
**Prerequisites:** ELEC 220 and ELEC 221 and ELEC 230 and ELEC 231
**Corequisites:** ENGR 405

**ENGR 405 Mechatronics Laboratory 1 Credit (0,1)**
This course is the Lab component for ENGR 404 with the emphasis on interfacing of microcontrollers, sensors, actuators, and other electrical components. It focuses on the hands-on part of mechatronic system. Topics include the programming skills of microcontroller unit used for sensors, actuators, and integrated systems.
**Corequisites:** ENGR 404

**ENGR 450 Systems and Controls 3 Credits (3,0)**
This course is a continuation to ENGR 330 and ENGR 331 (Signals and Systems & Signals and Systems Laboratory) and will focus on the design of controllers for dynamic interdisciplinary engineering systems. Classical and modern control using state space in time and frequency domains will be covered. Digital control, optimal control, and observability and controllability will be introduced. Matlab and Simulink will also be used throughout the course.
**Prerequisites:** ENGR 330

**ENGR 490 Capstone Design Project I 3 Credits (3,0)**
The first of two courses intended to provide senior level engineering students with experience in the multiple phases of a design project. This course will focus on the system requirements definition, exploration of the design space, and development of a conceptual design of a team project. Students will develop a preliminary design of the selected system design concept using computer based design and analysis tools. Pre-Requisite: All courses in the BSE program as published in the Suggested Plan of Study must be completed with the exception of those identified in Terms 3 and 4 of the Senior year.

**ENGR 491 Capstone Design Project II 3 Credits (3,0)**
The final course in the capstone design sequence. Students will conduct a detailed design of the final project as well as conduct verification and validation exercises to demonstrate how the system performed when compared to system specifications and user requirements.
**Prerequisites:** ENGR 490

# Engineering Science (ESCI)

## Courses

**ESCI 201 Statics 3 Credits (3,0)**
Analysis of static equilibrium problems in a logical manner, Performing basic vector operations, Calculation of force resultants, Drawing free body diagrams, analysis of trusses, frames, and simple machines and calculation of internal shear and bending moment in beams.
**Prerequisites:** PHYS 150 and ENGR 101

**ESCI 202 Solid Mechanics 3 Credits (3,0)**
The concepts of stress and strain and their tensor properties. Elastic stress strain relations. Analysis of stress and deformation in members subject to axial, torsional, bending and combined loading. Column stability.
**Prerequisites:** ESCI 201

**ESCI 204 Dynamics 3 Credits (3,0)**
A vector treatment of the kinematics and kinetics of particles and rigid bodies. Acceleration, work, energy, power, impulse, and momentum.
**Prerequisites:** ESCI 201 and MATH 242

**ESCI 206 Fluid Mechanics 3 Credits (3,0)**
Physical characteristics of the fluid state. Fluid statics. Kinematics of fluid motion. Flow of an incompressible ideal fluid. The impulse-momentum principles. Similitude and dimensional analysis; fluid measurements.
**Prerequisites:** ESCI 201 and PHYS 160

**ESCI 305 Thermodynamics 3 Credits (3,0)**
This course is a study of the concepts of heat and work and their transformation as governed by the first and second laws of thermodynamics. Topics discussed include properties of pure substances, ideal gas behavior and relationships, reversible processes and temperature- entropy diagrams, conventional power cycles, properties of ideal gas mixtures and combustion.
**Prerequisites:** ESCI 206 and MATH 345

**ESCI 325 Engineering Materials and Structures 3 Credits (3,0)**
This course is an introduction to major classes of materials (such as metal alloys and composites) used in aerospace engineering applications. Students will explore fundamental deformation mechanisms of high use alloys (such as titanium) and how composite materials enable directional tailoring of material and structural properties.
**Prerequisites:** ENGL 221 and ESCI 202 and ESCI 305

# Engineering Technology (ETEC)

## Courses

**ETEC 310 Material Science for Engineering Technology 3 Credits (3,0)**
Introduction to material science and engineering. Major material classes; development of materials from processing, structure, properties, and performance.
**Prerequisites:** CHEM 110 and PHYS 160 and ESCI 202

**ETEC 315 Circuits for Engineering Technology 3 Credits (3,0)**
DC and AC circuits. Circuit analysis techniques for current, voltage, and power calculations. Three-phase transmission lines, AC transformers. Circuit analysis through linear algebra and calculus.
**Prerequisites:** MATH 242 and CESC 222 **Corequisites:** ETEC 316

**ETEC 316 Circuits Laboratory for Engineering Technology 1 Credit (0,1)**
Laboratory course for ETEC 315. Hardware and software simulation of DC and AC circuits, transformers, 3-phase circuits.
**Corequisites:** ETEC 315

**ETEC 409 Applied Aeronautics 3 Credits (3,0)**
Application of aerodynamics, performance, and stability. Airfoil and wing theory; lift and drag generation; high-lift systems; propeller performance; Reynolds number and Mach number effects; aircraft performance during different stages of flight; weight and balance effects on stability.
**Prerequisites:** ASCI 309 and ENGR 115 and MATH 241

**ETEC 410 Thermodynamics for Engineering Technology 3 Credits (3,0)**
Comprehensive review of thermodynamics. Heat, work, and kinetic theory of gases; equation of state; thermodynamic systems; control volume; first and second laws of thermodynamics; reversible and irreversible processes; basic thermodynamic cycles.
**Prerequisites:** ESCI 206

**ETEC 415 Control Systems 3 Credits (3,0)**
Analysis of closed loop systems. Frequency response, root locus, and state variable techniques; analytic and computer methods; continuous and discrete linear systems.
**Prerequisites:** ESCI 204 and ETEC 315

**ETEC 490 Engineering Technology Capstone I 3 Credits (3,0)**
First senior design course for engineering technology students. Design project definition; conceptual design; preliminary design.
**Prerequisites:** ENGR 115 and ENGR 120 and ETEC 310 and ETEC 410 and ETEC 415 and ECON 210 or ECON 211 or ECON 225

**ETEC 491 Engineering Technology Capstone II 3 Credits (3,0)**
Second senior design course for engineering technology students. Detailed design; test design against project requirements.
**Prerequisites:** ETEC 490

# English (ENGL)

**(Communication Theory & Skills)**

*Review the ERAU Worldwide English placement policy under the* Skills Assessments *section of the Worldwide Catalog.*

## Courses

**ENGL 104 Basic English 1 Credit (1,0)**
Emphasis in the course is placed on improving conceptual and organizational skills, grammar, spelling, capitalization, punctuation, and word choice. Students will also practice arranging ideas and supporting details in logical order, identifying topic and thesis statements, recognizing errors in pronoun usage, using verb tenses correctly, recognizing parallel structures and misplaced modifiers, and using coordination and subordination effectively. Students will also complete a variety of writing assignments. They will practice editing and revising paragraphs before submitting them for a grade, making corrections in sentence structure, content and rhetoric. The culmination of the course is applying learned skills to a final essay. This course cannot be used to satisfy credit for General Education requirements.

**ENGL 106 Introduction to Composition 3 Credits (3,0)**
This course focuses on the basic principles of unity, support, and coherence as applied to the writing of a variety of paragraphs and essays. Grammar, mechanics, punctuation, sentence skills and basic writing skills are emphasized. Pre-Requisite: Qualifying score on the ERAU English Skills Assessment or course listed.
**Prerequisites:** ENGL 104

**ENGL 123 English Composition 3 Credits (3,0)**
Adapting communication in response to diverse audiences, purposes, and contexts through rhetorical thinking; addresses composing processes, critical thinking, research, analysis, and documentation. Pre-Requisite: Qualifying score on the ERAU English Skills Assessment or course listed
**Prerequisites:** ENGL 106

**ENGL 143 Introduction to Rhetoric 3 Credits (3,0)**
Fundamentals of rhetorical theory and practice: nature of audiences, history, and application of rhetorical concepts, analysis of persuasive techniques, and the continual re-framing of these issues to meet changing circumstances.
**Prerequisites:** ENGL 123

**ENGL 221 Technical Report Writing 3 Credits (3,0)**
This course introduces students to the preparation of formal and informal technical reports, abstracts, proposals, instructions, professional correspondence and other forms of technical communication. Major emphasis is placed on the long technical report and the acquisition of advanced writing skills.
**Prerequisites:** ENGL 123

**ENGL 222 Business Communication 3 Credits (3,0)**
This course is an introduction to effective business communication. Topics in oral, written, non-verbal and intercultural communications are covered. Research methods, effective speaking and the preparation of letters, memoranda and reports are emphasized.
**Prerequisites:** ENGL 123

**ENGL 223 Collaborative Writing & Presenting 3 Credits (3,0)**
This course is a study of collaborative writing and presenting with an emphasis on best practices for team formation, management, and collaboration on planning, composing, and editing documents and presentation materials. Additionally, students will work through team challenges and group conflict scenarios, individual and group reflection, and peer evaluation.
**Prerequisites:** ENGL 123

**ENGL 355 Creative Writing 3 Credits (3,0)**
This course culminates the interpretive and expressive elements of communications classes. The study, practice and utilization of a personal style of creative composition, examples of contemporary literature and submittal of publications are included in this course.
**Prerequisites:** ENGL 123

# Finance (FINE)

## Courses

**FINE 332 Corporate Finance I 3 Credits (3,0)**
Finance functions as used by management including financial analysis and control, financial planning, short and long-term financings, risk and return relationship, capital investment evaluation, cost of capital, and risk in planning financial strategies. Aviation-related businesses are emphasized.
**Prerequisites:** ACCT 210

**FINE 333 Personal Financial Planning 3 Credits (3,0)**
Personal financial planning is examined. Areas of concentration include preparation of financial planning and budgeting, tax-related issues, managing cash and credit, analyzing investment decisions, purchasing process of housing and auto, analysis of insurance needs, and retirement and estate planning.

**FINE 418 Airport Administration & Finance 3 Credits (3,0)**
Know how the airport industry is structured. Popular ideas about operating costs and profitable airports; airport-airline connection; economic impact of airports; passengers' and airlines' demands; use of financial statements (F/S) of airport operators; current trends and issues for airport administrators.
**Prerequisites:** FINE 332 and MGMT 408 and MKTG 311

# Government (GOVT)

**(Social Sciences)**

## Courses

**GOVT 320 American National Government 3 Credits (3,0)**
This course covers basic issues of American democracy, constitutional principles, and the executive, legislative, and judicial branches of government.

**GOVT 325 International Studies 3 Credits (3,0)**
An overview of the land, the people, the culture, and the history of one region of the world, this course emphasizes current events and policies on the global scene. Specific content varies from year to year.

**GOVT 331 Current Issues in America 3 Credits (3,0)**
This is a course in selected political-economic issues of national and international importance. It includes extensive use of journals, magazines and newspapers to supplement lectures and discussions.

**GOVT 340 U.S. Foreign Policy 3 Credits (3,0)**
A survey of the evolution of present American foreign policy, stressing the factors that affect and shape this policy. Attention is given to present governmental offices, agencies, and departments and the role each plays in policy formulation and implementation. Emphasis is on the period since World War II.

**GOVT 363 Inter-American Relations 3 Credits (3,0)**
This course explores the development of U.S. political and economic relations with Latin America from their beginnings in the 19th century to present.

**GOVT 401 American Constitutional Law 3 Credits (3,0)**
Rights and liberties of the individual through the study of the United States Constitution. American constitutional law, government powers; separation of powers (federal government); federalism; Bill of Rights and its place in American Democracy as interpreted by the U.S. Supreme Court.

**GOVT 402 Globalization and World Politics 3 Credits (3,0)**
This course is a study of globalization and world politics. Key topics include but are not limited to problems of definition in globalization; transborder issues and the role of the state; multinational corporations; labor and the terms of international trade; issues of environmental degradation; international organizations and nongovernment organizations in global affairs; terrorism, global crime, and international security, human rights, democracy and cultural nationalism; technology and global communication.

# History (HIST)

**(Social Sciences)**

## Courses

**HIST 119 U.S. History to 1865 3 Credits (3,0)**
U.S. history from the age of exploration to 1865. European conquest and colonization; revolution and nation-building; the market revolution; nationalism and sectionalism; slavery; the Jacksonian era; western expansion; religion and reform; the Civil War.

**HIST 130 History of Aviation in America 3 Credits (3,0)**
A survey of the history of America in the 20th century, the course emphasizes the explosive growth of aviation as a major influence upon the economic, military, and societal development of the United States.

**HIST 299 Special Topics in History 1-6 Credit (1-6,0)**
Individual independent or directed studies of selected topics in the humanities.

**HIST 302 Evolution of Scientific Thought 3 Credits (3,0)**
This course traces the development of science from the earliest times through the modern period, with particular emphasis given to our changing concepts of nature and of science itself.

**HIST 310 History of Space Exploration 3 Credits (3,0)**
Evolution of space exploration from early astronomy to modern spaceflight. Contributions of Copernicus, Galileo, and Kepler; development of rocketry; Cold War competition and the Space Race; Apollo missions; space shuttle programs. Rise of international collaboration and commercial space ventures; ethical and philosophical implications of space exploration.

**HIST 331 Moments of Crisis in U.S. Military History 3 Credits (3,0)**
Course topics are related to the evolution of the US military from colonial times to present day. Examination of major conflicts; mobility and intelligence; the military and politics; impact of technology on the military; force on force versus insurgencies; the military industrial complex.
**Prerequisites:** ENGL 123 or ENGL 221

# Homeland Security (HLSD)

## Courses

**HLSD 110 Introduction to Homeland Security 3 Credits (3,0)**
Introducing the multidisciplinary approach to protecting and defending America. Knowledge domains of intelligence, emergency management, law and policy, critical infrastructure and resilience, strategic planning and decision-making, terrorism, cyberspace, human and environmental security, risk analysis and management, and professionalism.

**HLSD 155 Foundations of Information Security 3 Credits (3,0)**
Survey of the broad field of cyber-security and information assurance. Definition of information security; the need for this field of study; ethical and legal issues; risk management and planning; and information security technology; role of the U.S. Department of Homeland Security (DHS) in securing the cyberspace and the nation's information-related infrastructures.

**HLSD 215 Introduction to Industrial Security 3 Credits (3,0)**
This course will review the fundamentals of security and emergency planning and management. The nature, scope, history, and essential elements of security in the workplace are discussed with emphasis on personal protection and to a limited extent property protection. The workplace will include selected aviation and industrial settings. Operational aspects of security that include strategies for identifying and controlling security exposures and applicable legal issues are also discussed. Students develop and/or evaluate security programs for selected industries.
**Prerequisites:** HLSD 110

**HLSD 280 Professional Skills in Homeland Security 3 Credits (3,0)**
Business and professional skills to begin a career in homeland security. Ethics, program management, leadership, and professionalism in homeland security. Personality evaluations, cover letter and resume preparation, interviewing skills, and winning internships.

**HLSD 290 Environmental Security 3 Credits (3,0)**
Students will learn how environmental issues may give rise to sociopolitical instability around the world. This course will explore how the development and execution of U.S. domestic and foreign policy, and ultimately U.S. national security, can be impacted by emerging threats to nations from environmental health issues, infrastructure vulnerabilities, and natural resource shortages caused by rapid industrialization, population growth, and urbanization in less developed countries. It will also examine transnational threats from ozone depletion, deforestation, and climate change. In a seminar format, students and faculty will cover a variety of readings and discuss their conclusions. Students will have the opportunity to lead class discussions on assigned readings.
**Prerequisites:** HLSD 110

**HLSD 315 Critical Infrastructure Security, Resilience, and Risk Analysis 3 Credits (3,0)**
Critical infrastructure security, resilience, and risk analysis. History and evolution of critical infrastructure on both public and private levels. Federal definitions, sector identification, composition and characteristics of critical infrastructure, as expressed in formal documents (Stafford Act, PDD-63; HSPD-7, PPD-21) and within the private sector. The public-private partnership approach between infrastructure sectors, and sector-specific plans, critical infrastructure in a global context. Definition and role of resilience in critical infrastructure planning and disaster mitigation, response, and recovery. Complete a project involving an in-depth review and presentation of a critical infrastructure sector. Additionally, the concept of risk analysis as a means by which resources and assets are allocated to critical infrastructure(s). Complete a group project utilizing a qualitative risk assessment methodology. Risk fundamentals, network theory, continuity of business planning, and cost-benefit analysis. A formal risk analysis report will be completed at the conclusion of the project and an oral presentation will be delivered. Role of risk in the overall mission of the Department of Homeland Security, to include the National Infrastructure Protection Plan (NIPP). Successful completion of a FEMA on-line certification on the NIPP.
**Prerequisites:** HLSD 110 and HLSD 215

**HLSD 320 Homeland Security Law and Policy 3 Credits (3,0)**
Key legal, policy, and ethical issues in the context of Homeland Security policy and practice. Examine legal concepts regarding the constitutional rights of individuals, legal process, access to courts, intelligence, the law of conflict, and national security principles as they relate to homeland security legislation and policy initiatives.
**Prerequisites:** HLSD 110

**HLSD 360 Strategic Planning and Decision Making in Homeland Security 3 Credits (3,0)**
Concepts of and techniques for strategic communication related to decision-making: Defining an organization's strategy (a longterm plan of action designed to achieve a particular goal or objective) or direction and making decisions on allocating its resources to pursue this strategy, including its capital, its technology, and its human resources. Nature of strategic planning as it relates to homeland security. Strategic planning in relations to decision-making in more stable environments as well as under uncertainty. Relevant legislation and past decisions will be explored.
**Prerequisites:** HLSD 110

**HLSD 405 Emergent Topics in Homeland Security 3 Credits (3,0)**
Multiple learning opportunities for students in either the terrorism or the emergency management area of concentration. Advanced readings in current/emerging topics specific to a given area of concentration. Articles, case studies, and talking points that each student will read and be prepared to discuss in class. In addition, the concept of business continuity planning. Student-led scholarly discussion of a topic assigned to him/her. Domestic and foreign policy implications.
**Prerequisites:** HLSD 110

**HLSD 410 Exercise Design and Evaluation in Homeland Security 3 Credits (3,0)**
Principles and structure of exercise design and evaluation in homeland security and emergency management. Discussion-based and operations-based exercise types based upon current national directives, capability-building, interagency coordination, and preparedness strategies. Applicable legislative and policy frameworks. Designing, facilitating, and evaluating exercises aligned with current standards.
**Prerequisites:** EMGY 310 and HLSD 315

**HLSD 415 Immigration and Homeland Security 3 Credits (3,0)**
This course overviews the key historical, legal, and current debates in the context of Immigration and Homeland Security. Students examine the history of U.S. immigration, immigration policies including border security and deportation policy, nativism and xenophobia, the role of globalization on migration, and undocumented immigrants and immigrant rights.
**Prerequisites:** HLSD 110

**HLSD 495 Homeland Security Capstone 3 Credits (3,0)**
Integration of homeland security knowledge through a final project. Grant proposal, real client project, or internship. Scope definition, client engagement, ethical considerations, and professional communication. Emphasizes theory-practice integration and application of technology to current and emerging homeland and global security challenges.

# Honors Seminar (HONR)

## Courses

**HONR 150 Honors Seminar I 3 Credits (3,0)**
This course is open only to students enrolled in the Honors Program, and will satisfy the lower level Humanities requirement in general education. An interdisciplinary course, it focuses on aesthetic, philosophical, and historical aspects of a subject, making use of text materials from several disciplines and varied media. The course also emphasizes student participation in a seminar discussion format and requires that students develop their research, critical thinking, and oral and written communication abilities. Requirements will include (but will not be limited to) text and web-based original research, written essays, oral presentations, and participation in group discussion. Topics may vary according to instructor. Pre-Requisite: Admission to Honors Program.

**HONR 250 Honors Seminar II 3 Credits (3,0)**
This course is intended to satisfy the lower-level Social Sciences requirement in general education. The course focuses on material pertinent to one or more disciplines within the broad arena of the Social Studies. Specific emphases will vary by instructor. The course also emphasizes student participation in a seminar discussion format and requires that students develop their research, critical thinking, and oral and written communication abilities. Requirements will include (but will not be limited to) test and Web-based original research, written essays, oral presentations, and participation in group discussion. Pre-Requisite: Admission to Honors Program.

**HONR 350 Honors Seminar III 3 Credits (3,0)**
Honors Seminar III will satisfy either the Humanities or the Social Sciences upper-level elective requirement in general education. Building on the previous two Honors seminars, it will require students to further develop their ability to locate and assess primary and secondary research materials, to present effective verbal and written presentations that display more sophisticated research and presentational sensibilities, and to engage in discussion that is rooted in close reading of assigned and unassigned material. Whatever the specific course topic, the seminar will be an interdisciplinary exploration of the subject; will emphasize student participation in focused class discussion; and will foster further development of research, critical thinking, and oral and written communication abilities. Topics vary by instructor. Pre-Requisite: Admission to Honors Program.

# Human Factors Psychology (BSHF)

## Courses

**BSHF 300 Human Factors I: Principles and Fundamentals 3 Credits (3,0)**
This course is intended to provide the student with an understanding of the basic principles of Human Factors Psychology. We will study the research, principles, and methods that are beneficial (and essential) in optimizing the interaction between people and machine elements of a system, while taking the environment into account.
**Prerequisites:** PSYC 220

**BSHF 302 Human Factors II: Analytic Methods and Techniques 3 Credits (3,0)**
Engineering and behavioral analytic methods and techniques; theoretical concepts and required tools needed within the Human Factors discipline; process and system design or redesign of an existing system and process.
**Prerequisites:** BSHF 300

**BSHF 307 Human Factors III: Performance Processes 3 Credits (3,0)**
Intermediate and advanced processes and knowledge within the domain of human factors. Human and system performance measurement; design evaluation practices. Contributes to core course series providing a set of knowledge, skills, and abilities endemic to a human factors practitioner.
**Prerequisites:** BSHF 300 and BSHF 302

**BSHF 310 Human Computer Interaction 3 Credits (3,0)**
Basic principles and practices involved in the design and evaluation of human-computer interfaces.
**Prerequisites:** BSHF 300

**BSHF 315 Automation and System Issues in Aviation 3 Credits (3,0)**
This course will involve analyzing and discussing the most current issues relevant to the new generation of aviation systems. Assumptions on which current systems are based will be identified and alternatives examined.
**Prerequisites:** BSHF 300

**BSHF 320 User Experience/User Interaction 3 Credits (3,0)**
Introductory course on User Experience metrics and methods; analysis of positive/negative user design, hands-on experience with the methods; conducting industry-style projects.
**Prerequisites:** BSHF 300

**BSHF 401 Applied Research 3 Credits (3,0)**
Examining the conduct of human factors research. Identifying the relationship between theory and research methods as it applies to human factors and systems design; discussing the logic of research methodology for empirical research; analyzing how to interpret data from existing research for decision making in human factors and system design in aviation and aerospace domains.
**Prerequisites:** BSHF 300 and PSYC 220

**BSHF 480 Human Factors Capstone 3 Credits (3,0)**
Supervised applied practicum experience via co-ops, internships, internal research projects, or working on an externally-based, applied research project.
**Prerequisites:** BSHF 300 and BSHF 401

# Human Resources Management/ Development (HRMD)

## Courses

**HRMD 314 Human Resource Management 3 Credits (3,0)**
A comprehensive overview of relevant principles, processes, and practices as applied in organizations with focus on effectively managing human resources (HR) theories, philosophies, and functions; An in-depth study of the interrelationship of managers, organizational staff and/or specialists; Areas of concentration include human resource planning; recruitment and selection; training and development; compensation and benefits; safety and health; international HR, and managing HR in small and entrepreneurial firms.
**Prerequisites:** MGMT 201

**HRMD 324 Aviation Labor Relations 3 Credits (3,0)**
An investigation of labor-management relations with applications to the aviation and aerospace industries. Historical development of management-workforce public policy and laws. Current methodologies, processes and tools used to promote cooperative workforce relations, to resolve workforce conflicts, and to promote employee trust in high reliability organizations.
**Prerequisites:** MGMT 201

**HRMD 482 Human Resources Training and Development 3 Credits (3,0)**
This course introduces the student to the roles of training and development in the growth and success of organizations. Students will learn about current developments in training, research, and in practice, including the strategic role of training and the use of new technologies in training. The use of the ADDIE model, a systematic instructional design model, will provide a framework for effective training including (1) Analysis, (2) Design, (3) Development, (4) Implementation, and (5) Evaluation. Course material will delve into such specifics as needs assessment, learning and transfer design, employee development and career management.
**Prerequisites:** MGMT 201

**HRMD 483 Compensation and Benefits 3 Credits (3,0)**
This course introduces the student to the theoretical and practical bases of compensation and benefits. Importance will be placed on strategic role; in other words, how pay decisions help the organization achieve a competitive advantage and its goals. This course includes a systematic review and analysis of organizational reward systems. Total compensation systems include the environment as well as the impact of intrinsic rewards on employee motivation. Job analysis and performance appraisal will also be given emphasis.
**Prerequisites:** MGMT 201

**HRMD 495 Staffing and Workforce Planning 3 Credits (3,0)**
This course is designed to provide an overview of the strategic planning processes by which organizations staff positions with both internal and external applicants. The course's concentration will focus on the identifying and utilizing of forecasting tools involving personnel needs, recruitment strategies, and various applicant screening and interviewing techniques. Discussion topics will also include key legal compliance issues, HRM planning, job/competency analysis, engaging in an active diverse staffing pool, and the retention of personnel.
**Prerequisites:** MGMT 201

# Humanities (HUMN)

## Courses

**HUMN 142 Studies in Literature 3 Credits (3,0)**
This course emphasizes writing, reading and appreciation skills. Reading materials include selected novels, poems and plays.
**Prerequisites:** ENGL 123

**HUMN 154 Artificial Intelligence Rhetorics 3 Credits (3,0)**
Cultural and rhetorical study of artificial intelligence (AI) systems, especially chatbots. Theories of rhetoric and AI technology in relation to topics such as identity, gender, posthumanism, and culture.

**HUMN 200 Warriors in World Literature 3 Credits (3,0)**
Classic epics from a range of national literatures. May include Gilgamesh, Beowulf, the Song of the Volsungs, Sundjata. Exploration of the purposes of the genre within specific societies and time periods. Examples of contemporary reinterpretations.
**Prerequisites:** ENGL 123

**HUMN 210 World Culture 3 Credits (3,0)**
This course focuses on the cultural development of world societies including but not limited to religious, social, political, and philosophical arenas as all apply to contemporary circumstances. Skills emphasized are: comprehensive comparative reading, analysis and critiques, and writing.
**Prerequisites:** ENGL 123

**HUMN 213 Introduction to Islamic Studies 3 Credits (3,0)**
This interdisciplinary course will provide students with a broad overview of Islamic history and contemporary culture. It will explore the social and cultural conditions of pre-Islamic Arabia, the foundational teachings of Islam, the history and aesthetic form of the Quran, the biography and sayings of Muhammad and the relationship between Muhammad's biography and contemporary Islamic practices, including the daily rituals, modes of dress and gender norms variously observed in societies where Islam is predominant. The course will culminate with an exploration of specific cultural and social issues facing contemporary Muslims, including the role of women in public space, the separation between religion and politics, and religious violence. Skills emphasized will be: comprehensive comparative reading, analysis, and writing.
**Prerequisites:** ENGL 123

**HUMN 220 Asian Studies 3 Credits (3,0)**
This course will provide an overview of the historical and contemporary cultures found across Asia, for any student interested in the diversity of human experiences found across the largest continent in the world. Drawing on a variety of humanistic and social science disciplines, this course explores the influence of history, politics, and religion, among other topics, on contemporary Asian cultures.
**Prerequisites:** ENGL 123

**HUMN 240 History of Communication Technologies 3 Credits (3,0)**
A survey of the technologies humans have used to record and transmit their ideas and experiences, with an emphasis on major advancements in communication technology (e.g., cuneiform, the printing press, and hypertext and networked communication). Exploration of the cultural and social conditions of these technologies in order to evaluate the tools used to communicate and consider how material form shapes the production, transmission, and reception of messages.
**Prerequisites:** ENGL 123

**HUMN 241 Introduction to Digital Humanities 3 Credits (3,0)**
A survey of the field of digital humanities and its history, methods and theoretical approaches. The creation of humanities resources using digital tools and exploration of various forms of publishing, design, and research.

**HUMN 250 Generative Artificial Intelligence in Real-World Contexts 3 Credits (3,0)**
Foundational principles and methodologies surrounding generative Artificial Intelligence (AI), including application in real-world contexts and decision-making. Awareness of the ethical considerations and potential biases inherent in AI technologies. Responsible usage and sensitivity to societal impacts.

**HUMN 256 Baseball History and Statistics 3 Credits (3,0)**
Examines the history of baseball, from the sport's beginnings in the nineteenth century to the present day. Places baseball history in the context of American history, revealing how the national pastime has both reflected and influenced American society. Provides an overview of some of the statistics and statistical models used to measure and evaluate player performance, including not only such traditional statistics as batting average, slugging percentage, and earned-run average but also newer, more advanced metrics such as Wins Above Replacement and Weighted On-Base Average.

**HUMN 299 Special Topics in Humanities 1-6 Credit (1-6,0)**
Individual independent or directed studies of selected topics in the humanities.

**HUMN 300 World Literature 3 Credits (3,0)**
This course provides a study of the major works and literary trends in world literature. Course content varies by instructor and is listed in the Schedule of Courses.
**Prerequisites:** ENGL 123

**HUMN 310 American Literature 3 Credits (3,0)**
Major works, intellectual backgrounds, and trends in American literature.
**Prerequisites:** ENGL 123

**HUMN 322 Imagining Space in Literature and Film 3 Credits (3,0)**
Representations of space travel in literature and film. Early speculative fiction, science fiction blockbusters, and cultural narratives; technological anxieties, ethical debates, and societal aspirations. Emphasizes the role of imaginative storytelling in shaping perceptions of space exploration and humanity's place in the cosmos.

**HUMN 330 Values and Ethics 3 Credits (3,0)**
Ethical and moral questions from Antiquity to the Modern Period. Practical application of ethical theories in resolving personal, professional, and societal problems.
**Prerequisites:** ENGL 123

**HUMN 333 How Fiction, Film and Popular Culture Represent Science and Mathematics 3 Credits (3,0)**
Students will explore representations of mathematics and science in literature, film and popular culture. Traditional media (books, drama, film, and television) as well as web-based media (webcomics, YouTube series, and podcasts) will be the venues in which students discuss the portrayal of the lives of scientists and mathematicians as well as scientific theories and mathematics concepts. Pre-Requisite: ENGL 123 and minimum of a 3-hour MATH course.
**Prerequisites:** ENGL 123

**HUMN 340 Aviators and Aviation in Film 3 Credits (3,0)**
Representation of aviators and aviation in popular film from the silent era to the present. Evolution from the aviator to the astronaut. Historical and social context of specific films. Birth of film as a novel technology. Introduction to film analysis.
**Prerequisites:** ENGL 123

**HUMN 350 War in Contemporary American Literature 3 Credits (3,0)**
Analysis of and writing about American literature from the 20th century to the present. Selected novels, short stories, poetry, comics, drama, and memoir. Particular focus on wars in Iraq and Afghanistan, and the "War on Terror." Literary conventions and techniques considered in history and social contexts.
**Prerequisites:** ENGL 123

**HUMN 399 Special Topics in Humanities 1-6 Credit (1-6,0)**
These courses are individual independent or directed studies of selected topics in the humanities. Pre-Requisite: Consent of instructor and approval of the department chair.

**HUMN 400 Science and Aviation/Aerospace Technology in Society 3 Credits (3,0)**
Throughout history, science and technology have consistently transformed society. From medicine to communications to the arts and all points between, our culture is very much a society of science and technology. A systemic awareness of how science and technology both impact and are influenced by society is critical to function as a responsible professional in an increasingly complex world. This course will examine the interrelated roles that science and technology play in society, with a particular emphasis on aviation and aerospace.
**Prerequisites:** ENGL 123

**HUMN 430 Ethics in Aviation 3 Credits (3,0)**
Aviation ethics, integrating classical ethical theories with real-world applications specific to the aviation industry. Safety, security, engineering, air traffic management, environmental concerns, business practices, emerging technologies, through the lens of ethical theories such as Utilitarianism, Deontology, and Virtue Ethics. How ethics shape and are shaped by the aviation world. Future ethical challenges in aviation.
**Prerequisites:** ENGL 123

**HUMN 431 Ethics and Artificial Intelligence 3 Credits (3,0)**
Exploration of ethical issues related to artificial intelligence and big data technologies in contemporary cultural contexts. Review of questions concerning the collection and circulation of personal data, how human creative expressions and other information are used in training large language models, the social and environmental costs and benefits of artificial intelligence technologies, and/or other related issues.
**Prerequisites:** ENGL 123

**HUMN 499 Special Topics in Humanities 1-6 Credit (1-6,0)**
These courses are individual independent or directed studies of selected topics in the humanities. Pre-Requisite: Consent of instructor and approval of the department chair.

# Information Security and Assurance (MISA)

## Courses

**MISA 387 IT/OT System Vulnerability & Risk Mgmt 3 Credits (3,0)**
Identification, analysis, assessment, and mitigation of information and operational technology (IT/OT) systems vulnerabilities on business operations. Apply widely-accepted tools and techniques for vulnerability management, with emphasis on compliance, safety, and mission success.

**Prerequisites:** CYBR 235

**MISA 394 Information Security Operations Management 3 Credits (3,0)**
Explores practical information security operations, focusing on access control, system monitoring, and intrusion detection/response. Students gain hands-on experience managing information risk controls across cloud, edge, fog computing, industrial control systems, smart devices, and management information systems.
**Prerequisites:** MMIS 320

**MISA 403 IT Audit and Control 3 Credits (3,0)**
Continuous verification and validation of information system for accuracy and reliability. Implementation of internal controls over financial reporting (ICOFR), along with system and operational controls (SOC) audits. Emphasis on data protection, safety, and adherence to legal and regulatory requirements. Audits serve as integral components of continuous process and product improvement.
**Prerequisites:** CYBR 235

**MISA 404 IT/OT Incident Response, Continuity, and Disaster Recovery 3 Credits (3,0)**
The Information Security Incident Response model serves as the cornerstone for organizational planning and action in business continuity and disaster recovery. Emphasis on forensic investigations and analysis to support detection, characterization, response, recovery, and the implementation of administrative or legal corrective measures.
**Prerequisites:** CYBR 235

# Interdisciplinary Studies (BSIS)

## Courses

**BSIS 473 Interdisciplinary Studies Capstone 3 Credits (3,0)**
Students will complete a variety of projects and written assignments designed to encourage self-analysis of career and intellectual interests in the student's chosen career field based on their Worldwide Minor. This information will be used to develop a proposal and complete a capstone project. The final written project will consist of research, related literature review, and analysis targeted towards a specified audience. A presentation of the project is also required. Pre-Requisite: RSCH 202 or equivalent and completion of at least 88 hours in the degree program.

# Logistics and Supply Chain Management (LGMT)

## Courses

**LGMT 200 Introduction to Supply Chain Management and the Profession 3 Credits (3,0)**
An introduction to the profession and to the basic principles of supply chain management. The evolution, objectives, major stages, and processes involved in planning and managing supply chains; focus on the day-to-day operations of a supply chain and performance metrics.
**Prerequisites:** MGMT 201

**LGMT 236 Principles of Procurement Management 3 Credits (3,0)**
Principles of procurement in supply chain management. Legal and financial implications of the procurement function. Integration of procurement with operations, logistics, and quality. The use of Procurement pricing strategies for different transportation modes and the role of purchasing in evaluating capital investments as well as professional services. Business processes associated with procurement with SAP.
**Prerequisites:** MGMT 201 and LGMT 200

**LGMT 331 Transportation Principles 3 Credits (3,0)**
The basic principles of the several modes of transportation (air, sea, rail, highway, and pipeline) are analyzed. Topics include problems of competition, the importance of each in the economy, and future developmental prospects.
**Prerequisites:** MGMT 201

**LGMT 400 Business Process Integration 3 Credits (3,0)**
In this course, students will exercise their knowledge of business processes to manage end to end transactions from the upstream, operations, and downstream value chain ranging from supplier to customer. Students will employ SAP to initiate, manage and complete integrated transactions throughout a wide variety of case scenarios.
**Prerequisites:** LGMT 236

**LGMT 410 Management of Air Cargo 3 Credits (3,0)**
This course offers in-depth understanding of the air cargo industry and the complexities involved in the movement of air cargo to include the evolution of the air cargo industry, management of air cargo operations; regulations governing airfreight; significance to economy and society; and future growth of the industry.
**Prerequisites:** MGMT 201

**LGMT 411 Logistics Management for Aviation/Aerospace 3 Credits (3,0)**
Students are provided with an opportunity to examine ways to optimize the physical flow of goods and materials within a firm from acquisition through production, and movement through channels of distribution. The course focuses on applying logistics theory to aviation management problems in materials handling, managing inventory, planning capacities, and locating distribution centers. Case studies with aviation/aerospace applications using computer models are included.
**Prerequisites:** MGMT 201

**LGMT 420 Management of Production and Operations 3 Credits (3,0)**
An intensive study of management of production and operations in all organizations, both service-oriented and product-oriented, will be conducted. Scheduling, inventory control procurement, quality control, and safety are investigated. Particular attention is given to applications of aviation-oriented activities.
**Prerequisites:** MGMT 201

**LGMT 430 Business Process Configuration 3 Credits (3,0)**
In this course, students will learn the fundamentals to configure ERP systems. The students will get an understanding of the options available for configuration parameters and system's functional aspects.
**Prerequisites:** LGMT 400

**LGMT 440 Advanced Professional Logistics 3 Credits (3,0)**
In the advanced professional logistics course, a heavy emphasis is placed on the analysis of the Systems Engineering, Integrated Logistics Support and other previously learned business logistics theories and concepts so as to determine their appropriate application. A secondary emphasis is placed on the horizontal integration of these theories and concepts in a practical framework, which will serve as professional guidance for the business logistics manager.
**Prerequisites:** BUSW 352

**LGMT 444 Principles of Supply Chain Management 3 Credits (3,0)**
Supply Chain Management is one of the hottest topics in business today. The focus of this course is on understanding the history, principles, and major elements of supply chain management. Specific topics include sourcing and purchasing management; managing supplier relationships; demand forecasting; inventory management; quality management; domestic and international transportation; customer relationship management; enterprise resource planning systems; facility location decision-making; performance management; and future challenges facing supply chain managers.
**Prerequisites:** MGMT 201 and LGMT 420

# Management (MGMT)

## Courses

**MGMT 201 Principles of Management 3 Credits (3,0)**
A comprehensive overview of relevant management principles and practices as applied in organizations with focus on management theories, philosophies, and functions; Focus on the nature, operating principles, activities, and theories that form the basis for the management functions of planning, organizing, leading, and controlling. Pre-Requisite: ENGL 221 or ENGL 222 for students enrolled in College of Business programs.

**MGMT 203 Management for Aeronautical Science 3 Credits (3,0)**
An introductory course in aeronautics to provide students an orientation in aviation and other aerospace related topics appropriate to management degree programs. Subjects include: aviation careers; the science of flight; aviation safety managerial responsibilities; passenger and cargo security issues; safety and human factors issues; aircraft airworthiness certifications; aviation resources; the aviation environment; and meteorology.
**Prerequisites:** MGMT 201

**MGMT 299 Special Topics in Management 1-4 Credit (1-4,0)**
These are individual independent or directed studies of selected topics in management. Pre-Requisite: Consent of instructor and approval of the department chair.

**MGMT 325 Social Responsibility and Ethics in Management 3 Credits (3,0)**
Inquiry into ethics and social responsibility for managers. Economic, legal, political, environmental, technological social issues. Interactions between government, business, and society.
**Prerequisites:** MGMT 201

**MGMT 399 Special Topics in Management 1-4 Credit (1-4,0)**
These are individual independent or directed studies of selected topics in management. Pre-Requisite: Consent of instructor and approval of the department chair.

**MGMT 408 Airport Management 3 Credits (3,0)**
Management and operation of the commercial service airports in the United States, emphasis on airport system facilities including landside, airside and airspace; rules and regulations governing airport operations, funding programs, airport security policies economic, political, environmental, and social role of airports.
**Prerequisites:** MGMT 201

**MGMT 412 Airport Planning and Design 3 Credits (3,0)**
Principles and essential elements of current U.S. and international airport planning and design trends; airport master planning and layout plans; geometric design and layout of the airfield and terminal facilities; obstruction analysis; signage and lighting; forecasting; airside and landside interface; capacity and delay effects; environmental planning.
**Prerequisites:** MGMT 201 and MGMT 408 and STAT 211 or STAT 222

**MGMT 415 Airline Management 3 Credits (3,0)**
Administrative aspects of airline operation and management; annual profit plan, uniform system of accounts and reports, demand analysis, scheduling, the theory of pricing, fleet planning, facilities planning, and airline financing.
**Prerequisites:** MGMT 201

**MGMT 416 Space Tourism 3 Credits (3,0)**
Space tourism is one of the hottest topics in the aerospace business today and the future of travel. The focus on this course is on understanding the developing space tourism business, the market, cost engineering, marketing, delivery vehicles, and safe operations. Specific topics include suborbital and orbital space flight, delivery vehicle capability, market demand, market supply, regulations, and safety. As part of this class, students will prepare a business plan or objectively assess technologies required for a safe space tourism flight.
**Prerequisites:** MGMT 201

**MGMT 426 International Aviation Management 3 Credits (3,0)**
The student will perform an investigation of international aviation management and its three elements: the nature of international aviation business; working in a foreign environment; and managing in an international environment.
**Prerequisites:** MGMT 201 and MKTG 311 and FINE 332 and ACCT 210 or ACCT 312

**MGMT 436 Strategic Management 3 Credits (3,0)**
This course introduces students to strategic management principles involving strategy, formulation, implementation, evaluation and organization analysis are studied. Case analysis, employing strategic management principles, is used to solve and examine organizational problems. Total Quality Management concepts are studied for improvement of organizational effectiveness.
**Prerequisites:** ECON 210 ECON 211 MGMT 201 ACCT 210 MMIS 320 MKTG 311 ACCT 312 OBLD 317 MGMT 325 FINE 332 BUSW 335 BUSW 390 and LGMT 420

**MGMT 499 Special Topics in Management 1-4 Credit (1-4,0)**
These are individual independent or directed studies of selected topics in management. Pre-Requisite: Consent of instructor and approval of the department chair.

# Management Information Systems (MMIS)

## Courses

**MMIS 320 Business Information Systems 3 Credits (3,0)**
Management approach to business information systems; general characteristics, potential, and limitations of business systems; the ways in which business systems are interrelated; the inherent management problems involved in the implementation and control of such systems.
**Prerequisites:** MGMT 201

**MMIS 385 Programming Concepts 3 Credits (3,0)**
Provides a foundational, language-agnostic approach to programming concepts, focusing on both design principles and implementation practices. Students explore fundamental programming constructs including data types, control structures, arrays, files, and functions, while learning modular design principles and data validation techniques. The course examines how these constructs are implemented across popular programming languages, analyzing design choices and tradeoffs in different language implementations.
**Prerequisites:** MMIS 320

**MMIS 392 Database Management 3 Credits (3,0)**
Database management systems revolutionized data handling when they became widely accessible through personal computers in the 1980s. This course covers the essential concepts of database management, including database models, design principles, implementation strategies, core system functions, and management approaches. Students learn fundamental database concepts applicable across various database management systems.
**Prerequisites:** MMIS 320

**MMIS 494 Aviation Information Systems 3 Credits (3,0)**
This course will focus on a variety of information technology systems that are in use and their impact on successful operations within the aviation industry. An overview of current and emerging technologies in reservation systems, aircraft productivity modeling, air traffic control systems and various database, data communication and e-commerce systems will be explored.
**Prerequisites:** MMIS 320

# Marketing (MKTG)

## Courses

**MKTG 311 Marketing 3 Credits (3,0)**
An exploration of marketing theory and marketing management; market research, customer relations, promotion, distribution and sales management, and creating customer value.
**Prerequisites:** MGMT 201

**MKTG 320 Consumer Behavior 3 Credits (0,3)**
Psychological, social, and cultural factors influencing consumer decision making including perception, motivation, attitudes, beliefs, personality, and lifestyle.
**Prerequisites:** MKTG 311

**MKTG 330 Professional Selling 3 Credits (3,0)**
Professional selling in a business-to-business context.
**Prerequisites:** MKTG 311

**MKTG 400 Social Media Marketing 3 Credits (3,0)**
Social media networks and technologies for marketing purposes. Social media, digital streaming and digital applications for awareness generation, branding and revenue generation. How social media and technologies are shifting the balance of power from firms to customers.
**Prerequisites:** MKTG 311

**MKTG 449 Strategic Marketing Management 3 Credits (3,0)**
Development and implementation of marketing strategy, focusing on strategic analysis and evidence-based marketing decisions. Emphasis will be given to marketing strategy, market analysis and targeting, strategic marketing programming, and evaluation.
**Prerequisites:** MKTG 311

**MKTG 450 Aviation/Airport Marketing 3 Credits (3,0)**
Marketing in the airline/airport industries. Consumer segmentation, integrated marketing communications and social media for customer targeting and service delivery. Channel structure and ancillary revenue generation. Route development and non-aeronautical revenues.
**Prerequisites:** MKTG 311

# Mathematics (MATH)

*Review the ERAU Worldwide Mathematics placement policy under the* Skills Assessments *section of the Worldwide Catalog.*

## Courses

**MATH 100 Foundations in Mathematical Problem Solving 3 Credits (3,0)**
The purpose of this course is to equip students with fundamental mathematical reasoning skills that can be used for success in future mathematics courses. Students will engage with algebra fundamentals in problem-based activities designed to prepare students for either MATH 106, MATH 111, or MATH 140. This course cannot be used to satisfy credit for General Education requirements.

**MATH 106 Basic Algebra & Trigonometry 3 Credits (3,0)**
Study of the basic laws of numbers, fractions, exponents, complex numbers, and radicals, as well as an understanding of a variety of expressions and equations including equalities, inequalities, polynomials, and quadratics. Introduction to the basic elements of trigonometry.
**Prerequisites:** MATH 100

**MATH 111 Pre-calculus for Aviation 3 Credits (3,0)**
This is a pre-calculus course designed for the student aviation. Topics include a review of the fundamentals of algebra; linear equations and inequalities, quadratic equations; variation; polynomial, rational, exponential, logarithmic and trigonometric functions; radian measures; right triangle solutions, vectors and the laws of sines and cosines. Pre-Requisite: Qualifying score on the ERAU Mathematics Skills Assessment or course listed.
**Prerequisites:** MATH 106

**MATH 112 Applied Calculus for Aviation 3 Credits (3,0)**
This course presents basic calculus, designed for the student of aviation. Topics include differentiation and integration of algebraic functions; applications to velocity, acceleration, area, curve sketching, and computation of extreme values.
**Prerequisites:** MATH 111 or MATH 140 or qualifying score on the mathematics skills assessment

**MATH 140 College Algebra 3 Credits (3,0)**
Focuses on fundamentals of exponents, radicals, linear and quadratic equations, inequalities, functions, graphing techniques, and complex numbers; introduction to function, curve sketching, elementary theory of equations, sequences and series, matrix algebra and systems of equations, linear, polynomial, logarithmic, exponential, inverse and composite functions, variation, and systems of equations.
**Prerequisites:** MATH 106 or qualifying score on the mathematics skills assessment

**MATH 142 Trigonometry 3 Credits (3,0)**
Students will be introduced to trigonometric functions and their graphs; identities; radian measure with applications; compound, half and double angle identities; solving elementary trigonometric equations, right and oblique triangles, law of sines and cosines; inverse trigonometric functions; vectors and trigonometric form of a complex number.
**Prerequisites:** MATH 111 or MATH 140 or qualifying score on the mathematics skills assessment

**MATH 143 Precalculus Essentials 3 Credits (3,0)**
This is a precalculus course with an emphasis on functions and their graphs, including polynomial, rational, exponential, logarithmic, and trigonometric; radian measure; trigonometric identities and equations; vectors, parametric and polar curves; sequences and series; binomial theorem. NOTE: This course is open only to Engineering degree students.

**Prerequisites:** MATH 106 or MATH 111 or MATH 140 or qualifying score on the mathematics skills assessment

**MATH 201 Learning to Reason: Art and Quotient 3 Credits (3,0)**
Addresses both the abstract and applied aspects of data science, proportionality, and geometric concepts. Exploration of the development of mathematics and the modern technologies used to apply ancient ideas to today's problems as well as the human need for creativity across disciplinary boundaries.
**Prerequisites:** MATH 106

**MATH 202 Learning to Reason: Commerce and Flux 3 Credits (3,0)**
A quantitative approach to life's decisions, addressing both the abstract and applied aspects of using mathematics in finance, technology, and design. Exploration of the development of mathematics and the technologies used to assist in decision-making.
**Prerequisites:** MATH 106

**MATH 241 Calculus and Analytical Geometry I 4 Credits (4,0)**
Limits and continuity; differentiation and integration of algebraic and elementary transcendental functions; applications of first and second derivatives and integration.
**Prerequisites:** MATH 142 or MATH 143 or qualifying score on the mathematics skills assessment

**MATH 242 Calculus and Analytical Geometry II 4 Credits (4,0)**
Differentiation and integration of transcendental functions; special integration techniques; applications of the definite integral; numerical methods; infinite series.
**Prerequisites:** MATH 241

**MATH 243 Calculus and Analytical Geometry III 4 Credits (4,0)**
Solid analytic geometry; vector functions in three dimensions; partial differentiation; directional derivative and gradient; line integrals; multiple integrals.
**Prerequisites:** MATH 242

**MATH 345 Differential Equations and Matrix Methods 4 Credits (4,0)**
This course is a study of the treatment of ordinary differential equations to include principal types of first and second order equations; methods of substitution on simple higher order equations; linear equations and systems of linear equations with constant coefficients; methods of undetermined coefficients and variation of parameters; Laplace transforms; series solutions; linear algebra and matrix methods of solutions; applications to physics and engineering.
**Prerequisites:** MATH 243

**MATH 413 Statistics 3 Credits (3,0)**
Descriptive statistics and graphical depiction of data; confidence intervals and hypothesis testing for the mean, difference between two means, variance, ratio of two variances, proportion, and difference between two proportions; simple and multiple regression, including model development, inferences, residual analysis, outlier identification, and verification of assumptions; fundamental concepts of design of experiments; justification of linear models.
**Prerequisites:** MATH 243

**MATH 432 Applied Linear Algebra 3 Credits (3,0)**
Review of vector and matrix properties including rank and nullity, eigenvectors, and eigenvalues. Vector space topics including basis and dimension, linear transformations, change of basis, inner products and orthonormal bases. Matrix operations including inverse, diagonalization, singular value decomposition, applications.
**Prerequisites:** MATH 242

# Mechanical Engineering (MECH)

## Courses

**MECH 302 Introduction to Robotics 3 Credits (3,0)**
This course is an introduction to robotics with emphasis on the mathematical tools for kinematics and dynamics of robot arms. Topics include the geometry and mathematical representation of rigid body motion; forward and inverse kinematics of articulated mechanical arms; trajectory generation, splines, interpolation; manipulator dynamics; position sensing and actuation; and an introduction to topics in manipulator control and computer vision.
**Prerequisites:** ENGL 221 and ESCI 204 and ELEC 230 and ELEC 231 and CESC 220 and CESC 222 **Corequisites:** MECH 303

**MECH 303 Robotics Laboratory 1 Credit (0,1)**
This course is lab part of the introduction to robotics with emphasis on hands-on experience of embedded microcontroller unit and emulation of serial robotic systems. Topics include the programming skills of microcontroller unit used for robotic systems; coding MCU for sensors and actuators; forward and inverse kinematics of articulated mechanical arms; and trajectory generation and interpolation.
**Corequisites:** MECH 302

**MECH 313 Instrumentation and Data Acquisition 2 Credits (2,0)**
This course will be a combination of theoretical and applied topics related to instrumentation, data acquisition, and hardware interfacing with mechatronic systems. This course covers aspects related to interfacing sensors and actuators with computers including sampling rates; sources of error and time delay; analog and digital signal conditioning circuits; and the influence of EMI, grounding, and noise in the power supply. Students will be exposed to data acquisition and control software (e.g., LabVIEW).
**Prerequisites:** ELEC 230 and ELEC 231 and CESC 220 and CESC 222
**Corequisites:** MECH 314

**MECH 314 Instrumentation and Data Acquisition Laboratory 1 Credit (0,1)**
This course is the lab companion for MECH 313, and aims to provide hands-on experience emphasizing measurement and instrumentation concepts, sensor operations, and computer-based data acquisition and analysis. Specifically, students will build data acquisition system based on LabVIEW and myDAQ to collect and analyze data from commonly used sensors for measuring temperature, pressure, and displacement, etc.
**Prerequisites:** ELEC 230 and ELEC 231 and CESC 220 and CESC 222
**Corequisites:** MECH 313

# Meteorology (WEAX)

## Courses

**WEAX 201 Meteorology I 3 Credits (3,0)**
This is a survey course in meteorology that includes applications to flight. Included is a systematic development of the following topics: the composition and general structure of the atmosphere, energy and energy transfer, seasonal and daily controls on temperature, pressure, wind, local and regional circulations, atmospheric stability, vertical motion, turbulence, moisture, fog, clouds, precipitation, icing, the general circulation pattern, climate, jet streams, air masses, fronts, mid-latitude cyclones, tropical cyclones, thunderstorms, and weather observations and charts.

**WEAX 301 Aviation Weather 3 Credits (3,0)**
Strategies for evaluating and anticipating aviation weather hazards and mitigating their associated risks. Icing, turbulence, wind shear, thunderstorms, clouds, fog, winter weather, volcanic ash; altimetry; application of meteorological products and online resources for flight planning.
**Prerequisites:** WEAX 201

**WEAX 322 Space Weather 3 Credits (3,0)**
This course is an introduction to the Sun-Earth relationship and focused on understanding its societal and technological impacts. With the continued growth of the satellite communications industry and our growing dependence on wireless communication and instant access to global information, we are becoming more and more susceptible to problems caused by space weather. The course provides the students with understanding of the key concepts of radiation and convection, solar structure, the heliosphere: the corona and the solar wind, the interplanetary magnetic field, cosmic rays, Earth's space environment and upper atmosphere, the technological impacts of space storms, the perils of living in space, the impact of space weather on climate variability, and will discuss other space weather phenomena. The students will investigate several case studies of space weather storms and how they can damage or destroy orbiting satellites, injure or kill astronauts, degrade or blackout certain radio and navigation communications, and cause regional power failures by destroying critical components of electrical power grids.

**WEAX 327 Operational Analysis and Forecasting 3 Credits (3,0)**
Meteorological time and unit conventions; Automated Surface Observing Systems (ASOS); surface station plots; METAR code; radiosondes and upper-air station plots; manual analysis of upper-air isobaric charts; jet streaks and divergence; vorticity and vorticity advection; temperature advection; motion and intensification of synoptic-scale weather systems; manual analysis of surface charts; frontal analysis; satellite and radar feature identification; skew-T diagrams; sounding analysis; sounding types; introductory temperature and precipitation forecasting.
**Prerequisites:** WEAX 301

**WEAX 363 Thunderstorms 3 Credits (3,0)**
This course provides tools for analyzing and forecasting thunderstorms and their associated hazards. Key characteristics of the thunderstorm and its environment are explored using both case studies and real-time weather data. Students examine atmospheric soundings to determine the likelihood of storm development and the amount of energy available for thunderstorms. Vertical wind shear is analyzed for clues about storm organization and severity. Other information, such as weather charts, computer models, satellite imagery, and Doppler radar imagery, is used to observe the characteristics of thunderstorms and the weather patterns that favor them. Students gain a basic scientific understanding of thunderstorm behavior as well as practical experience observing and predicting them.
**Prerequisites:** WEAX 201

# Organizational Behavior and Leadership (OBLD)

## Courses

**OBLD 275 Critical Thinking for Leadership 3 Credits (3,0)**
Emphasizes several models and strategies for critical thinking within a leadership context. Additional topics include: digital literacy tools; library research; and written communication.
**Prerequisites:** MGMT 201

**OBLD 285 The Evolution of Leadership 3 Credits (3,0)**
Explore the historical roots of modern leadership theory; in-depth look at the societal, cultural, economic, and political environment that led to the forming of specific leadership theories; emphasis understanding the context of leadership theories, and then applying that context to one's own environment.
**Prerequisites:** OBLD 275

**OBLD 300 Emotional, Social, and Cognitive Intelligence 3 Credits (3,0)**
Examines behavioral competencies needed for success in the enterprise. Topics include relationship building, networking, boundary spanning and mindfulness. Being aware of being emotionally, socially, and cognitively intelligent will establish the practical underpinnings of primal leadership.
**Prerequisites:** OBLD 275

**OBLD 304 Coaching and Mentoring 3 Credits (3,0)**
Introduces coaching and mentoring as performance management techniques. Topics include theoretical underpinnings, models, development, and evaluation of coaching and mentoring programs.
**Prerequisites:** OBLD 275

**OBLD 310 Mediation, Negotiation, and Conflict Resolution 3 Credits (3,0)**
Develops skills and methods for successful conflict management. Topics include mediation, negotiation, resolution and avoidance. Special emphasis will be placed on the relationships of the leader and how to help address conflict in a positive manner that results in personal and systematic change.

**OBLD 315 Contemporary Leadership Theories 3 Credits (3,0)**
Explores emergent organizational leadership theories. Topics include full-range leadership, values-based leadership, authentic leadership, complex adaptive leadership, and self-leadership.
**Prerequisites:** OBLD 275

**OBLD 317 Organizational Behavior 3 Credits (3,0)**
Overview and analysis of various behavioral concepts affecting individual and group performance within business organizations with an emphasis on research, theory, and practice.
**Prerequisites:** MGMT 201

**OBLD 402 Ethics, Values, and Differences 3 Credits (3,0)**
Ethical issues related to leadership and the ethics of leadership; diversity, civility, social contract, power, influence, vision, authenticity, fairness, rights and responsibilities, and self-interest.
**Prerequisites:** OBLD 275

**OBLD 407 Driving Change in Organizations 3 Credits (3,0)**
Explores the forces that drive change and examines planned change within organizations. Topics include assessing the need for change, involving stakeholders in the change process, communicating the need for change, developing strategies for managing change, and evaluating change projects.
**Prerequisites:** OBLD 275

**OBLD 412 Leadership Practicum 3 Credits (3,0)**
The leadership practicum provides students an opportunity to apply previous knowledge in an organization of their choice. Students can put into practice what is learned. Students will serve in a consultative role to work on a problem or outcome and report their findings in a variety of formats.
**Prerequisites:** OBLD 275

**OBLD 427 Management of the Multicultural Workforce 3 Credits (3,0)**
Management of the multicultural workforce. Elements of cultural anthropology pertaining to international business and communicating across cultures. Managing contrasting cultural values while maintaining organizational culture are addressed in the context of international aviation management.
**Prerequisites:** MGMT 201

# Physical Science (PHYS)

## Courses

**PHYS 102 Explorations in Physics 3 Credits (3,0)**
Survey course in elementary physics. Stress will be placed on basic concepts, principles and history of the development of physics. Presentation will include selected topics in mechanics, heat, light, sound, electricity and magnetism, and modern physics.
**Prerequisites:** Three hours of Math credit

**PHYS 123 Science of Flight 3 Credits (3,0)**
Connects basic principles within select branches of the natural sciences - atmospheric science, biology, chemistry, environmental science, and physics - with general applications of flight. Aerodynamics and aircraft control; propulsion and hydraulics; aircraft materials; effects of atmospheric phenomenon; environmental impacts.

**PHYS 142 Introduction to Environmental Science 3 Credits (3,0)**
This introductory course stresses the interrelations of all aspects of the living and the nonliving world. It introduces the student to key concepts and principles that govern how nature works and the application of these concepts and principles to possible solutions to environmental and resource problems.

**PHYS 150 Physics I for Engineers 3 Credits (3,0)**
This course explores vectors and scalar quantities, kinematics, Newton's Law of Motion, work, work-energy, conversion of energy, conversion of momentum, center of mass and its motion, torque, equilibrium and orbital motion.
**Prerequisites:** MATH 241

**PHYS 160 Physics II for Engineers 3 Credits (3,0)**
This is a calculus-based study of the fundamental principles of classical mechanics and topics include, rotational motion, simple harmonic motion, waves, fluid, heat, kinetic energy, and thermodynamics.
**Prerequisites:** PHYS 150 and MATH 242

**PHYS 199 Special Topics in Physical Science 1-4 Credit (1-4,0)**
These are individual independent or directed studies of topics in the fields of the physical sciences impinging on aerospace development or practices, and which are of current or anticipated interest. Pre-Requisite: Consent of instructor and approval of the department chair.

**PHYS 224 Astronomy 3 Credits (3,0)**
A descriptive course dealing with the structure and evolution of the physical universe. Topics include the solar system (Earth, Moon, Sun, and planets), stars, black holes, galaxies, quasars, cosmology, and exobiology. Planetarium trips and night-observing sessions optional.

**PHYS 250 Physics III for Engineers 3 Credits (3,0)**
This course is a calculus-based study of the fundamental principles of classical mechanics. It is the third course of a three-semester sequence, intended for students of science and engineering and is designed to provide the student with an appropriate background for more advanced physics and engineering course work. Topics of discussion include; electric forces, electric field, Gauss's law, Ohm's law Ampere's law, Faraday's law, Lenz's law, Kirchhoff's law and Maxwell's equations; electric potential and electrostatic potential energy; capacitance; simple DC circuit theory; magnetic force, magnetic field; inductance; electromagnetic oscillations and wave propagation; Linear accelerators, cyclotrons.
**Prerequisites:** PHYS 160 **Corequisites:** PHYS 253

**PHYS 253 Physics Laboratory for Engineers 2 Credits (0,2)**
Experiments complement the materials in the associated physics lecture sequence (PHYS 150, PHYS 160, PHYS 250). Topics include measurements and uncertainties, representation of data, graphical analysis, error analysis, kinematics, Newtonian motion, rotational motion, torque, conservation of energy, conservation of momentum, simple harmonic motion, thermodynamics, properties of waves, electrostatics, DC circuits and measurement tools, resistors, capacitors, diodes, RC circuits, ray optics, refraction, properties of light.
**Prerequisites:** PHYS 150 and PHYS 160 or PHYS 250 **Corequisites:** PHYS 250

**PHYS 299 Special Topics in Physics 1-4 Credit (1-4,0)**
These are individual independent or directed studies of topics in the fields of the physical sciences impinging on aerospace development or practices, and which are of current or anticipated interest. Pre-Requisite: Consent of instructor and approval of the department chair.

**PHYS 304 Environmental Science 3 Credits (3,0)**
This course explores interrelationships between humans and the environment and impacts of human activities on the environment. Scientific, economic, societal, and technological principles will be applied to the management of pollution of Earth's resources, including land and soil resources, water resources, and energy resources.
**Prerequisites:** PHYS 142

**PHYS 359 Self-Directed Exploration of Environmental Science 3 Credits (3,0)**
This is an individual independent study of topics in the fields of the physical sciences impinging on environmental science, and which are of current or anticipated interest. Pre-Requisite: Consent of the instructor and the approval of the department chair.

**PHYS 399 Special Topic Physical Sciences 3 Credits (3,0)**
These are individual independent studies of topics in the fields of the physical sciences impinging on environmental science, and which are of current or anticipated interest. Pre-Requisite: Consent of the instructor and the approval of the department chair.

**PHYS 499 Special Topic Physical Science 1-4 Credit (1-4,0)**
These are individual independent or directed studies of topics in the fields of the physical sciences impinging on aerospace development or practices, and which are of current or anticipated interest. Pre-Requisite: Consent of instructor and approval of the department chair.

# Project Management (PMGT)

## Courses

**PMGT 300 The Project Management Profession 3 Credits (3,0)**
In this course, students will be introduced to the project management profession. A common professional language is adopted as a foundation. Students explore the environment where project management is applied to organizational projects by project managers, following global standards and professional ethics.
**Prerequisites:** MGMT 201

**PMGT 325 Concepts and Practices of Project Management 3 Credits (3,0)**
This course provides undergraduate students, who are not enrolled in a project management degree program, an appreciation for the depth and breadth of the project management profession. The course will address the complete project lifecycle including initiating, planning, executing, monitoring and controlling and closing. Emphasis will be placed on gaining a knowledge of common terminology, principles, techniques and tools that are found global standards for project management.
**Prerequisites:** MGMT 201

**PMGT 391 Project Planning 1 3 Credits (3,0)**
This course introduces basic concepts and tools of project management, such as the work breakdown structure, network diagrams, and critical path. At the end of this course, students will be able to apply the tools to management project scope, schedule, cost, and resources, following global project management standards and professional ethics.
**Prerequisites:** STAT 222 or STAT 211 PMGT 300 for BSPM

**PMGT 394 Project Planning 2 3 Credits (3,0)**
This course continues the study of basic concepts and technical tools of project management, such as the communication matrix, stakeholder analysis, and make-buy decisions. At the end of this course, students will be able to apply the tools to the management of project quality, communication, stakeholder, and procurement management, following global project management standards and professional ethics.
**Prerequisites:** PMGT 391

**PMGT 400 Project Risk and Control 3 Credits (3,0)**
This course applies concepts and technical tools of project management, such as the work risk matrix, status reports, and change logs. At the end of this course, students will be able to apply the tools to the management of project risk, project execution, and project control, following global project management standards.
**Prerequisites:** PMGT 394

**PMGT 465 Managing Troubled Projects 3 Credits (3,0)**
This course applies concepts and technical tools of project management to manage troubled projects. At the end of this course, students will be able to determine the project status using the schedule baseline, cost estimations, and earned value management techniques, following global project management standards and professional ethics. Students will learn how to perform a project audit and will create a troubled project recovery plan.
**Prerequisites:** PMGT 400

**PMGT 470 Agile Project Management 3 Credits (3,0)**
Students will acquire a working knowledge of agile project management methodologies, tools, and techniques. The working knowledge starts by differentiating agile project management from traditional project management lifecycles. Scrum methods are used to manage the project status using the schedule baseline and cost estimations, as outlined in the Agile Manifesto.
**Prerequisites:** PMGT 400

**PMGT 490 Project Management Capstone 3 Credits (3,0)**
This course is designed to provide the student the opportunity to apply knowledge gained throughout the degree program. Demonstration of the study of project management, paying particular attention to technical project management, project leadership, and business strategy. Pre-Requisite: The Project Management Capstone is the last course taken in the BSPM Program.

# Psychology (PSYC)

## Courses

**PSYC 220 Introduction to Psychology 3 Credits (3,0)**
This course will introduce the student to the field of psychology, and is a survey of the bio-psychosocial continuum and the intra-psychic, interpersonal, and organizational factors affecting human behavior. A primary feature of the course is its focus on the scientific method as the route to psychological knowledge. Students examine the rationalist, empiricist and experimental foundations of the scientific method and how these foundations can be critiqued. Topics include sensation, perception, learning, motivation, emotion, memory, personality, psychopathology, physiological psychology and social processes. Emphasis is placed on the application of the basic principles of psychology to engineering, aviation, public policy and business.

**PSYC 310 Sensation and Perception 3 Credits (3,0)**
How organisms sense and perceive the environment. Topics discussed include types of stimuli affecting the sensory receptors, anatomy and physiology of sensory systems responding to those stimuli, current knowledge and theories about perceptual abilities. Research and application experience includes experimental investigations and demonstrations of sensory and perceptual phenomena.
**Prerequisites:** PSYC 220

**PSYC 315 Cognitive Psychology 3 Credits (3,0)**
Contemporary theories of human information processing and memory. Topics include the total range of memory and cognitive processes and their potential application to human factors design: pattern recognition, attention, psycholinguistics, concept formation, thinking, decision making, problem solving, and innovative thinking.
**Prerequisites:** PSYC 220

**PSYC 320 Aviation Psychology 3 Credits (3,0)**
A study of the complexities of human factors research in aviation. Drawing extensively on such diverse areas as human physiology, basic learning theory, aviation safety, and pilot training. The course surveys the study of human behavior as it relates to the aviator's adaptation to the flight environment.
**Prerequisites:** RSCH 202

**PSYC 326 Group and Team Behavior 3 Credits (3,0)**
This course focuses on using experiential learning techniques to cover group/team behavior, from learning basic human communications skills to applying these skills in small groups. Effective small groups functioning from the viewpoint of systems theory is presented, and the stages of group development. Topics include participative management, decision making, groupthink, social loafing, problem solving, organizational change, etc.

**PSYC 340 Industrial/Organizational Psychology 3 Credits (3,0)**
This course is a survey of major topics in industrial-organizational psychology, with emphasis on organizational and personnel psychology applied to business, industry and government. It is an examination and critical review of theories and research in selected areas of organizational behavior. Emphasis is on intrapersonal behavior, such as motivation, job stress and job satisfaction.

**PSYC 350 Social Psychology 3 Credits (3,0)**
This course is intended to provide students with an introduction to the interactional forces between groups and the individual in society. Topics include the following: introduction to social psychology, group influence, the self in a social world, prejudice-disliking others, social beliefs and judgments, attraction and intimacy, genes, culture and gender, altruism-helping others, conformity, and persuasion.

**PSYC 355 The Psychology of Creativity and Innovation 3 Credits (3,0)**
Interdisciplinary focus highlighting creative processes in the arts and the sciences. How psychologists and scientists define, measure and conduct research on creativity and innovation; how the creative problem-solving process works; how to design and construct a creative product; and how the social environment affects the development of the creative personality from individual, group and cross-cultural perspectives. PSYC 220 is recommended prior to taking this course.
**Prerequisites:** RSCH 202

**PSYC 360 Cultural Psychology 3 Credits (3,0)**
Interdisciplinary focus on how cultural norms influence the way individuals think, feel, and behave. Basic tenets of cultural psychology including specific topics that bridge cultural psychology and identity, including group and identity formation, stereotyping, prejudice, stigma, intergroup contact, and multiculturalism; how to interpret and evaluate relevant research findings; how diverse aspects of humans' day-to-day lives both differ and are constant across cultures; and how these principles can be applied to everyday life and human interaction. PSYC 220 is recommended prior to taking this course.
**Prerequisites:** RSCH 202

**PSYC 365 Abnormal Psychology 3 Credits (3,0)**
This course is intended to familiarize students with the theory and research on the biological, cognitive-behavioral, and social-family perspectives and interventions of psychological disorders as problems that affect nearly everyone. Its emphasis on the research process, family issues, and the line between normal and abnormal behavior is intended to encourage students to think critically about social and personal issues, and to understand the strategies, methodologies, and the applicability of research in abnormal psychology.
**Prerequisites:** PSYC 220

**PSYC 400 Introduction to Cognitive Science 3 Credits (3,0)**
This course is an introduction to the science of the mind from the perspective of cognitive psychology, this course is a study of linguistics, neuroscience, philosophy, and artificial intelligence. The focus is on the similarities and differences in the approaches taken by researchers in their study of cognitive mechanisms in these different fields. Issues to be addressed include: What does it mean to be able to think? What kind of computational architecture(s) is most appropriate to describe cognitive mechanisms? Is the mind an emergent property of the brain? What kind of hardware is required for thinking to occur? Can a computer have a mind?

**PSYC 440 The Psychology of Resilience 3 Credits (3,0)**
Psychology of resilience, merging foundational psychological theories with practical applications pertinent to resilience across various contexts. Exploration of resilience through historical perspectives, neurobiology, social and environmental factors, individual psychological processes, and organizational strategies. Critical assessment of resilience using theoretical frameworks such as Cognitive Behavioral Theory, Positive Psychology, and Ecological Systems Theory. The influence of resilience on individuals and communities, as well as the anticipation of future challenges in resilience research and applications. Pre-Requisite: PSYC 220 is preferred but not required.
**Prerequisites:** ENGL 123

# Public Health Science (PHSC)

## Courses

**PHSC 301 Introduction to Public Health Science 3 Credits (3,0)**
In-depth exploration of public health principles and methodologies; emphasis on community health enhancement. Covers health determinants, systems, disease prevention, and health promotion. Aims at critical analysis and global solution contribution.

# Research (RSCH)

## Courses

**RSCH 10 Research Preparation 0 Credits (0,0)**
This performance-oriented course is designed to increase student success in college by introducing and actively engaging students in the research process. Topics include: understanding research, sourcing, using a library, choosing a research topic, gathering and organizing information, analyzing a thesis and outline, and determining how to cite and reference sources. This course is for zero credit hours, cannot be used to satisfy credit requirements for ERAU degrees, and may be repeated.

**RSCH 200 Inquiry & Discovery: Exploring Academic Sources 3 Credits (3,0)**
Identifying, understanding, and evaluating reliability of academic sources for use in research projects. Provides strategies for engaging with academic articles and introduces the conventions of scholarly literature across multiple fields. Emphasizes critical reading, analysis, and synthesis of multiple sources.

**RSCH 202 Introduction to Research Methods 3 Credits (3,0)**
This course is a general introduction to research intended to equip first and second year undergraduate students with the skills needed in their studies. Topics covered include the purposes of research, defining research and research problems, defining a hypothesis, problem solving and knowledge discovery, methods of quantitative and qualitative research, conducting literature reviews, designing appropriate methodologies, evaluating outcomes, analysis and communicating the results.
**Prerequisites:** ENGL 123 or ENGL 221 and STAT 211 or STAT 222

**RSCH 310 Applications of Artificial Intelligence in Research 3 Credits (3,0)**
Machine learning, data analysis and visualization, AI tools for research workflows.
**Prerequisites:** ENGL 123

**RSCH 350 Research Ethics 3 Credits (3,0)**
Comprehensive exploration of ethical principles and challenges in academic research. Historical context of research ethics, ethical standards, and contemporary challenges, including informed consent, data integrity, human and animal research ethics, the influence of funding, and the integrity of publication and peer review processes.
**Prerequisites:** ENGL 123

**RSCH 395 Publication-Ready STEM Research 3 Credits (3,0)**
Collaboratively or individually complete a STEM-related undergraduate research project. Produce a formal research paper that meets the common requirements for submission to a peer-reviewed journal in a STEM-related discipline.
**Prerequisites:** RSCH 202

# Safety (SFTY)

## Courses

**SFTY 201 Introduction to Occupational Safety and Health 3 Credits (3,0)**
The basic health and safety concepts associated with industry and transportation. Comprehensive health and safety overview; a historical study of the legislative development; enactment of appropriate statutes, regulations, and laws; the definition of safety terms; and a discussion of the ethics and professionalism required by the health and safety profession. Introduces hazard recognition and reporting, evaluation, and control concepts used in risk management, accident investigation, ergonomics, and accident prevention.

**SFTY 205 Principles of Accident Investigation 3 Credits (3,0)**
The process required for the investigation of accidents. Different accident investigation methods, such as root cause analysis and Management Oversight Risk Tree (MORT).Filing appropriate accident reports and applications of corrective actions.

**SFTY 311 Fundamentals of Occupational Safety and Health 3 Credits (3,0)**
Designed for the beginning safety student. Prerequisite for most of the higher-level safety courses. Introduction and overview of the Occupational Safety and Health (OSH) Act and how provisions of the Act are implemented in the workplace, OSHA's general industry standards, and an overview of the requirements of the more frequently referenced standards. The rights and responsibilities under the OSH Act, the appeals process, recordkeeping, and voluntary protection programs.

**SFTY 315 Environmental Compliance and Safety 3 Credits (3,0)**
Matters associated with health and safety relating to the environment, including air, water quality, sanitation, hazardous materials, storage, handling, transportation, waste management, cleanup, the study of environmental laws, regulations, and protection of workers involved in hazardous material activities.

**SFTY 321 Ergonomics 3 Credits (3,0)**
Concepts and physiological aspects of ergonomics examined. Anthropometric principles in workspace and equipment design, workspace design, human-machine systems, analysis and design of displays and controls, and environmental factors affecting work environment.

**SFTY 326 System Safety 3 Credits (3,0)**
Emphasizes the specialized integration of safety skills and resources into all phases of a system's life cycle. Topics include qualitative and quantitative tools and techniques for system analysis and design applied to accident analysis, prevention, and mitigation.

**SFTY 341 Occupational Safety and Health Program Management 3 Credits (3,0)**
The principles of the development and management of materials, techniques, and procedures used in the implementation of occupational safety and health programs and their application in a variety of occupational settings. The management techniques, governmental regulations, and safety and health programs developed for industry. The history of the safety and health movement; government regulations; safety and health program organization; hazard information and analysis process; and implementation of an occupational safety and health program.

**SFTY 355 Industrial Hygiene and Toxicology 3 Credits (3,0)**
Evaluation of principles associated with industrial hygiene. Recognition, evaluation, and control of hazards related to noise, vibration, ionizing and non-ionizing radiation, thermal conditions, pressure, chemicals, airborne contaminants, and biological substances. Subjects discussed in relation to all regulatory requirements, using engineering and non-engineering controls to reduce or eliminate workplace health hazards.
**Prerequisites:** CHEM 110 and CHEM 110L or three credit hours of Physical Life Science and SFTY 311. Enforced prerequisites apply only to BSSM degree-seeking students and the Minor in Occupational Safety and Health. Prerequisites are not enforced for the UG Certificate in Occupational Safety and Health

**SFTY 365 Fire Protection 3 Credits (3,0)**
Introduces the basics of fire and fire protection. The physics, chemistry, characteristics, and behavior of fire, fire hazards of material, fire suppression systems, extinguishing agents, and detection and alarm systems. Primary emphasis on fire hazards and the regulatory requirements associated with air, rail, marine, and highway modes of transportation.
**Prerequisites:** CHEM 110 and CHEM 110L or three credit hours of Physical Life Science and SFTY 311

**SFTY 415 Human Reliability and Safety Analysis 3 Credits (3,0)**
Emphasize probability and human reliability as important techniques in safety analysis. Qualitative and quantitative tools and techniques for human reliability analysis applied to accident analysis, prevention, and mitigation.

**SFTY 420 Systems Design for Fire & Life Safety 3 Credits (3,0)**
Design principles in building construction standards and building codes to ensure maximum life and property safety from fires, explosions, and natural disasters. Egress design specifications, occupancy and construction classifications, and building fire protection requirements.
**Prerequisites:** SFTY 311

**SFTY 421 Ergonomics II 3 Credits (3,0)**
Extension of SFTY 321 - Ergonomics. Explore in-depth human factors and their relationship to ergonomics in organizational and social environments, the relationship between ergonomics and general workplace safety. Examine how human factors can improve occupational safety and predict and analyze hazards to design and engineer safer industrial workplaces.
**Prerequisites:** SFTY 321

**SFTY 426 System Safety Management 3 Credits (3,0)**
Continuation of safety, health, and environmental fieldwork. In-depth inspections, hazard evaluations, and report writing in industrial settings.

**SFTY 441 Construction Safety and Health 3 Credits (3,0)**
Detailed examination of OSHA standards (29 CFR 1926) for construction safety. Includes preparation for the OSHA 30-hour Construction card.

**SFTY 450 Loss Control & Insurance 3 Credits (3,0)**
Loss control, insurance, and financial risk management, as they apply to the SHE (Safety, Health, and Environmental) professional. Basic concepts of financial risk management, legal principles, property and liability insurance, life and health insurance, employee benefits, social insurance, and functional and financial operations of insurers examined. Primary emphasis on consumer considerations, coverage of personal risk management, and financial planning.

**SFTY 453 Construction Scheduling and Control 3 Credits (3,0)**
Understanding of project planning and scheduling principles utilized in facilities and construction management. Introduces various planning and control techniques in an integrated planning and control system. Develops understanding of time, cost, and resource management principles and ethical issues. Overview of advanced project planning concepts and software used.

**SFTY 463 Legal Aspects of Occupational Safety and Health 3 Credits (3,0)**
Legal issues in occupational safety and health. Overview of industry regulations and legislation, including governing bodies and their authority.

**SFTY 470 Advanced Occupational Safety and Health Technology 3 Credits (3,0)**
Culminating experience derives from previous work in occupational safety and health technology. Heavy emphasis on analyzing previously learned occupational safety and health theories and concepts to determine appropriate application with secondary focus on horizontal integration of ideas and concepts in a practical framework; serving as professional guidance for the practicing Occupational Safety and Health Technologist. Will draw upon previous occupational safety and health studies to develop and defend an in-depth analysis of an occupational safety and health issue in a program or business.
**Prerequisites:** SFTY 311 SFTY 341 and SFTY 355

**SFTY 491 Capstone: Operational Applications in Safety Management 3 Credits (3,0)**
Culminating experience for students in the Safety Management program. A comprehensive examination of problem-solving, system design, experimentation, data analysis, effective communication, ethics and professionalism, and teamwork related to safety management. Proficiency in the broad field of safety.
**Prerequisites:** RSCH 202 is required prior to enrollment in SFTY 491. SFTY 491 will be taken as the last course in the student's degree program

# Security and Emergency Services (SSES)

## Courses

**SSES 110 Critical Thinking in Contemporary Problems 3 Credits (3,0)**
The developing process of actively thinking and skillfully conceptualizing, applying, analyzing, synthesizing, or evaluating information. Developing critical thinking skills through the lens of contemporary issues, especially focused on international affairs, disasters, and security crises.

**SSES 111 Countering Human Trafficking 3 Credits (3,0)**
Dimensions of human trafficking, underlying causes, and global impacts on individuals and communities. Human security frameworks in combating trafficking at local, national, and international levels. The role of the aviation industry in prevention and response. Identification of key indicators and support for survivors in prevention efforts.

**SSES 224 Analytic Tradecraft Writing 3 Credits (3,0)**
Based on an introduction to the intelligence cycle - the process for gathering, analyzing, and using information to reduce threats - this course focuses on its analysis, production, and dissemination stages. Students will learn fundamental skills of a successful intelligence analyst: performing defensible analysis through the use of structured analytical techniques and communicating analytical judgements effectively. Students will be taught how to compose analytic products consistent with the tradecraft used by professionals from the Intelligence Community professionals. Students will also learn how intelligence analysis and its dissemination differ from traditional academic writing and how to brief senior government officials and business executives. At the end of the course, students will be able to write a high-value intelligence product that gains the customer's attention and meets their needs.

**SSES 401 Applied Research Methods in Security and Emergency Services 3 Credits (3,0)**
Examining the conduct of social research and security/disaster research. Identifying the relationship between theory and research methods as it applies to emergencies, disasters, and other domestic/homeland/civil security crises; discussing the logic of research methodology for case studies and lessons learned in emergency response; analyzing how to interpret data from existing research for decision making in crisis/disaster management and emergency response.

**SSES 440 Geographic Information Systems for Disaster and Security Studies 3 Credits (3,0)**
An introduction to Geographic Information Science and Technology (GIST) applications in disaster management, security, and intelligence. Geographic Information Systems (GIS) are tools for integrating and analyzing spatial data to identify patterns, visualize relationships, seek explanations, and develop solutions to real-world problems. GIS theory and practical applications of GIST. History of GIS; GIS software; data acquisition; data quality and ethics; interpretation and analysis; mapping; cartography.

# Security Science (SCTY)

## Courses

**SCTY 310 Introduction to Security 3 Credits (3,0)**
Historical development, legal and ethical aspects of the security profession and the role of security today as part of the criminal justice system, business and society; current security disciplines such as contract security, private investigations, industrial security, aviation security, cultural property security, physical security and information security.

**SCTY 315 Studies in Intelligence I 3 Credits (3,0)**
The varied ways strategic intelligence is used by world leaders to shape policy and its effect on world events; intelligence collection, analysis, and dissemination and counterintelligence are among the issues examined and discussed.

**SCTY 385 Intelligence Collection and Analysis 3 Credits (3,0)**
Practical experience in the intelligence functions of analysis, writing, and briefing; demonstrate an "intelligence-oriented mind" and ability to work under time pressure. The student will become familiar with analytical methodologies and writing styles that make complex world events explicable to military decision makers and senior policy makers.

**SCTY 400 Aviation Security 3 Credits (3,0)**
Investigation into specific facets of security in aviation. Physical and procedural controls, regulations of the Department of Homeland Security, the Transportation Security Administration, the Federal Aviation Administration and ICAO, as well as international treaties. Current threats, counter terrorism measures, new technologies in the field and the importance of the aviation industry, both passenger and cargo, to the global economy.

**SCTY 485 Corporate Security 3 Credits (3,0)**
Issues in the field of private/corporate security; private security firms work with public law enforcement strengthening the overall security posture of firms, schools, etc. The differences between public and private police; security needs of business and private establishments, and the threats that might emanate from tapped phones, bugged offices, stolen papers, covert recording, undercover employees, phony repair people, fax intercepts, etc.

**SCTY 488 National Security Issues and Terrorism 3 Credits (3,0)**
Although terrorism has been a known phenomenon for centuries, it has become the most frequent form of conflict in the late 20th century. Success in preventing nuclear warfare and in curbing the outbreak of most conventional war has resulted in more forms of low intensity violence, a significant feature of which is overt terrorism. Ideological hardening, ethnic militancy, and religious revivalism have fueled terrorist ambitions. Broadly speaking, there are three types of terrorism, classified on the basis of actors. The course will address all three types: domestic US, international or group directed, and state sponsored.

# Sociology (SOCI)

**(Social Sciences)**

## Courses

**SOCI 210 Introduction to Sociology 3 Credits (3,0)**
Students are provided an integrated survey of the fundamental concepts of culture, forms of collective behavior, community and social organization, social interaction, and social change. The social effects of aviation and the impact of science on the social order living in an air age will also be investigated.

**SOCI 299 Special Topics/Social Science 1-6 Credit (1-6,0)**
These are individual independent or directed studies of selected topics in the areas of history, sociology, psychology, and human culture in general. Pre-Requisite: Consent of instructor and approval of the department chair.

**SOCI 300 Marriage & Family 3 Credits (3,0)**
This course analyzes the sociological, physical, psychological, legal and economic aspects of the American family. Demographic trends and interpersonal behavior in family and marriage are discussed, including childbearing and divorce, theories of mate selection, preparation for marriage, marital interaction, sexuality, parenthood and marital adjustment. Contemporary controversial issues, such as the relationship of unmarried couples, alternative marriage forms, abortion, and violence are also addressed as they relate to the family.

**SOCI 310 Personality Development 3 Credits (3,0)**
This course is a survey of selected theories of human nature and functioning from the beginnings of modern Psychology to present developments, including psychodynamic, cognitive, behavioral, biological, humanistic and other types. Various concepts of personality and the associated methodologies for gathering validating knowledge are explored. Theories are applied to normal issues in personal, professional and relational life, and theory-related skills are taught for self-awareness, problem-solving, habit change, and emotional and interpersonal competence.

**SOCI 399 Special Topics/Social Science 1-6 Credit (1-6,0)**
These are individual independent or directed studies of selected topics in the areas of history, sociology, psychology, and human culture in general. Pre-Requisite: Consent of instructor and approval of the department chair.

**SOCI 499 Special Topics/Social Science 1-6 Credit (1-6,0)**
These are individual independent or directed studies of selected topics in the areas of history, sociology, psychology, and human culture in general. Pre-Requisite: Consent of instructor and approval of the department chair.

# Software Engineering (SWEN)

## Courses

**SWEN 300 Software Engineering Practices 3 Credits (3,0)**
Fundamental principles and methodologies of large-scale software development. Theory and practice of software engineering and work as part of a team on a full life-cycle software project that includes planning, software specification, software design, coding, inspections, and testing. A closed laboratory is required; team building, planning, requirements analysis and specification, design, testing, and the use of tools.
**Prerequisites:** CPSC 225

**SWEN 310 Analysis and Design of Software Systems 3 Credits (3,0)**
Fundamental principles and methodologies of large-scale software development. Theory and practice of software engineering and work as part of a team on a full life-cycle software project that includes planning, software specification, software design, coding, inspections, and testing. A closed laboratory is required; team building, planning, requirements analysis and specification, design, testing, and the use of tools.
**Prerequisites:** SWEN 300 CPSC 225 and CPSC 317

**SWEN 320 Software Construction 3 Credits (3,0)**
Advanced instruction in programming with an object-oriented programming language; proficiency in use of a language widely used for general purpose software development; tools and processes appropriate for employing this language in a significant software development environment.
**Prerequisites:** SWEN 300 CPSC 225 and CPSC 420

**SWEN 410 Software Modeling 3 Credits (3,0)**
Formal concepts and techniques used to model and analyze software artifacts (requirements, design, and code); mathematical modeling techniques used in software engineering.
**Prerequisites:** CPSC 222 and SWEN 300

**SWEN 420 Software Quality Assurance 3 Credits (3,0)**
Key concepts and practices in software testing and quality assurance; concepts of software quality through testing, inspection, and walkthrough; software testing and different testing techniques and methodologies; management of a testing project.
**Prerequisites:** SWEN 300

**SWEN 450 Software Team Project I 3 Credits (3,0)**
First course in the sequence of a two-course senior project (SWEN 450 and SWEN 451); work in teams; use a defined software process to develop or modify a software product; early stages of software development life cycle (requirements, analysis, and design).
**Prerequisites:** SWEN 310 SWEN 320 CESC 320 and CESC 322

**SWEN 451 Software Team Project II 3 Credits (3,0)**
Second course in the senior project sequence (SWEN 450 and SWEN 451); management, analysis, design, implementation, and testing of a software system; work in teams and use a defined software process to develop or modify a software product; later stages of the software development life cycle (design, implementation, testing, and maintenance).
**Prerequisites:** SWEN 410 SWEN 420 and SWEN 450

# Space Studies (SPAC)

## Courses

**SPAC 300 Satellite and Spacecraft Systems 3 Credits (3,0)**
Orbital satellites and spacecraft are discussed according to their application, design, and environment. The power system, shielding, and communication systems are reviewed along with their missions, space environment and limitations.

**SPAC 310 Human Factors in Space 3 Credits (3,0)**
Basic principles of aerospace human factors with an emphasis on human factors issues with living and working in space. Research, principles and methods that are essential in optimizing the interaction between people and machine elements of aerospace systems.

**SPAC 315 Space Policy 3 Credits (3,0)**
Geopolitical, technological, historical context and external societal forces influence space policy making. Examine policy alternatives connecting science, culture and society; ethical dilemmas of global policy development and exploration's influence on human aspirations and anxieties.

**SPAC 330 Spaceflight and Operations Training 3 Credits (3,0)**
Introduction of astronaut and cosmonaut selection and training showing strong parallels with military pilot selection and training, including the rapid evolution of manned space flight training. Current selection techniques and Spaceflight and Operations Training programs examined along with the training center facilities and shared training techniques used for International Space Station crews. Examination of commercial training programs already in place and planned.

**SPAC 400 Introduction to Space Navigation 3 Credits (3,0)**
This course will introduce the student to basic elements of space navigation at the introductory physics level. The consequences of Newton's law of gravitation and central force motion, including Kepler's three laws of planetary motion, are explained. The physical characteristics of the solar system and the Earth/Moon system are reviewed. The basic methods and techniques of navigating in near-Earth orbit and the Moon and planets are described.

# Speech (SPCH)

## Courses

**SPCH 319 Advanced Speech 3 Credits (3,0)**
This course continues the study of oral communication with emphasis on effective public speaking. It includes the analysis and practice of modern and traditional methods of persuasion within and beyond the classroom.
**Prerequisites:** COMD 219

# Statistics (STAT)

## Courses

**STAT 211 Statistics with Aviation Applications 3 Credits (3,0)**
Apply basic descriptive and inferential statistics; Identify types of data and sampling techniques; compute and interpret measures of central tendency, dispersion, elementary probability, confidence intervals, hypothesis tests and linear regressions.
**Prerequisites:** MATH 111 or MATH 140 or MATH 143 or MATH 201 or MATH 202 or MATH 241

**STAT 222 Business Statistics 3 Credits (3,0)**
This course is a study of basic descriptive and inferential statistics. Topics include types of data, sampling techniques, measures of central tendency and dispersion, elementary probability, discrete and continuous probability distributions, sampling distributions, hypothesis testing, confidence intervals, and simple linear regression.
**Prerequisites:** MATH 111 or MATH 140 or MATH 143 or MATH 201 or MATH 202 or MATH 241

**STAT 320 Decision Mathematics 3 Credits (3,0)**
This course is a study of mathematical concepts and applications in mathematical model building and problem solving. Included are mathematical areas which are basic to decision theory.
**Prerequisites:** STAT 211 or STAT 222

**STAT 412 Probability and Statistics 3 Credits (3,0)**
Finite sample spaces; conditional probability and Bayes' Theorem; discrete and continuous random variables and their functions; expected value, variance and standard deviation; systematic study of the major discrete and continuous distributions; moment generating functions; hypothesis testing and estimation.
**Prerequisites:** MATH 242

# Uncrewed Systems (UNSY)

## Courses

**UNSY 205 Applied Physics for Uncrewed Systems 3 Credits (3,0)**
A foundation in physics as required to understand uncrewed systems applications such as sensor technology, communication and control interfaces, electro-technical and electronic application design, construction and implementation. Elementary particle theory, field properties, wave propagation, and optical relationships as required for an understanding of applications within the electromagnetic spectrum to include modulation concepts. Analog and digital electronic circuitry to include signal logic, and electromechanical and electromotive devices to include servo applications.

**UNSY 235 sUAS Flight and Mission Planning 3 Credits (3,0)**
Flight and mission planning in support of task-oriented flying operations; tools, methods, and skills used to support selection, configuration, and application processes during planning, pre-flight, inflight (monitoring and data-gathering), post-flight, and post-processing procedures. Current sUAS systems and operating requirements; navigation concepts and components; system packages that are unique to the environment in which they operate.
**Prerequisites:** UNSY 316 **Corequisites:** UNSY 235L

**UNSY 235L sUAS Flight and Mission Planning Laboratory 1 Credit (0,1)**
This laboratory is dedicated to Uncrewed Aircraft System (UAS) flight planning techniques, procedures, and methods, vehicle specific knowledge, detailed flight plans and procedures. This lab is designed to complement UNSY 235.
**Prerequisites:** UNSY 316 **Corequisites:** UNSY 235

**UNSY 307 Uncrewed Systems Networking 3 Credits (3,0)**
Information technology, communications, and frequency spectrum used in conjunction with uncrewed systems around the world. Explore signal processing, communications, interfaces, data links/exchange, FCC regulations, interoperability, and communication standards and protocols associated with robotic systems. Tools and methods used to support development, configuration, and application of uncrewed systems individual and networked operations through communication and information processing of signals and data.
**Prerequisites:** UNSY 205

**UNSY 311 Uncrewed Ground Systems and Applications 3 Credits (3,0)**
Introduction to the fundamental concepts and commonly applied technology used for uncrewed ground systems (UGS). Exposure to a historical perspective, control fundamentals, control systems, mobility methods, sensor systems, and applications such as agriculture, search and rescue, firefighting, construction, mining, and others. Tools and methods supporting the development, configuration, and application of UGS to conduct operations of appropriate vehicles, sensors, and payloads in terrestrial environments.

**UNSY 313 Uncrewed Maritime Systems and Applications 3 Credits (3,0)**
Fundamental concepts and commonly applied technology used for uncrewed maritime systems (UMS); historical perspective, control fundamentals, control systems, surface and underwater methods, sensor systems, and applications such as search and locate, inspection, construction, and others. Overview of tools and methods used to support development, configuration, and application of UMS to conduct operations of appropriate vehicles, sensors, and payloads in marine environments.

**UNSY 315 Uncrewed Aircraft Systems and Operations 3 Credits (3,0)**
Uncrewed Aircraft Systems (UAS), Uncrewed Aircraft Vehicles (UAV), and their role in the aviation industry and importance in modern commercial and military integration in airspace, air traffic control; development, operations and applications. Structural and mechanical factors, avionics, navigation, flight controls, remote sensing, guidance control, propulsion systems, and logistical support.

**UNSY 316 Operational and Business Aspects of Uncrewed Aircraft Systems 3 Credits (3,0)**
Differentiate the needs of civil aviation for Uncrewed Aircraft Systems (UAS) addressed within national airspace and aviation regulatory constraints; Implement skill sets and tools used to mitigate restrictions; create flight plan operations that can successfully employ UAS.

**UNSY 318 Uncrewed Aircraft Systems Robotics 3 Credits (3,0)**
Integrating robotic technology into the hardware and software regimes of uncrewed aviation. Examinations of control and system programming in the context of specific missions through guided discussions, simulation and the operation of actual uncrewed aircraft robotic systems.

**UNSY 319 Cybersecurity and Countermeasure Considerations 3 Credits (3,0)**
Emerging threats and hazards involving cybersecurity aspects of the design and application of uncrewed systems, vulnerabilities within platform components, data links and C3 (Command, Control and Communication); jamming, spoofing, hacking, intentional electromagnetic interference. Tools and methods used to protect and encrypt platform components and data links; small UAS risk and threat assessment and countermeasures.
**Prerequisites:** UNSY 316

**UNSY 321 Uncrewed Systems Localization and Path Planning 3 Credits (3,0)**
Concepts of localization, orientation, and navigation as applicable to the application of uncrewed systems in various operational domains (e.g., air, space, ground, and maritime). Navigational and cartographical methods, vehicle positioning/orientation to include visual sensors, distance and density sensing; inertial navigation; positional referencing and determination mechanisms; computational methods.
**Prerequisites:** UNSY 205

**UNSY 325 Uncrewed Systems Testing and Inspection 3 Credits (3,0)**
Fundamental concepts, methods, and tools associated with the testing and inspection of uncrewed systems components, elements, subsystems, and unified designs; types and methods of testing and inspection, including acceptance, compliance, quality assurance and control, reliability, and system/subsystem operational readiness. The rationale and variation among test and inspection types to produce strategies and plans, map requirements, justify recommendations, and document results. Analyze the development, manufacturing, and operational (configuration and application) environments.

**UNSY 329 Uncrewed Systems Computation and Programming 3 Credits (3,0)**
Commonly applied uncrewed systems computational technology and an opportunity to apply basic programming concepts, with a focus on methodologies for task-oriented uncrewed systems applications; examination of system processing requirements, appropriate hardware and software design; development of programming solutions to specific uncrewed systems tasks; testing and debugging to optimize uncrewed systems solutions. Tools and methods to support the development, configuration, and application of computational architectures with respect to representative uncrewed systems operations.
**Prerequisites:** UNSY 205 and UNSY 318

**UNSY 331 Uncrewed Systems Legal and Regulatory Compliance 3 Credits (3,0)**
Current legal frameworks and domain-specific rules (air, space, maritime, and ground); compliance enforcement; challenges and issues; case examples; processes for change; intellectual property and design; and emerging concepts. Laws, regulations, and policies relating to the development, configuration, and application of command, control, and communication (C3), autonomous operation, and the capture and review of sensor data.

**UNSY 405 Uncrewed Systems Operational Environments and Conditions 3 Credits (3,0)**
Environmental issues and conditions affecting performance, mission purpose, design and appropriateness of platform and associated components; extreme temperature, terrain, weather, pressure, range, and required endurance. Analyze considerations relating to the development, configuration, and application of correctly identified robotic solutions based on problem sets, environments, conditions, and operational types.

**UNSY 410 Uncrewed Systems Sensing Technology 3 Credits (3,0)**
Fundamental concepts and methods of sensing systems to satisfy task requirements about UAS operating environment including the type, format, and capabilities of sensors; component and system integration; use cases; challenges and issues; and emerging concepts. Tools and methods used to support the development, configuration, and application of sensing systems with complex mission planning assignments and guided discussion.

**UNSY 415 Uncrewed Space Systems and Application 3 Credits (3,0)**
Fundamentals and commonly applied technology for uncrewed space systems, historical perspectives, current developments, and possible future concepts. Uncrewed space system specific considerations of craft design requirements, maneuvering fundamentals and control systems, and payload selection; space navigation and orbital maneuvering; operational domains (air, space, ground, and maritime), exploration of extraterrestrial celestial bodies, such as planets, moons, comets, and asteroids.

**UNSY 421 Uncrewed Systems Mission Planning 3 Credits (3,0)**
This course will build on prior uncrewed and autonomous systems localization and path planning coursework and will introduce students to concepts of task and object oriented uncrewed systems employment. Previous navigational knowledge will be applied towards specific mission objectives, incorporating considerations of point/area of interest approach planning; payload selection and employment optimization; inter/intra-system coordination and de-confliction; contingency planning; and mission assessment/evaluation. Attention will be given to application of task and objective definitions; system, sensor, and payload selection/matching; and performance based scenario planning.
**Prerequisites:** UNSY 410 and UNSY 321 and UNSY 405

**UNSY 431 Uncrewed Systems Human Factors Considerations 3 Credits (3,0)**
Human factors concepts and implications affecting the development, configuration, and application of uncrewed systems; types and functions of human-machine-interfaces (HMI)s; human behavior, capabilities, and limitations; psychological and perceptual information processing; sensation, cognition, and ergonomics; and effects of autonomy. Considerations relating to the development, configuration, and application of HMIs used for command, control, and communication (C3), autonomous operation, and the review and manipulation of sensor data.

**UNSY 435 sUAS Practical Application and Assessment 3 Credits (3,0)**
Practical application and practice of fundamental knowledge, skills, and abilities (KSA)s of basic to advanced aircraft controls (manual and automatic), checklist and emergency procedures, flight planning, review of platform specific traits, aerial photography and post-flight processing techniques, pilot application, crew resource management, and instructor-student practical assessment. Interactive scenario-based modeling and simulation and actual (live) sUAS tools are used to improve uncrewed airmanship skills in settings supporting incremental exposure, progression, and assessment combined with instructor-guided feedback and practice. Items detailed in the ERAU-Worldwide sUAS Toolkit are acquired at student's expense. Students must be physically located within the U.S. and hold an FAA Part 107 Remote Pilot Certificate while participating in the UNSY 435 course. A mandatory two-day residency program with associated practical training and travel requirements is required. A personal sUAS is required at student's expense to fly during the course. Contact the advising team and program coordinators for details.
**Prerequisites:** UNSY 235

**UNSY 440 Advanced Flight Operations 3 Credits (3,0)**
Students will build small uncrewed aircraft system (sUAS) operational knowledge and apply concepts, methods, and tools of effective planning and management of sUAS operations to apply in real-world-relevant settings. Through scenarios-based training and interactive modeling and simulation sUAS operation, students will analyze specific task-oriented applications of sUAS and apply purposeful, productive, legal, and responsible operation of sUAS.

**UNSY 491 Operational Applications in Uncrewed Systems 3 Credits (3,0)**
Culminating experience for students in the Uncrewed Systems Applications degree program. Industry growth, innovative development, and effective use of uncrewed system technology across the respective domains (air, space, ground, and maritime); major challenges within the industry including interoperability, autonomy, airspace integration, communications, education and training, propulsion and power, teaming, and regulation.

# US Military Service (USMS)

## Courses

**USMS 101 Basic Military Science I 1 Credit (1,0)**
A study of the defense establishment and the organization and development of the U.S. Army. A study of the roles that active Army forces, Army Reserve forces, and the Army National Guard play in our nation's defense. A study of military courtesy, customs, and traditions of the service. A historical perspective of the role of the different branches of the U.S. Army and the role they have played in the freedom of our nation. An introduction to physical readiness training. Course includes lectures and laboratory. Field training exercises normally include M16-A1 rifle firing, rappelling training, and airmobile helicopter operations.
**Corequisites:** USMS 101L

**USMS 101L Basic Military Science Laboratory 0 Credits (0,3)**
Training on basic soldier tasks and skills, such as land navigation, basic rifle marksmanship and movement as a member of a fire team and rifle squad. Practical application of field craft and soldier skills in a tactical environment.

**USMS 102 Basic Military Science II 1 Credit (1,0)**
Continued emphasis on physical readiness training. Course includes lecture and laboratory. Field training exercises normally include M16-A1 rifle firing, rappelling training, and airmobile helicopter operations.
**Corequisites:** USMS 102L

**USMS 102L Basic Military Science II Laboratory 0 Credits (0,3)**
Consists of Air Force customs, courtesies, health, physical fitness, field training orientation, drill and ceremonies. These courses are graded Pass/Fail.

**USMS 201 Basic Military Leadership I 2 Credits (2,0)**
A review of the customs and traditions of the service. The fundamentals of leadership development and the importance of understanding the principles that are important to effective leadership. This includes focus on goal setting, communication, problem solving, decision making, and group process. The course requires mandatory physical training and includes lecture and laboratory.
**Corequisites:** USMS 201L

**USMS 201L Basic Military Leadership I Laboratory 0 Credits (0,3)**
Builds on the topics covered in 101L and 102L. Further in-depth training on basic soldier tasks and skills, such as land navigation, basic rifle marksmanship and movement as a member of a fire team and rifle squad. Practical application of field craft and soldier skills in a tactical environment.

**USMS 202 Basic Military Leadership II 2 Credits (2,0)**
The fundamentals of military geography and their application in the use of navigational aids for the military forces. A study of preventive medicine countermeasures and first-aid techniques that every leader must know. The course requires mandatory physical training and includes both lecture and leadership laboratory. Two weekend training exercises normally include M16-A1 rifle firing, rappelling training, and airmobile helicopter operations.
**Corequisites:** USMS 202L

**USMS 202L Basic Military Leadership II Laboratory 0 Credits (0,3)**
This is a continuation course building on the experience and tactics of USMS 201L.

**USMS 301 Adaptive Tactical Leadership 3 Credits (3,0)**
Cadets are challenged to study, practice, and evaluate adaptive leadership skills as they are presented with challenging scenarios related to squad tactical operations. Cadets receive systematic and specific feedback on their leadership attributes and actions. Pre-Requisite: Complete basic military science (or given constructive credit) and be a contracted Army ROTC cadet.
**Corequisites:** USMS 301L

**USMS 301L Adaptive Tactical Leadership Laboratory 0 Credits (0,3)**
Planning, coordination, execution and evaluation of training and activities with basic course students and ROTC program. Students develop and refine leadership skills in position of responsibility.

**USMS 302 Adaptive Tactical Leadership II 3 Credits (3,0)**
Cadets receive increasingly intense situational leadership challenges to build awareness and skills in leading tactical operations. Cadets review aspects of combat, stability, and support operations in preparation for the Leadership Development and Assessment Course.
**Prerequisites:** USMS 301 **Corequisites:** USMS 302L

**USMS 302L Adaptive Tactical Leadership II Laboratory 0 Credits (0,3)**
Practice and refinement of leadership skills. Different roles assigned for students at different levels in the program. Planning, coordination, execution and evaluation of training and activities with basic course students and ROTC program.

**USMS 401 Developing Adaptive Leaders 3 Credits (3,0)**
A course to develop proficiency in planning, executing, and assessing complex operations, functioning as a member of a staff, and providing performance feedback to subordinates. Cadets assess risk, make ethical decisions, and lead fellow cadets.
**Prerequisites:** USMS 301 and USMS 301L and USMS 302 and USMS 302L **Corequisites:** USMS 401L

**USMS 401L Developing Adaptive Leaders Laboratory 0 Credits (0,3)**
Different roles assigned for students at different levels in the program. Practice and refinement of leadership skills. Planning coordination, execution and evaluation of training and activities with basic course students and ROTC program.

**USMS 402 Leadership in a Complex World 3 Credits (3,0)**
A course in exploring the dynamics of leading in the complex situations of current military operations, examining customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism.
**Prerequisites:** USMS 401 and USMS 401L **Corequisites:** USMS 402L

**USMS 402L Leadership in a Complex World Laboratory 0 Credits (0,3)**
Different roles assigned for students at different levels in the program. Practice and refinement of leadership skills. Planning, coordination, execution and evaluation of training and activities with basic course students and ROTC program.

# Graduate Courses

Graduate courses are numbered at 500 and above. Numbers immediately following course titles indicate lecture hours that a class meets weekly.

Graduate prerequisite courses taken with Embry-Riddle must be completed with a grade of B or better.

Embry-Riddle Aeronautical University – Worldwide courses are not necessarily offered every term, nor are they necessarily offered at all locations.

Numbers in parentheses, immediately following course titles and numbers, indicate lecture and laboratory hours that a class meets each week. For example, (3,0) signifies that the course consists of three lecture hours and zero laboratory hours weekly.

## Accounting (ACCT)

### Courses

**ACCT 510 Business Accounting 1.5 Credit (1.5,0)**
Accounting concepts for business managers. Emphasizes ethical decisions to business scenarios and developing communications skills. Accounting cycle, financial statements, and accrual accounting, and understanding accounting information user Define accounting and its role in business.

## Aeronautical Science (ASCI)

### Courses

**ASCI 516 Applications in Crew Resource Management 3 Credits (3,0)**
In this course, students examine the common concepts of crew resource management (CRM) as developed by major air carriers and explore the theoretical basis of such training. Topics such as supervision of crewmembers, counseling, manner and style, accountability, role management, and use of simulators and computer-based instruction will be studied. Each student has the opportunity to become knowledgeable in a specific area of CRM by assisting in the development of a CRM research document as part of the course.

**ASCI 602 The Air Transportation System 3 Credits (3,0)**
Air Transportation is a complex and rapidly evolving industry that plays a substantial role in global and national economies and in efforts to improve environmental quality and promote sustainable development. Major components include the human, technological, environmental and operational aspects of airports, airspace, air traffic management, aircraft and aircraft component manufacturing and design, airlines, and other airspace users. This course is foundational for the Master of Science in Aeronautics degree and focuses on the complex global air transportation system infrastructure, its strengths and vulnerabilities, and the influences by and impacts to global and national economies, environmental sustainability, and technological advancement.

**ASCI 604 Human Factors in the Aviation/Aerospace Industry 3 Credits (3,0)**
This course presents an overview of the importance of the human role in all aspects of the aviation and aerospace industries. Emphasis is on issues, problems, and solutions of unsafe acts, attitudes, errors, and deliberate actions attributed to human behavior and the roles supervisors and management personnel play in these actions. Students examine the human limitations in the light of human engineering, human reliability, stress, medical standards, drug abuse, and human physiology. Discussions include human behavior as it relates to the aviator's adaptation to the flight environment, as well as the entire aviation/aerospace industry's role in meeting the aviator's unique needs.

**ASCI 645 Airport Operations and Management 3 Credits (3,0)**
Management and operation of public use airports is assessed through the airport and airport systems, airport operations management and airport administrative management. The course is enhanced through the review of specific airport topic areas: airport organization, the airfield, airspace, air traffic control, airport certification management, terminal and ground access, financial management, economic/political/social roles, airport planning, capacity, and the future of airport management.

**ASCI 674 Project Management in Aviation/Aerospace 3 Credits (3,0)**
Project management concepts and principles in the aviation/aerospace industry are addressed by the ten knowledge areas of project management: integration, scope, time, cost, quality, human resources, communications, risk, procurement, and stakeholders. Process areas of initiation, planning, execution, control, and closure of projects are utilized as strategies for developing projects in an aviation/aerospace environment. Project management software is utilized as appropriate.

**ASCI 691 Graduate Capstone Course 3 Credits (3,0)**
The Master of Science in Aeronautics (MSA) Graduate Capstone Project (GCP) course is the culminating effort of the student's entire learning experience in the MSA degree. It is a written document on an aviation/aerospace topic that exposes the student to the aspects of research and technical writing. This course is included in the MSA curriculum to provide the student with the opportunity to research a project of special interest, but not to the level of a thesis. This is a required course for those students who choose not to write a thesis. Students will work with designated faculty to formulate, develop, and complete the aviation/aerospace project. The completion of the GCP course is designed to document significant evidence that all Program Outcomes have been met, and provides the student evidence of experience to show to current and prospective employers. The GCP course will be taken at the end of the student's degree program.

**ASCI 693 Current Research Problems in Aviation/Aerospace 3 Credits (3,0)**
Equips students with applied research techniques and skills. Current aviation/aerospace problems are resolved using accessible qualitative and quantitative data for rapid analysis, creating recommendations suitable for industry practitioners. Problems encountered as an aviation/aerospace professional working in the industry are solved. Synthesizes current, relevant literature, challenging students to critically analyze and interpret research findings of others as a foundation for creative problem solving. Presents forum for debate on current aviation/aerospace issues resulting in potential strategic solutions. Requires students to present applied research designs, rationale, and solutions for evaluation.

**ASCI 699 Special Topics in Aeronautical Science 1-3 Credit (1-3,0)**
Students may elect to perform a special, directed analysis and/or independent study in an area of particular interest. A detailed proposal of the desired project must be developed and presented to the Program Chair and Department Chair of the degree program being sought for faculty review and recommendation at least three weeks prior to the end of registration for a term.

## Aerospace Engineering (AENG)

### Courses

**AENG 502 Strength and Fatigue of Materials 3 Credits (3,0)**
Analysis of stress and deformation in rods, beams, plates, shells and solids using the elementary theories of elasticity and plasticity. Theories of strength, impact, fatigue and creep. Computer methods and applications.

**AENG 510 Aircraft Structural Dynamics 3 Credits (3,0)**
Vibrations of deformable elastic structures using the assumed modes method. Analysis of a continuous system for specialized cases. Undamped and damped free and forced vibration of single-degree-of-freedom and multiple-degree-of-freedom system. Computer programming skills are necessary.

**AENG 511 Engineering Materials Selection 3 Credits (3,0)**
Introduction to mechanical behavior of common aerospace materials as it relates to structural performance. Methods for strengthening and toughening of metals ceramics and composites. Materials selection basics using functions, constraints, objectives. Ashby materials property charts. Materials selection with multiple constraints and conflicting objectives and shape factors. Designing hybrid materials and composites. Case studies from general and aerospace engineering. Course project

**AENG 514 Introduction to the Finite Element Method 3 Credits (3,0)**
Basic equations of the theory of elasticity. Energy principles. Formulation and assembly of stiffness matrices and load vectors for elastic solids. Modeling considerations. Solution methods Computer implementation of finite element and stress analysis procedures. Interpretation of computer solutions. Design applications.

**AENG 522 Analysis of Aircraft Composite Materials 3 Credits (3,0)**
Fiber materials, tapes cloths, resin systems. Theory of elastic anisotropic materials. Elastic constants for multi-ply composites. Matrix formulation. Computer analysis. Strength and theory of failure. Sources and use of experimental data. Design considerations.

**AENG 525 Structural Design Optimization 3 Credits (3,0)**
Review of numerical optimization techniques. Structural applications of linear and discrete methods, approximation techniques and sensitivity analysis, shape and topology optimization. Optimality criteria methods. Applications to trusses, frames and composite laminates. Optimization simulations using computer graphics software. Emphasis on modern optimization techniques linked to numerical methods of structural analysis (finite element method) through a structural design course project.

**AENG 540 Structural Health Monitoring 3 Credits (3,0)**
General introduction of structural health monitoring and nondestructive evaluation techniques of mechanical and aerospace structural components. Passive and active damage analysis through intelligent actuation and sensing systems. Damage detection, diagnosis, and prognosis are discussed utilizing signal processing techniques and physics based approaches.

**AENG 612 Analysis of Aircraft Plate and Shell Structures 3 Credits (3,0)**
Bending and buckling of plates. Cylindrical bending. Boundary value problems. Axisymmetric problems. Deformation of shells. Energy principles. Stress and stability analysis. Approximate methods. Finite element methods. Computer applications.

# Airline Management (AIRM)

## Courses

**AIRM 600 Airline Cost Efficiency Practices and Value-add Strategies 3 Credits (3,0)**
Continuous improvement, cost cutting plans, revenue maximization through strategic segmentation, and monetizing key units and products to optimize profitability and returns.

**AIRM 605 Revenue Management and Pricing with Simulation in Times of Crises 3 Credits (3,0)**
Fundamental and principles of airline revenue management (RM).

**AIRM 610 Airline Business Diversification: Generating Ancillary Revenues 3 Credits (3,0)**
Ancillary revenue such as a la carte features, commission-based products, frequent flier programs, and advertising sold by the airline. Includes low-cost carriers and premium legacy carriers.

**AIRM 615 Airline Business Models and Competitive Strategies 3 Credits (3,0)**
Management skills, strategic thinking in airlines. Network. Fleet. Schedule. Marketing, revenue management in a competitive market.

# Airworthiness Engineering (AWEN)

## Courses

**AWEN 502 Airworthiness Process and Procedures 3 Credits (3,0)**
Introduction to Airworthiness concepts. Overview of Civil and Military organizational structures in aircraft certification all types. Roles and Responsibilities of the different types of FAA Representatives. FAA rule-making, advisory process, production rules, certification procedures, Exemptions, and Special Conditions. Types of Airworthiness Approvals: Commercial, Military Derivative Aircraft. Roles and Responsibilities of the different Military Aviation Authorities. Military certification procedures, Non-Compliances, civil & military risk acceptance.

**AWEN 510 Aircraft Airworthiness Engineering Principles 3 Credits (3,0)**
Guiding, physical and scientific principles related to the definitions of airworthiness requirements of aircraft are studied. A general treatment of flight dynamics, mission operations, maintenance and the life cycle environments are studied as they relate to established criteria used in airworthiness certification requirements for crewed and uncrewed air vehicle systems. The approach is foundational, adding substance to the qualitative nature of MIL-HDBK-516C while exploring the relevant military and civilian specifications such as the Joint Service Specification Guides (JSSG) and Title 14, Code of Federal Regulations as they apply in the formulation of an air system's airworthiness certification basis. Principles of aircraft mission definition, systems and components design, substantiation, validation, manufacture and serviceability are addressed.
**Prerequisites:** AWEN 502 and UASE 501 and SYSE 505 for students not in MSAE

**AWEN 552 Continued Airworthiness 3 Credits (3,0)**
Activities necessary to ensure continuing safety of flight, reliability, and dependability. Principles and requirements for establishing plans and instructions of all maintenance and sustainment actions needed to accomplish the same in order to assure the continuing airworthiness of an air-system throughout its life cycle. Efforts needed for ensuring the continued airworthiness of existing air-systems when modified, altered, or upgraded from its approved certified condition, building upon the fundamental concepts covered in prerequisite courses. Commercial, military, domestic, and foreign airworthiness requirements; incorporating airworthiness into project planning for air-systems; proper identification of hazards; risk assessment, modeling, and mitigation; and the role of airworthiness within Safety Management Systems.
**Prerequisites:** AWEN 502 and AWEN 510 and MATH 546 and SYSE 505 and UASE 501

**AWEN 690 Graduate Research Project 3 Credits (3,0)**
This capstone course provides students with a project-based opportunity to apply the needed precepts and notions of airworthiness certification. The student will complete a project that provides significant evidence of experience in airworthiness studies. Students will work with designated faculty to formulate, develop, and complete the project. The completion of this capstone course is designed to document significant evidence that all Program Outcomes have been met and provides the student evidence of experience to show to current and prospective employers. This capstone course will be taken as the last class in the student's degree program.
**Prerequisites:** AWEN 502 AWEN 510 AWEN 552 UASE 501 SYSE 505 MATH 546

# Aviation & Aerospace Sustainability (AASI)

## Courses

**AASI 600 Sustainable Aviation and Aerospace Perspectives 3 Credits (3,0)**
Sustainability fundamentals and their application in aviation/aerospace. Environmental effects from aviation/aerospace operations. Aviation sustainability schemes and standards (ie ICAO CORSIA CERT tool, ISO 14001). Environmental risk assessment methods in aviation facilities; CSR and social sustainability for aviation. New technologies' impact in aviation sustainability.

**AASI 605 Aviation and Aerospace Sustainable Organizations 3 Credits (3,0)**
Investigate sustainable operations of aviation and aerospace organizations. Analyze how the distinctive operations of aviation and aerospace organizations could move along with sustainability practices. Sustainable strategies must be a core element within aviation and aerospace organizations; the development of a sustainable strategy should consider the distinctive characteristics of the industry and the interactions among its stakeholders.

**AASI 607 Airport Sustainability Operations 3 Credits (3,0)**
Examine the role of sustainability in airport operations. Assess schemes to reduce airport's environmental footprint, net zero emission schemes; energy efficiency plans, renewable energy technologies, noise performance evaluation, waste and water management programs. Techniques for airports as healthier facilities for employers, employees, users and the community; economic and social sustainability factors for airports.

**AASI 611 Sustainable Aviation Fuels and Carbon Offsetting 3 Credits (3,0)**
The role of Sustainable Aviation Fuels (SAF) in aviation; SAF's economic, social and environmental benefits to aviation industry and society; environmental assessment of SAF and conventional aviation fuels using life cycle assessment software tools; assess market trends and supply chain challenges; the role of SAF in carbon offsetting emission schemes.

**AASI 613 Sustainable Air Traffic Management 3 Credits (3,0)**
Sustainable processes and operations in Air Traffic Management (ATM) systems. Address existing air traffic management operations, and new technologies, and schemes, SESAR, DREAMS and Performance Based Navigation (PBN), and their role in meeting sustainability principles.

**AASI 625 Sustainability Policy in Aviation and Aerospace 3 Credits (3,0)**
Distinguish the applicable sustainability policies, regulations and initiatives for aviation operations. Assess the National and international agencies and their goals and schemes for emissions, operations, design and fuel use. International treaties, the Paris Agreement, Pathways to Net Zero initiatives, ICAO's sustainability guidance, and national and global sustainability schemes in aviation and aerospace.

**AASI 629 Sustainable Air Vehicles; Design and Propulsion 3 Credits (3,0)**
Design and development of technologies that form the new, sustainable era of aviation. Electric Vehicles, Hydrogen fuel cells, Drones and Urban Air mobility vehicles, space operations and their role in aviation/ aerospace sustainability are assessed, along with aerodynamic designs and structures for fuel-efficient aircraft with reduced noise and emissions generation.

**AASI 635 Sustainable Aviation Techniques and Tools 3 Credits (3,0)**
Techniques and tools for sustainability in aviation and aerospace operations. Lean management, Six Sigma and ISO standards, sustainability guiding principles, risk management standards, and result-oriented quality tools are necessary for auditing processes of a sustainable system.

**AASI 637 Aircraft Decommissioning and Circular Economy 3 Credits (3,0)**
Aircraft decommissioning for aviation sustainability. Aircraft decommissioning stages, define spare parts that can be used in other aircraft, explore what can be reused in different industrial sectors, and what parts/materials can be recycled or end up as waste. Stages and processes of aircraft decommissioning. Assess environmental and social impacts of aircraft decommissioning and role in aviation's economic circularity.

**AASI 639 Aviation Corporate Sustainability Management 3 Credits (3,0)**
Evaluate necessary components of aviation corporate sustainability management. Create and evaluate indicators measuring aviation and aerospace sustainability activities. Address factors that leadership in aviation organizations must consider in meeting sustainability goals. Creation of corporate sustainability strategies including investment tools for applying sustainability initiatives in the industry.

# Aviation Cybersecurity (MACY)

## Courses

**MACY 510 Security Engineering and Management 3 Credits (0,3)**
Cybersecurity integration in projects that use information in a computer or network setting. Relationship between information and the operation and mission of an agency, business, organization, or other entity. Information and communications technology (ICT), cybersecurity, business, policies, and ethics. Security engineering concepts, distributed systems, network attacks and defense, security management, encryption, the role of training and education.

**MACY 515 Foundations of Aviation Cybersecurity 3 Credits (3,0)**
Cybersecurity impacts on entire aviation ecosystem that includes the supply chain, manufacturing, maintenance, airports, and aircraft. Cyber threats to commercial airplanes, uncrewed aircraft (drones), air traffic control, and aerospace. Recommend mitigations to threats. Critical role of humans in cybersecurity. Regulations and best practices in aviation cybersecurity.

**MACY 516 Operational Technology Risks in Aviation - IoT, ICS, SCADA 3 Credits (3,0)**
Operational Technology (OT) risks in aviation. Use of OT in aviation, including the Internet of Things (IoT), Industrial Control Systems (ICS), and Supervisory Control and Data Acquisition (SCADA). OT in the aviation industry, including aircraft manufacturing, maintenance, tracking of passengers and luggage, passenger entertainment, building maintenance, and avionics. Inherent poor security and vulnerability in OT.

**MACY 517 Uncrewed and Autonomous Systems Cybersecurity 3 Credits (3,0)**
Unique cybersecurity challenges and environment of uncrewed aviation systems. New and emerging threats as this aviation field continues to grow and evolve. Jamming, spoofing, hacking, and electronic interference of uncrewed systems.

**MACY 520 Aviation Cybersecurity Threats, Actors, Tools, and Techniques 3 Credits (3,0)**
Cybersecurity threats and actors that pose risks to aviation. Tools and techniques used by malicious actors and those used to defend against the threats and attacks. Fundamentals of developing an incident response plan and operational defense plan to prepare an organization to respond to cybersecurity threats and attacks.

**MACY 525 Aviation Cybersecurity Risk Management and Resilience 3 Credits (3,0)**
Cybersecurity risk management process including risk identification, assessment and evaluation, mitigation, and monitoring and apply that process to aviation cybersecurity. Cybersecurity risk assessment with identification of assets, qualitative and quantitative risk assessment, risk prioritization. Cybersecurity resilience in the aviation domain focused on prevention, detection, and recovery. Comprehensive incident response strategy as an essential element of resilience.

**MACY 526 Cybersecurity Standards, Laws, and Regulations 3 Credits (3,0)**
Various international and national standards, laws, and regulations that pertain to both the cybersecurity and aviation ecosystems. Various institutions such as the International Civil Aviation Organization (ICAO), U.S. Federal Aviation Administration (FAA), and European Union Aviation Safety Agency (EASA) that proscribe regulations and statutes. Compliance with established standards and risk mitigation. Analysis of situations where standard from various agencies may conflict with each other.

# Aviation Finance (FIND)

## Courses

**FIND 695A Topics in Aircraft Finance I 2 Credits (2,0)**
This course is the first of the three required courses for the ISTAT University diploma in aircraft financing. This course introduces students to aircraft selection strategy basics from an airline and leasing company's perspective, including important considerations of mission capability, availability, economics, and availability of financing. In addition, the course provides a detailed review of aviation legal and regulatory framework and discusses applicable governing laws, conventions and treaties, lessor and operator liability, and aviation insurance. Students will also learn principles of aircraft leasing versus ownership, including pros and cons of aircraft ownership, types of leases, lessor and lessee relationship and obligation, and lease accounting. Pre-Requisite: FINE 518 or equivalent or permission of instructor.

**FIND 695B Topics in Aircraft Finance II 2 Credits (2,0)**
This course is the second of the three required courses for the ISTAT University diploma in aircraft financing. This course introduces students to airline credit analysis and provides them with tools and techniques to conduct quantitative and qualitative credit analysis of domestic and international airlines. Student will also learn sources of capital and financial instruments that airlines and leasing companies use in aircraft funding. In addition, the course provides a detailed review of the fleet portfolio management and risk management that leasing companies employ to reduce their exposure to aircraft residual values, foreign exchange, interest rate, and other risks. Pre-Requisite: FIND 695A or permission of the instructor.

**FIND 695C Topics in Aircraft Finance III 2 Credits (2,0)**
This course is the last of the three required courses for the ISTAT University diploma in aircraft financing. This course provides an in depth review of the principals of maintenance reserve, maintenance reserve economics and rate setting and maintenance reserve management, transactionmodeling for aircraft returns (includes advanced excel simulations) and lease negotiations between the lessor and the lessee Students will also learn advanced excel skills (calculation of IRRs, Multiples, NPV analysis, return of capital, pay back periods, lease earnings) test the model functionality and interpret data from them. Pre-Requisite: FIND 695B or permission of the instructor.

# Aviation Maintenance (MAVM)

## Courses

**MAVM 601 Leadership in Global Aviation Maintenance Organizations 3 Credits (3,0)**
Focus is on the leadership role in Global Maintenance Organizations principles and application to evaluate and implement a maintenance philosophy that supports a global aviation maintenance organization. Addresses the leadership of subordinate managers and supervisors through the communication of organizational philosophies and directives, including prioritizing assigning and tracking goals, objectives, and standards.

**MAVM 605 Global Maintenance Resource Management 3 Credits (3,0)**
In this course, students will examine the leadership role in Maintenance Resource Management (MRM) principles and applications, to include compliance with Federal Aviation Administration and European Aviation Safety Agency guidelines. Specific emphasis is placed on management's role in the five pillars of MRM: communication, decision-making, situational awareness, workload management, and teamwork skills, as they pertain to awareness and mitigation of latent and active failures. The overall objective is to manage maintenance technical skills, interpersonal skills, and human performance and cognition in a way that increases communication effectiveness and enhances safety. Included are the foundations in Crew Resource Management, the dirty dozen, and case studies in aircraft accidents attributed to maintenance failures.

**MAVM 609 Aircraft Maintenance Management 3 Credits (3,0)**
This course features a detailed analysis of commercial air carrier and general aviation aircraft maintenance that includes regulation, organization and structure, capabilities and limitations, maintenance levels, inspection and reporting requirements, and prevention and correction inspections. Case studies of typical and unique maintenance scenarios are utilized. A major course objective is to heighten awareness of the critical interface of maintenance with flight, supply, and training activities.

**MAVM 615 Strategic Management of Global Maintenance, Repair and Overhaul (MRO) Operations 3 Credits (3,0)**
Covers concepts and management fundamentals of Maintenance, Repair and Overhaul (MRO) operations in a dynamic and complex global industry. Addresses strategic management and control of scheduled and unscheduled inspections, maintenance and repair, including cost projection, analysis, maintenance trends and maintenance recorded keeping for efficiencies in operations. Compliance with national and international laws and regulations applicable to global MRO operations are explored.

**MAVM 625 Trends and Challenges for Global Aviation Maintenance Organizations 3 Credits (3,0)**
Today the technology, processes and organizational structural changes facing global aviation maintenance entities are evolving faster than in previous times. To respond appropriately to the trends and challenges aviation maintenance leaders must be abreast of the issues in order to respond with agility and acuity. In this course, current emerging trends such as prognostics, Artificial Intelligence (AI), cybersecurity, additive manufacturing, sustainability, drones as maintenance tools as well as other topics will be investigated to gain a better understanding of not only impacts to aviation maintenance organizations but the opportunities.

**MAVM 644 Integrated Logistics In Aviation Management 3 Credits (3,0)**
This course centers on elements of a modern integrated logistics system. The organizational structure, inventory management, principles of warehousing, traffic management, international logistics, and quality management principles as they apply to logistics are key elements. The impact of just-in-time systems and quality management principles on physical distribution and their relationship with integrated package and cargo carriers, advancements in intermodal transportation, and the deregulation of the transportation industry are probed. The characteristics of system design to meet requirements of reliability, maintainability, and supportability are examined, as is the economic feasibility of a logistics system, including Life-Cycle Cost Analysis methods. The explosion of computer technology and its effect on electronic data interchange capability as they influence logistics policies and practices are explored. The use of computer software to solve logistics problems is introduced.

# Aviation Management (AVMG)

## Courses

**AVMG 501 Aviation Law and Regulation 3 Credits (3,0)**
This course offers an in-depth analysis of international and domestic aviation laws and regulations, tracing their historical development and their contemporary impact on global air transportation. Students will critically evaluate legal cases, recent regulatory changes, and their implications for airlines. Topics include airspace sovereignty, aviation liability, environmental regulations, and the legal framework governing international air travel.

**AVMG 502 Airline Management 3 Credits (3,0)**
This course explores the intricacies of airline management, emphasizing the application of strategic management concepts within the airline sector. Students will engage in case studies of successful airline management strategies, develop comprehensive business plans, and analyze topics such as airline mergers and alliances, airline economics, and the role of airline managers in ensuring operational excellence and profitability.

**AVMG 503 Aviation Technology and Innovation 3 Credits (3,0)**
Students will delve into cutting-edge aviation technologies and innovations that are shaping the industry's future. Topics include artificial intelligence applications for flight operations and customer service, blockchain's role in enhancing aviation security and efficiency, sustainable aviation fuel initiatives, and the impact of emerging technologies on airline business models, such as electric aircraft and autonomous ground operations.

**AVMG 504 Customer Experience 3 Credits (3,0)**
This course provides an in-depth examination of passenger experience management within the airline industry. Students will critically analyze factors influencing customer preferences and loyalty, including personalization strategies, in-flight entertainment options, cabin design, and passenger feedback analysis. Case studies of global airlines will be explored to extract best practices in delivering exceptional passenger experiences.

**AVMG 505 Human Resource Management and Labor Relations 3 Credits (3,0)**
Focused on advanced topics in human resource management and labor relations within the aviation industry, this course explores complex issues in labor negotiations, employee development, law and organizational culture. Students will develop strategic HR solutions, including talent management strategies, employee engagement initiatives, and strategies for managing a diverse workforce in a global context including the role of unions.

**AVMG 601 Evolution of Airports 3 Credits (3,0)**
The course commences with an exploration of the historical development of airports and their transformation into modern hubs of transportation and commerce. Students will be acquainted with fundamental principles of airport operations, the significance of security in the post-9/11 era, and the broader role airports play within the global aviation network. Concepts such as passenger facilitation, airside and landside operations, major milestones in airport growth, and the relationships between airlines and airport authorities will be discussed.

**AVMG 603 Airport Operations 3 Credits (3,0)**
In this comprehensive study, students will explore the day-to-day aspects of airport operations including procedures from ground handling to airside operations, emphasizing safety regulations, security protocols, and emergency management procedures all from a business lens. Furthermore, aspects like passenger flow management, coordination between different airport departments, and the challenges posed by peak traffic times will be addressed.

**AVMG 605 Airport Planning and Development 3 Credits (3,0)**
This course underscores the multifaceted nature of airport development, incorporating strategic, environmental, and operational considerations. The master planning process, a blueprint for long-term airport growth, will be thoroughly examined. Students will also delve into the environmental impact assessments, understanding the ecological responsibilities of modern airports, and stakeholder engagement strategies vital for garnering community and industry support.

**AVMG 607 Airport Funding and Revenue Management 3 Credits (3,0)**
Financial acumen is vital in managing airport operations. In this course, students will be introduced to traditional infrastructure funding mechanisms, public-private partnerships, and the exploration of diverse revenue streams from retail leasing, land leases, fence agreements to airline fees. The course also delves into financial forecasting, budgeting, and strategies for revenue optimization.

**AVMG 609 Airport Sustainability and Resilience 3 Credits (3,0)**
Modern airports face the dual challenge of ensuring environmental/social responsibility and operational resilience. This course covers strategies and the business case for waste management, energy efficiency, carbon footprint reduction, and sustainable infrastructure development. Emphasizing the crucial aspect of operational resilience, the course goes beyond by providing methodologies to prepare for and respond to disruptions whether natural events like extreme weather or man-made challenges such as system failures or security breaches.

**AVMG 612 Airline Operations 3 Credits (3,0)**
This course provides a comprehensive understanding of airline operations, encompassing airport management, security protocols, and supply chain optimization. Students will engage in advanced analysis of airline operations, using data-driven decision-making to optimize flight scheduling, crew management, and ground operations with a focus on safety, reliability, and profitability.

**AVMG 614 TechOps and MRO's 3 Credits (3,0)**
This course offers a deep exploration of the technical operations crucial to airlines' success. Students will gain proficiency in the economics of technical operations, project and fleet planning, predictive maintenance, and regulatory compliance.

**AVMG 616 Airline Fleet, Network, and Route Planning 3 Credits (3,0)**
Students will delve into the strategic aspects of airline operations, including environmental impact assessments of route planning decisions and capacity optimization strategies. They will develop advanced network and fleet planning solutions, considering financial, environmental, and competitive factors with a focus on economics and codeshares.

**AVMG 618 Airline Pricing and Revenue Management 3 Credits (3,0)**
This course equips students with advanced data analytics and pricing models to research the science of profitability. Focus will be on optimizing revenue for diverse airline scenarios, addressing topics such as dynamic pricing, ancillary revenue streams, and personalized offers in the digital era of aviation as well as new revenue models for the next generation of sustainable airlines.

**AVMG 620 Airline Sustainability and Operational Resilience 3 Credits (3,0)**
This course offers insights into sustainability practices and operational resilience within the airline industry. Students will explore advanced topics such as sustainable supply chain management, crisis communication strategies, disruption management and advanced risk assessment techniques-key components for fostering operational resilience and sustainability in airlines.

# Aviation Safety (MSAS)

## Courses

**MSAS 611 Aviation/Aerospace System Safety 3 Credits (3,0)**
History of system safety. Risk management, hazard analysis, and risk mitigation. The impact of system safety throughout life cycle of the system. Role of system safety in aircraft certification. Impact of new technology on aviation/aerospace system safety.

**MSAS 612 Aviation/Aerospace Industrial Safety Management 3 Credits (3,0)**
Health, safety, and environmental issues in workplace aviation and aerospace nonflight situations. History of industrial safety. Roles and relationships between government, corporation, safety management and the worker. Non flight-related federal, state, and local regulatory requirements and advisories. Developing management leadership and employee involvement in managing health, safety, and environmental (HSE) issues. Workplace industrial risks. Training programs to sustain HSE programs.

**MSAS 615 Aviation/Aerospace Accident Investigation and Analysis 3 Credits (3,0)**
Collecting, preserving and reconstructing accident scene data. Regulations governing accident reporting and investigation. Roles of federal and international agencies. Methods, techniques, and procedures for accident investigation. Witness interview techniques. Accident scene safety. Crash survivability.

**MSAS 621 Aviation/Aerospace Safety Program Management 3 Credits (3,0)**
Planning and managing an effective aviation safety program. Principles and theories of key aviation Safety Management System elements. Monitoring and measurement of aviation safety performance. Aviation safety team member positions, typical roles, job description, responsibilities, personnel requirements, and functions of personnel involved in the aviation safety management process. Safety audits and inspections, performance criteria and evaluation programs, job safety analysis, and trend analysis programs. Aviation safety promotion and safety culture.

**MSAS 627 Aviation Safety Data Management and Analysis 3 Credits (3,0)**
Collection, management, analysis and dissemination of aviation safety data. Current aviation safety data sources and analysis tools used to isolate aviation safety issues and determine solutions. Parties responsible for managing aviation safety data. Presentation of data to various stakeholders. Processes in place to guarantee data integrity, security, and privacy.

# Business (BUSW)

## Courses

**BUSW 604 International Business Administration 3 Credits (3,0)**
Analyze major issues in the operation of international business including structure, location, and strategic planning; evaluate foreign market entry methods, foreign currency exchange issues, hedging, and the International Monetary Fund; analyze human resource issues including culture, communications, labor force management, teamwork, and ethics; evaluate trade theories, tariffs, and other barriers to trade.

**BUSW 635 Business Strategy for Managers 3 Credits (3,0)**
Long-term planning and management tools to formulate the organization's strategic vision and policies. Application of the concepts are applied to the domestic and international activities of organizations to create a sustainable competitive advantage. Pre-Requisite: Should be last course taken of the MBAA core.

**BUSW 699 Special Topics in Business Administration 1-3 Credit (1-3,0)**
In this course, students elect to perform a special, directed analysis and/or independent study in an area of particular interest. Candidates selecting this elective must prepare a detailed proposal for the desired project and present the proposal to the graduate program chair or department chair for faculty review. Proposals must be submitted at least four weeks prior to the start of the term in which the elective is being taken.

*Graduate Courses*

# Business Analytics (BUAN)

## Courses

**BUAN 505 Information Analytics and Visualization in Decision Making 3 Credits (3,0)**
One of the most potent models of the decision process is the OODA Loop -- that we Observe, Orient, Decide, and then Act. Key to this or any other control and decision (or cybernetic) process is that vast quantities of raw sensory data about the outside world must be processed, abstracted, and then presented in contrast and conjunction with the knowledge previously generated and retained. This two-step process -- the reduction, analysis, filtering and abstracting of data into knowledge, and its presentation in formats and fashions that support the decisions that must be made -- is the subject of this course. The relationships between such analysis and visualization will be examined in the context of business and organizational decision-making and decision support systems concepts.

**BUAN 522 Business Analytics, Social Network and Web Analytics 3 Credits (3,0)**
Analytics is the application of techniques to identify important observations and patterns in data. Analytical techniques can be used to overcome the practical challenges presented by data, such as the challenges presented by data volume, variety, velocity, and other properties. This includes application of techniques of data reduction, filtering and analysis in order to identify, measure and assess key business indicators. This course focuses on the business rationale for and application of analytics including exploration of how decision-making processes can and should be driven by the results of well-crafted analytics processes. In particular, the course focuses on both the need for organizations to more fully understand, appreciate and exploit so-called "soft" or "unstructured" data -- the things human beings say to each other, in uncontrolled and unformatted ways, on various social media. Search histories and other "temporary" data, not normally revealed by traditional search engines, will also be examined.

**BUAN 523 Data Mining for Business Analytics 3 Credits (3,0)**
Data mining is both finding the right data in one's file systems or data warehouses, by applying smarter search and filtering criteria, as much as it is the reduction, analysis and presentation of that data in meaningful ways. While many of these techniques are statistical in nature, many rely on applied artificial intelligence algorithms - so-called "machine learning" - to help the organization's managers, accountants and doctors in "discovering" new knowledge in the sea of data that they already have, but cannot digest without significant software help.This course surveys methodologies useful for data mining for business analytics and guides the student in identifying the data mining process from the data exploration phase to the different predictive techniques.

**BUAN 524 Applied Business Intelligence and Analytics 3 Credits (3,0)**
Business intelligence (or BI) and analytics is both a process and a product. The product is the timely, precise, high-value and actionable business insights that management needs to make decisions. The process is the gathering, collating, analyzing, and assessing of many different kinds of information that lead to those insights. Business intelligence processes and analytics products can have a profound impact on corporate strategy, performance and competitiveness; and much like intelligence processes and products in the military and national security arenas, BI and analytics can have positive or negative impacts upon the organization depending upon how it is done and how it is used (or misused). This course presents students with both the theoretical concepts and practical applications of BI and analytics, and examines some predictive analytics techniques using SAS(c).

# Co-Operative Education & Internship (COIN)

## Courses

**COIN 696 Graduate Internship 1-3 Credit (1-3,0)**
Temporary professional or industrial work appointment made available to students enrolled in graduate programs at the University. An internship provides graduate students with an opportunity to extend their academic endeavors through the application of the theories and philosophies studied in the classroom to specific professional activities coordinated by the University between offering organizations and the graduate student. Prior approval of the graduate program chair is required.

**COIN 697 Graduate Internship 1-3 Credit (1-3,0)**
Temporary professional or industrial work appointment made available to students enrolled in graduate programs at the University. An internship provides graduate students with an opportunity to extend their academic endeavors through the application of the theories and philosophies studied in the classroom to specific professional activities coordinated by the University between offering organizations and the graduate student. Prior approval of the graduate program chair is required. Continuation of COIN 696.

# Emergency Services (MSES)

## Courses

**MSES 510 Crisis Emergency Risk Communication 3 Credits (3,0)**
This course focuses on communication during crisis in the context of emergency services. Students will analyze the goals of Crisis Emergency Risk Communications. The intended audiences of these communication efforts are emergency service workers at all levels of an organization.

**MSES 520 Psychological Issues Among Emergency Service Personnel 3 Credits (3,0)**
This course explores issues related to the reactions of emergency service personal responding to serious crisis events. It provides perspectives on psychological effects and covers supportive and practical assistance available in the aftermath of disasters as well as more commonplace critical events, e.g., dealing with the psychological aftermath of accidents, PTSD, robberies, suicide, homicide, drug related issues, or community violence. The course examines such issues from the perspective of emergency service personnel and organizations, including, working conditions unique to their respective positions, common and novel stressors inherent in their work, normal and abnormal adaptation to occupational stress and trauma, and research pertinent to resilience and recovery in emergency personnel. Students learn the effects of these issues on psychological functioning (cognitive and affective), risk factors and assessment, clinical intervention, operational support, the role of organizational culture and resources for follow-up care and treatment.

**MSES 530 Statistics in the Public Sector 3 Credits (3,0)**
Basic statistical theory and methods with focus on applied quantitative techniques for public managers. Design research, and collect, organize, clean, and analyze data, and interpret and report results. Critically evaluate methods in published research.

**MSES 540 Approaches to Comprehensive Emergency Management 3 Credits (3,0)**
Approaches to Comprehensive Emergency Management introduces general principles of Emergency Management at the National, State, and Local Levels. Emergency management or comprehensive emergency management means the preparation for and the carrying out of all emergency functions, other than functions for which the military forces are primarily responsible, to mitigate, prepare for, respond to, and recover from emergencies and disasters, and to aid victims suffering from injury or damage, resulting from disasters caused by all hazards, whether natural, technological, or human caused, and to provide support for search and rescue operations for persons and property in distress. However, emergency management or comprehensive emergency management does not mean preparation for emergency evacuation or relocation of residents in anticipation of a nuclear attack.

**MSES 550 Atmospheric Conditions in Emergency Services 3 Credits (3,0)**
An overview of meteorological processes, focusing on the considerations and impacts of weather and climate in emergency management, planning, and services. Topics include: atmospheric structure and circulation, atmospheric kinematics and thermodynamics, mid-latitude and tropical cyclones, convective and non-convective weather features, local wind phenomena, climate, and fundamental concepts in weather analysis and forecasting. Assignments and projects will focus on application using internet-based weather products, providing the student with practical experience in making informed weather-sensitive decisions.

**MSES 560 Ethics in the Public Sector of Emergency Services 3 Credits (3,0)**
This course explores basic ethical principles with a specific focus on the public sector of emergency service occupations. Ethical challenges, as they relate to the emergency services, including both emergency related incidents and ethics that govern the operation of an emergency services department or public sector organization will be covered. Students will apply fundamental ethical theory to the real-world situations encountered in these occupations.

**MSES 570 Disaster Recovery 3 Credits (3,0)**
Theoretical and practical approaches to disaster recovery planning, management, factors and policies affecting recovery processes and outcomes. Includes FEMA Whole Community Approach, National Disaster Recovery Framework;, displaced populations and housing, infrastructure, debris management, donations, volunteers, and case management.

**MSES 580 Disaster Response 3 Credits**
Disaster response strategies, factors, and policies affecting response. Includes FEMA Whole Community Approach, National Response Framework (NRF), Incident Command System (ICS), National Incident Management System (NIMS); roles and responsibilities of relevant stakeholders; disaster behavior and effects on response; evacuation; search and rescue; social and cultural competency in emergency management; managing volunteers; Emergency Operations Center (EOC) activation and operations.

**MSES 590 Disaster Preparedness 3 Credits (3,0)**
The selected topic is an important component of Emergency Management (EM). This course will analyze those critical issues to prepare the whole community for effective response, including disaster planning, training, and exercises. Students will also learn the tools to evaluate and analyze the current emergency operations plans in order to identify inconsistencies and gaps and make recommendations for improvement based on analysis of state of the art and best practices in related academic and professional disciplines.

**MSES 690 Capstone 3 Credits (3,0)**
This master's degree program is designed for individuals seeking advanced knowledge in emergency services, hazard mitigation and preparedness, disaster response, recovery, and homeland security. With its emphasis on critical thinking, leadership skills and current research, the degree is most appropriate for those who wish to extend their education beyond foundational fire and emergency services science, theory and practice. The student will receive advanced knowledge in all parts of Emergency Services, Emergency Management, and Homeland Security. All three areas are components of disasters and large- scale events. This degree will prepare students for possible careers in fire and emergency services, disaster management, emergency management, higher education and research, public policy development, organization management, leadership, and terrorism response. The Capstone is the last course taken in the MSES program. All coursework must be complete before attempting the capstone.

# Engineering Management (EMGT)

## Courses

**EMGT 500 Managing in the STEM Environment 3 Credits (3,0)**
Application of management skills specific to the STEM environment. Technical communication skills are emphasized as a component of STEM management professionalism.

**EMGT 520 Quality for Projects and Operations 3 Credits (3,0)**
Quality thought leaders introduced as a foundation for quality management systems. Foundational quality management techniques such as statistical process control.
**Prerequisites:** EMGT 500

**EMGT 530 Project Scheduling and Risk Management 3 Credits (3,0)**
Projects are defined, and the project schedule characterized by scope, project activities, and resource assignments. Investigate the iterative nature of identification, qualitative and quantitative analysis.
**Prerequisites:** EMGT 500

**EMGT 620 Technology and Innovation Management 3 Credits (3,0)**
Creation of technology roadmaps. Implementation of configuration policy and practice in complex systems. Introduction to intellectual property development, distribution and protection. Analysis of strategic frameworks and organizational structures for innovation.
**Prerequisites:** EMGT 500

**EMGT 690 Engineering Management Capstone 3 Credits (3,0)**
A demonstration of mastery of engineering management including the following topics: engineering project plans, financial analysis, quantitative analysis, quality management systems, and ethics and professional responsibility. This is required for students in the American Society for Engineering Management aligned studies. All coursework must be complete before attempting the capstone.

# Finance (FINE)

## Courses

**FINE 518 Corporate Finance 3 Credits (3,0)**
Theoretical and practical approaches to effective financial management. Planning, analysis, and control of investments (e.g., capital budgeting, risk and diversification); short and long-term financings (e.g., debt and equity); financial derivatives (e.g., options and futures); making ethical financial decisions. Pre-Requisite: ACCT 510 if student is in the 2021-2022 catalog or newer.

**FINE 523 Advanced Aviation Economics 3 Credits (3,0)**
This course pursues an economic analysis of the global airline industry. Topics include the history and economic rationale of government regulation and the effects of worldwide liberalization, demand for air transportation and modeling, pricing and revenue management, supply and route architecture, cost structure and methods of control, and fleet selection and financing.

**FINE 610 Budgeting and Finance for R&D 3 Credits (3,0)**
Financial analysis common to STEM context. Time Value of Money analysis including the impact of inflation and taxation. Modeling of financial scenarios using software applications.
**Prerequisites:** EMGT 500

**FINE 615 Investments 3 Credits (3,0)**
Survey of investments including security markets, investment vehicles, investment analysis, and portfolio management. Specific topics include the concept of risk and return, types of financial instruments, security valuation, mechanics of trading, the survey of investment companies, asset allocation for individual and institutional investors, the concept of efficient markets, equity and bond portfolio management, and portfolio performance evaluation. Case studies from the airline and aerospace industries; Web-based investment simulation; and current economic and capital market information.
**Prerequisites:** FINE 518 or FINE 610

**FINE 618 Advanced Corporate Finance 3 Credits (3,0)**
Complex financial structures and advanced financial tools employed in the aviation industry. Concepts covered include project finance, leasing, mergers, financial distress, financial derivatives (real options, interest rate swaps, fuel and currency hedging, forward contracts and futures), airport finance and financial modeling using simulation and optimization techniques.
**Prerequisites:** FINE 518 or FINE 610

**FINE 628 Introduction to Financial Engineering: Futures and Options 3 Credits (3,0)**
Forwards, futures, SWAPS and other financial derivatives for hedging, arbitrage and speculative purposes in the global environment. Focuses on how firms use these instruments to manage financial risks.
**Prerequisites:** FINE 518 or FINE 610

**FINE 653 International Finance 3 Credits (3,0)**
Apply international financial considerations in the development of corporate financial policy; exchange rate behavior, risk, management and asset management from a global perspective.
**Prerequisites:** FINE 518 or FINE 610

**FINE 673 Global Economic Analysis 3 Credits (3,0)**
Applies macroeconomic principles internationally. Aggregated demand and supply. Government policy. Fiscal Policy. Monetary Policy. International trade.

# High Reliability Organization (HROM)

## Courses

**HROM 510 Enterprise Risk Management 3 Credits (3,0)**
Risk identification, assessment, and response across an enterprise. Quantitative and subjective tools to define and quantify strategic, operational, and functional risk. Evaluation of the risk appetite. Integration of risk in the decision-making process.

**HROM 520 Organizational Resilience 3 Credits (3,0)**
Organizational resilience and agility in a High-Reliability Organization (HRO) context. An in-depth study of the thinking and actions of reliable and resilient people and organizations. Leading in a complex environment including change management, promoting innovation, crisis and disruption management, and the creation of a culture of resilience.

**HROM 530 Modeling and Decision-Making 3 Credits (3,0)**
Introduction to statistical techniques and decision-making tools for the high-reliability organization.

# Human Factors (MSHF)

## Courses

**MSHF 606 Human Cognition 3 Credits (3,0)**
This course examines human cognitive processes, both simple and complex, and normal human cognitive functioning. It provides an overview of what human cognition is and what it involves. It examines the processes by which humans gather data and information, including how humans sense and perceive the surrounding environment to how humans recall and process data and information from all forms of memory. The course also examines the impacts of constructs such as attention, sensation, and perception on those processes. Next it examines how humans organize knowledge in the mind, as well as the impact language has on doing so. It also examines the impact of reasoning and creativity on the processes of risk assessment, problem solving, and decision making. Finally the course provides an overview of human decision making strategies, including the differing requirements, strengths, and weaknesses of each strategy, as well as of strategies for decision making in dynamic environments.

**MSHF 612 Human Performance, Limitation, and Error 3 Credits (3,0)**
This course examines the psychological and physiological performance capabilities of humans as related to human cognition. It also examines the limitations of that performance, both common and individual, and how these limitations are impacted by systemic variables such as the environments in which humans work and individual behavioral attributes. It then examines how human performance capabilities and limitations can collectively result in human error as well as examining the types and nature of those errors.
**Prerequisites:** MSHF 606 for MSHF

**MSHF 618 Human Factors in Virtual and Simulated Environments 3 Credits (3,0)**
This course examines the relationship between the technologies used, the human component, the adverse physiological effects on the human, and the wide array of applications in which virtual and simulated environments are used in the field of aviation, aerospace, medicine, simulation, training, and engineering. The course discusses various topics in advanced virtual and simulated environments such as fidelity, transfer of training, simulation, and simulator/cybersickness. Benefits and detriments of the use and implementation of technology are discussed along with a discussion of the physiological effects resulting from the use of this technology on the human component.
**Prerequisites:** MSHF 606 and MSHF 612

**MSHF 624 Ergonomics and Biomechanics 3 Credits (3,0)**
This course examines in depth the principles and applications of ergonomics and biomechanics in engineering, aerospace, industrial hygiene, occupational safety and health, and other technical industries. The course focuses on the biomechanical foundations of design of the workplace, tasks and tools, and analyzes human anatomy, anthropometry, kinematics, and musculoskeletal disorders. The course also explores the regulatory environment, identifying and evaluating risk factors, and implementing ergonomic hazard controls.
**Prerequisites:** MSHF 606 and MSHF 612 for MSHF

**MSHF 640 Human Physiology and Adaptation 3 Credits (3,0)**
This course examines in depth the principles and critical elements of human physiology, to include how the human body maintains a steady state while adapting to outside conditions, a process called homeostasis. Included are human performance capabilities, challenges and adaptations in low and high-altitude/space flight, low-pressure and low-gravity environments, and other at-risk for human habitation environments. Specific topics include the physics of atmosphere, radiation environments, acceleration physiology, systemic physiological responses, sensorimotor interactions, environmental pathologies (e.g. circadian dysrhythmia, spatial disorientation, hypoxia, visual anomalies), and the effects of stimulants, disease and injury on human systems.
**Prerequisites:** MSHF 606 and MSHF 612 for MSHF

**MSHF 641 Systems Psychology 3 Credits (3,0)**
This course emphasizes human psychological effects, human performance, performance limitations, and error mechanisms as primary components of sociotechnical systems of various designs and complexities. It focuses on human cognitive performance within these joint cognitive systems. The course explains the relationship between systems psychology and systems engineering, cognitive systems engineering, systems thinking, and systems science, and how human factors engineers employ these disciplines to positively impact the design and development of complex sociotechnical systems for the purpose of optimizing system efficiency, effectiveness, and safety. It emphasizes the need for critical thinking, analysis, reasoning, problem solving, risk assessment, and decision-making skills to accomplish this. It further examines how human psychology affects not just the system users, but all system stakeholders, including the system designers. The course provides both theoretical knowledge and practical application of the impact of human psychological performance on system conceptualization, design, development, testing, and employment over the system lifespan. This is accomplished through the lens of current system technological capability as well as that of likely future technological advancements, and all focused on improving human/systems integration (HSI).
**Prerequisites:** MSHF 606 and MSHF 612 for MSHF Students

**MSHF 646 Industrial Applications in Aerospace 3 Credits (3,0)**
This course examines human factors principles and elements in developing and designing effective processes and applications for the aerospace industry. The course provides a working knowledge in areas of cognitive neuroscience and cognitive engineering, performance analysis, modeling, intelligent systems, and control design. Topics of emphasis examine neuroengineering, simulation and virtual environments, distributed cognition, adaptive technology, investigative approaches, engineered standards, human-robot collaboration, and other aerospace applications incorporating human factors considerations. The course builds a foundation for researching and designing operational applications in several venues for the aerospace industry. An orientation focusing on current and emerging technologies assesses approaches to integrate human factors elements and to collaborate effectively within the industry environment. Methods in the course employ scenario-based platforms and synthesizing learning from multiple disciplines.
**Prerequisites:** MSHF 606 and MSHF 612 for MSHF

**MSHF 647 Human Factors in Complex Systems 3 Credits (3,0)**
An examination of organizations and sustainable systems as socio-technical systems, including socio-technical approaches to design, implementation, and management is provided. The exploration of the understanding of effective interactions among people who work across organizational, geographical, cultural, technological, and temporal boundaries, as a means to design effective complex socio-technical systems is the focus of the course. Discussions include participative design and decision-making; quality of work life; semi-autonomous work groups; organizational ecology; and collective resource approaches to planning.
**Prerequisites:** Student must be admitted to MSYSE or MSHF MSHF 606 and MSHF 612 for MSHF

**MSHF 653 Cognitive Systems Engineering 3 Credits (3,0)**
Explores relationship between cognitive systems engineering and joint cognitive systems, emphasizing the human factors involved. Fundamental concepts in applying cognitive systems engineering to developing a joint cognitive system to include cognitive complexity, cognitive workload sharing and teamwork, human/computer and human/machine interaction, and system resiliency. Modeling techniques and analysis tools and techniques used in cognitive systems engineering.
**Prerequisites:** Student must be admitted to MSYSE or MSHF MSHF 606 and MSHF 612 for MSHF

**MSHF 691 MSHF Culminating Research Experience 3 Credits (3,0)**
The Master of Science in Human Factors Culminating Research Experience (CRE) is the culminating effort of the student's entire learning experience. The student has the opportunity to choose from multiple CRE formats, to include internships, portfolios, and applied industry research projects, which must demonstrate significant evidence of Program Outcome mastery. Students will work with designated faculty to formulate, develop, and complete the Human Factors CRE. The completion of the Culminating Research Experience is designed to document significant evidence that all Program Outcomes have been met and provides the student evidence of experience to show to current and prospective employers. The Culminating Research Experience will be taken at the end of the student's degree program. With approval from the Program Chair, a student may undertake MSHF 691 in parallel with ONE final course only. Pre-Requisite: For CRE students, MSHF 691 must be taken as the final course in the MSHF program.

**MSHF 700A MSHF Thesis I 3 Credits (3,0)**
This course is the first of a two-course sequence (MSHF 700A and 700B) to complete the degree program through the accomplishment of a thesis. The student will propose and begin to develop a research proposal on a Human Factors topic, supervised throughout its preparation by the student's Thesis Committee. The proposal is intended to demonstrate the student's mastery in a topic of Human Factors and be of satisfactory quality for publication and/or industry application. Following satisfactory performance within this course, the student will continue to MSHF 700B for the completion and submittal of the thesis. Pre-Requisite: For Thesis students, MSHF 700A and 700B must be taken in that order, as the final two courses in the MSHF program.

**MSHF 700B MSHF Thesis II 3 Credits (3,0)**
This course is the second of a two-course sequence (MSHF 700a and 700b) to complete the degree program through the accomplishment of a thesis. The student will complete their thesis under the supervision of the student's Thesis Committee. The thesis is intended to demonstrate the student's mastery of the topic and be of satisfactory quality for publication and/or industry application. Following satisfactory performance within this course, the student will be permitted to graduate from the program. Pre-Requisite: For Thesis Option students, MSHF 700A and MSHF 700B must be taken in that order, as the final two courses in the MSHF program.

# Human Resources Management/ Development (HRMD)

## Courses

**HRMD 549 Personnel Management 1.5 Credit (1.5,0)**
Discussion of feedback, communication, planning, and training with relation to multiple populations and talent. Analysis of performance management systems culminating in the creation of performance management plans. Evaluation of talent and effective succession planning.

**HRMD 607 Human Resource Development 3 Credits (3,0)**
Examine the primary roles of human resource development (HRD) in organizations to include theories and applications to manage continuity and change in the workplace; Focus is on the assessment, design, training, and implementation of HRD practices to foster collaborative change across the organization.

**HRMD 608 Human Resources Management 3 Credits (3,0)**
Management of human resources. Interrelationship of managers, organizational staff, and/or specialists. Management theories; human resource planning; recruitment and selection; training and development; compensation and benefits; safety and health; employee relations.

**HRMD 678 Talent Acquisition and Workforce Planning 3 Credits (3,0)**
Strategic approach to identifying, attracting, selecting, and retaining talent. Staffing strategy for business strategy. Forecasting, recruiting, staffing, and development of employees. Strategic staffing, legal aspects of staffing; job analysis; forecasting; strategic sourcing; selection; workforce planning; workforce flow.

**HRMD 679 Comprehensive Reward Systems 3 Credits (3,0)**
Current approaches to total compensation; theory and practice of compensation; benefits; rewards. Reward systems as employee motivation; compensation policy and design. Strategic approach to reward strategies linked to business and people strategies. Strategic compensation; rewards; motivating work environment; government and union influences; job evaluation; pay structures; market analysis; incentives; variable pay; compensation administration; executive compensation.

# Human Security and Resilience (MHSR)

## Courses

**MHSR 500 Introduction to Human Security 3 Credits (3,0)**
In contrast to traditional state-centered models of security, human security focuses on the individual and his/her multifaceted security needs. This course provides an overview of the emerging Human Security paradigm, including the development of the concept and the difficulties of both defining and measuring human security. Each of the component parts of human security, such as economic vulnerability and food vulnerability, and the challenges to alleviate them, are explored more deeply through case studies. Low levels of human security are often associated with high levels of instability and conflict. This course will address the debate within the international community on the actions that more powerful states should take to address human security deficits in places with little government capacity.

**MHSR 511 The Internet, Security, and Governance 3 Credits (3,0)**
This course examines how the Internet and associated communication technologies have created new means for people to organize, both within their local communities and across great distances, changing the nature of the relationship between society and the institutions of government. The Internet has allowed people to communicate often without detection, resulting in both positive and negative effects; e.g., Internet- based communications have been a significant factor in the growth of transnational terrorism and popular uprisings, such as the Arab Spring. In response, governments have often attempted to control the Internet, in some cases to aid legitimate law enforcement, in others to repress restless populations seeking change. State institutions can also use these technologies to create more effective governance and better responses to humanitarian crises.

**MHSR 515 International Law and U.S. Security Policy 3 Credits (3,0)**
The course examines the role of international law, U.S. foreign policy, and international institutions in responding to terrorism, crime, complex emergencies, disasters and crises. It analyzes the challenges and difficulties in achieving unified response and the administrative and legal barriers that must be overcome. The course discusses how U.S. laws and policies intersect with international norms and regimes in a US security context, including existing multinational treaties such as UNCLOS and the Antarctic Treaty System, International Cybercrime Treaty, the Biological Weapons Convention or the Chemical Weapons Convention, and international humanitarian law. Particular attention is paid to privacy laws. The conflicts that are caused by disparate laws and policies will also be explored, as well as challenges to solutions.

**MHSR 520 Principles of International Conflict Resolution 3 Credits (3,0)**
The course exposes students to the different kinds of organized, violent conflicts that exist in today's world and surveys different theories seeking to explain why and how these conflicts have occurred. The course examines how states and other international actors such as the United Nations have sought to resolve these conflicts and establish stable societies in their wake. The course discusses diplomatic, economic, legal, military, and nation-building approaches to conflict resolution, and uses case studies to demonstrate their application to recent conflicts.

**MHSR 530 Environmental Security 3 Credits (3,0)**
Students will learn how environmental issues may give rise to socio-political instability around the world. This course explores how development and execution of U.S. domestic and foreign policy, and ultimately, U.S. national security, can be impacted by emerging threats to states from environmental health issues, infrastructure vulnerabilities, and natural resource shortages caused by rapid industrialization, population growth, and urbanization in less developed countries. It will also examine transnational threats from deforestation and global warming. Students will have the opportunity to link their experiences in localities across the globe to course themes through projects and problem-based learning activities.

**MHSR 540 Foundations of Resilience 3 Credits (3,0)**
Resilience embraces the concepts of awareness, detection, communication, reaction (and if possible avoidance) and recovery. The term also suggests an ability and willingness of societies and other groups to adapt over time to a changing and potentially threatening environment. The course includes risk management principles, communication of risk, crisis management, information management and assurance, and approaches for developing resilient critical infrastructures, strategies, and organizations.

**MHSR 550 Resilience Planning and Administration 3 Credits (3,0)**
Building and promoting resilience to man-made and natural disasters requires high levels of coordination, planning, and administration at every level, from individuals, neighborhoods, and businesses, to local, state, and national government leaders and agencies. The course includes an overview of resilience planning and administration toolkits, bottom-up strategies, and milestone legislation and international agreements, including the Stafford Act, Disaster Mitigation Act of 2000, The Post-Katrina Emergency Management Reform Act, the National Disaster Recovery Framework, Disaster Recovery Reform Act of 2018, the Hyogo Framework for Action, and the Sendai Framework.

**MHSR 680 Topics in Human Security and Resilience 3 Credits (3,0)**
This course will provide students with the opportunity to explore current and emerging topics in human security, resilience, critical infrastructure security, and several other topics as they develop. As the discipline of human security and resilience is dynamic and complex, not all relevant topics can be integrated into the MHSR core curriculum. The main function of this course is to provide a platform to explore pertinent and topical expressions, policies, challenges or dangers to security/resilience as they occur across the globe. As such, each semester will thoroughly explore a given topic and learn how the topic presents national security or homeland security challenges to the US. Students will be expected to synthesize relevant literature and analyze trends and data in order to make the connections to US security.

**MHSR 690 MHSR Capstone 3 Credits (3,0)**
This course provides students with the opportunity to integrate all disciplines and competencies that they have learned in the program, plus incorporate their past experiences and professional goals into a single work-based project, internship experience, or other appropriate activity. In cooperation with an advisor, the student will design, research, and implement a project that is comprehensive in nature and which addresses, to the extent feasible, all core areas of knowledge around which the program has been built.

# Logistics and Supply Chain Management (LGMT)

## Courses

**LGMT 500 Introduction to Supply Chain Management and the Profession 3 Credits (3,0)**
Basic principles of supply chain management. Introduction to the profession of supply chain management. The evolution and objectives of supply chain management; the major stages and processes involved in planning and managing supply chains; the strategic fit and performance metrics associated with the supply chain.

**LGMT 525 Management Science for Operations 3 Credits (3,0)**
Mathematical and scientific tools in managerial decision-making. Fundamentals of operations research methods to support logistics and supply chain management operations. Decision theory, queuing theory, forecasting models, inventory theory, linear and integer programming, transportation and assignment models, and network models, including project management calculations (time and cost) using PERT and CPM. Quantitatively based analytical methodologies, interpreting quantitative results, and communicating conclusions. Pre-Requisite: Prerequisite waived for non-MSLSCM students and previous years' catalog students.
**Prerequisites:** LGMT 500

**LGMT 526 Business Analytics for Operations 3 Credits (3,0)**
Performance measuring, optimization models, and simulation techniques commonly adopted by and integrated into logistics and supply chain decision-making. Technical aspects of data analysis and modeling in network transportation systems, including optimizing scheduling, fleet assignment, routing, ordering, and irregular operations. Simulation models and data visualization techniques and applied to logistics and supply chain management processes and operations. Pre-Requisite: Prerequisite waived for non-MSLSCM students and previous years' catalog students.
**Prerequisites:** LGMT 500

**LGMT 540 Procurement for Logistics Managers 3 Credits (3,0)**
Principles of procurement in supply chain management. Legal and financial implications of the procurement function; Integration of procurement with operations, logistics, and quality; the use of Procurement pricing strategies for different transportation modes; and the role of purchasing in evaluating capital investments as well as professional services. Business processes associated with procurement with SAP. Pre-Requisite: Prerequisite waived for non-MSLSCM students and previous years' catalog students.
**Prerequisites:** LGMT 500

**LGMT 550 Production and Material Control 3 Credits (3,0)**
The systems perspective of production and operations. Management of product, process, and supply chain design and operations. Measurement and analysis of internal processes. Pre-Requisite: Prerequisite waived for non-MSLSCM students and previous years' catalog students.
**Prerequisites:** LGMT 500

**LGMT 560 Transportation 3 Credits (3,0)**
The technical, operational, and economic characteristics of the different freight and package transportation modes and their application in integrated physical distribution systems. Regional, national, and international passenger transportation and the impact of the different transportation modes, transportation intermediaries, and intermodality on small package, freight, and passenger systems. National and international regulatory constraints and their impact on passenger transportation and global supply chain management. Carrier and shipper strategies; alliance management and the use of third parties; transportation metrics; transportation security; and the role of information technology in modern transportation management. Pre-Requisite: Prerequisite waived for non-MSLSCM students and previous years' catalog students.
**Prerequisites:** LGMT 500

**LGMT 600 Enterprise Process Integration using SAP S/4 HANA 3 Credits (3,0)**
The course will cover the different business processes using the integrated process view of an organization. The students will get an understanding of each business process within the context of its role across different functional areas in an organization. Students will utilize their knowledge of different SAP modules to initiate, manage and complete integrated transactions with one running case and number of real-world examples.
**Prerequisites:** LGMT 540

**LGMT 630 Enterprise Process Configuration using SAP S/4 HANA 3 Credits (3,0)**
This course will provide the students knowledge and skills required to configure an ERP system to execute an organization's business processes using SAP S/4 HANA.
**Prerequisites:** LGMT 600

**LGMT 651 Supply Chains in the Global Environment 3 Credits (3,0)**
The economic impact of global logistics. The role of logistics and supply chain management in meeting the demands of the global enterprise, from the sourcing of raw materials through the delivery of the finished products to the customer. Pre-Requisite: Prerequisite waived for non-MSLSCM students and previous years' catalog students.
**Prerequisites:** LGMT 500

**LGMT 692 Logistics and Supply Chain Management Simulation 3 Credits (3,0)**
Demonstrate logistic and supply chain management knowledge gained throughout the program. Permission of the instructor for waiver of prerequisites is NOT applicable for this class. Pre-Requisite: Taken as the last course in the MSLSCM degree program.

# Management (MGMT)

## Courses

**MGMT 510 Management and the Organization 3 Credits (3,0)**
Functional managerial skills in different organizational contexts. Implementation of EBM (Evidence-based management) inside the organization. Global and domestic lensing. Discussions comparing and contrasting best practices, applied to current events.

**MGMT 550 Managerial Communications 3 Credits (3,0)**
Effective messaging strategies, utilizing data for communication. Experience with tools to communicate. Analysis of communication strategies with a view toward effectiveness in critical communications and negotiations. Incorporation of diverse strategies to communicate to multiple audiences.

**MGMT 610 Business Process Management 3 Credits (3,0)**
Examination of excellence frameworks to apply process-based thinking to improve effective process performance and thus organizational performance. Examination of risk management approaches for managers to mitigate risk events as part of a process management strategy.

**MGMT 680 Strategic Action 3 Credits (3,0)**
Implementation of vision and mission into action-oriented steps, particularly in consideration of teams, virtual workspace, and technology. Demonstration of business analytics' value and use. Application of change management practices. Incorporation of operations management strategies to improve performance and efficiency.

**MGMT 691 Management Capstone Course 3 Credits (3,0)**
In this course students are required to author and defend a scholarly paper that requires substantial research to generate solutions to a real-world managerial problem. The student will be exposed to the technical aspects of writing to include problem definition, analysis, and presentation of solutions utilizing structured methods of evaluation. This course shall be taken at the end of the student's program and will give the student the opportunity to apply management concepts learned throughout the MSM program.

**MGMT 699 Special Topics in Business Administration 1-3 Credit (1-3,0)**
In this course, students elect to perform a special, directed analysis and/or independent study in an area of particular interest. Candidates selecting this elective must prepare a detailed proposal for the desired project and present the proposal to the department chair for faculty review. Proposals must be submitted at least four weeks prior to the start of the term in which the elective is being taken.

**MGMT 700 Thesis Research 1-6 Credit (1-6,0)**
A written document on an aviation/aerospace topic is supervised throughout its preparation by the student's Thesis Committee. If the document demonstrates the student's mastery of the topic and is of satisfactory quality for publication, it will be submitted.

# Management Information Systems (MMIS)

## Courses

**MMIS 501 Business Systems: Managing the IS Enterprise 3 Credits (3,0)**
This course provides the foundation for the MSMIS program by reviewing the many ways in which computation, communications and information systems are used to identify and solve problems, recognize opportunities and generate competitive advantage. It uses the concepts of the "enterprise perspective" to demonstrate the various information systems used to lead, manage and operate a variety of organizations. It then uses the "enterprise as system" model to show how all organizations large or small link into the information and knowledge systems of the organizations they interact with -- suppliers, customers, regulators, and their competitors. It also lays the foundations for further examination of key issues, such as information quality and information assurance, throughout the MSMIS program. Throughout, the concept of business processes -- and the engineering and re-engineering of these processes -- provides the unifying focus.

**MMIS 503 Data & Information Modeling & Management 3 Credits (3,0)**
The Era of instantaneous Data is here. Data is a strategic organizational asset and a central resource used in business intelligence (BI) and analytics to generate actionable information to decision-makers. Many companies rely on Excel Spreadsheets for data management and analytics. Excel Spreadsheets conceal a churning sea of data, flowing through the enterprise databases, that need to be combined and synchronized to generate a single, accurate vision of the data. Current data infrastructure designs are crucial but inefficient for a company to become data-driven. Often, organizations have several databases that are built in a silo type of environment where data is not easily linked so that the full picture of the organization's status is available. The focus of this course is centered on the core skills of identifying organizational information requirements, information modeling and all principles related to managing and storing organization data and information. Students will gain insight into understanding how data fundamentally affects a business. These core data management and design skills cross all disciplines, from financial data to customer related data. In addition, recent developments related to big data (and tools for their analysis) will be introduced.

**MMIS 506 Systems Analysis and Design 3 Credits (3,0)**
Systems analysis and design is the science and art of examining a problem and creating the most effective solution. It is a science in that quantitative analysis, strongly supported by theory and practice, can dictate correct and complete solutions that can be cost-effective. It is also an art, in that organizational culture, prerogatives, and perceptions about value and risk quite often play a major role in how systems design and implementation decisions are made. This course considers systems development methods and analysis and design techniques using a practical rather than technical approach. Learners engage in hands-on learning and work in teams to complete a real-world project using contemporary analysis and design methodologies and tools.

**MMIS 507 Information Systems Strategic Planning 3 Credits (3,0)**
Strategic planning is the art and science of setting the enterprise's vision and allocating resources to achieve the vision. When formulating information systems strategies, organizations seeks to identify emerging opportunities to leverage new technologies that may add substantial value but also dramatically change the organization. Strategic planning includes choosing which goals and objectives to accomplish, sets criteria for how well they must be accomplished to satisfy other needs, and sets forth the activities to make these "game-changing" events happen effectively and affordably. Many strategic opportunities may present themselves to an organization, or may be discovered by a variety of introspective or business intelligence activities. Making the decision to take advantage of such opportunities is deciding to make strategic change happen. Strategic opportunities may exist because of fundamental changes in technologies, market preferences, government and regulatory actions, and other factors. The strategic planner knows that nothing remains the same, and that while no plan survives contact with reality, the planning process itself provides insight and the opportunity to choose wisely. Strategic planning for information and information systems entails applying the concepts of strategic business planning to the subset of organizational activity that generates, analyzes, maintains, and produces information and knowledge to support strategic decision making. Information systems strategic planning can address, but is not limited to, choices about fundamental information technologies, systems architectures, and information risk mitigation approaches.

**MMIS 531 Information Systems Project Management 3 Credits (3,0)**
Managing information technology requires ideas and information that go beyond standard project management. Because the project management field and the technology industry change rapidly, this course provides up-to-date information on how good project management and effective use of software can help you manage projects, especially information technology projects. This course provides an information system orientation for project management. It stresses information systems as a whole, not just software development. The course explains some of the key concerns of project manager as the project develop through the project life cycle.

**MMIS 690 Management Information Systems Capstone 3 Credits (3,0)**
This course will offer students the chance to integrate all the knowledge and skills that have been presented in this program in addition to their own experience and professional goals into a single MIS project. Students will work with faculty to create and complete a substantive MIS project. The completion of the Capstone is considered a significant milestone demonstrating that all of the program outcomes have been achieved.

# Marketing (MKTG)

## Courses

**MKTG 510 Economics of Marketing 1.5 Credit (1.5,0)**
How economics impacts marketing. Impact of macro and micro economic factors, market structures, and supply and demand on a firm's pricing, promotion and distribution decisions.

**MKTG 511 Science of Selling 1.5 Credit (1.5,0)**
Professional sales and sales management strategies, techniques, and tools that fuel this key top-line revenue-driven subset of marketing. Sales programs; optimizing sales performance; customer lifetime value.

**MKTG 512 Delivering Customer Solutions 1.5 Credit (1.5,0)**
Strategic decisions necessary to develop product and service solutions that generate customer value in a competitive marketplace. Market analysis; new product development; product lifecycle; service management; service quality; communicating customer value.

**MKTG 514 Professional Service Marketing 3 Credits (3,0)**
Marketing course that explores service marketing attributes in a customer driven context. Service quality elements are analyzed using the Gap model as a framework to examine the differences between marketing tangible goods and services.
**Prerequisites:** MKTG 510 and MKTG 511 and MKTG 512 or MKTG 311

**MKTG 630 Customer Value 3 Credits (3,0)**
Marketing specialization course for the MBAA Program that examines ways that high performing companies consistently meet and exceed customers' wants and needs. Customer value themes address how companies respond to change, customer loyalty, and more.
**Prerequisites:** MKTG 510 and MKTG 511 and MKTG 512 or MKTG 311

**MKTG 632 Global Marketing 3 Credits (3,0)**
Global perspective on marketing management strategies. Current issues and events in the international market. Legal, regulatory, political, language, and other cultural factors influencing products and services for firms operating globally. Pre-Requisite: MKTG 510, MKTG 511, MKTG 512 or MKTG 311 or equivalent course.

**MKTG 633 Digital Marketing 3 Credits (3,0)**
Digital marketing and technology have changed the way customers, retailers, manufacturers, and marketers operate. Topics include how technology is influencing the way customers shop, how products and services are marketed, and how customer information can create value. Digital marketing strategy; analytics, search engines, social media, web and mobile design; and reputation management.
**Prerequisites:** MKTG 510 and MKTG 511 and MKTG 512 or MKTG 311

**MKTG 640 Analytics in Marketing Decision-Making 3 Credits (3,0)**
How analytics can be used to improve marketing decision-making. Analytical tools and software, marketing metrics, marketing modeling software and web/social media measurement tools. Quantitative and qualitative marketing analytics analysis and visualizations. Real-world examples, datasets, and cases placing data analytics techniques in a marketing context.
**Prerequisites:** MKTG 510 or MKTG 311

# Mathematics (MATH)

## Courses

**MATH 502 Boundary Value Problems 3 Credits (3,0)**
Basic technique of solving boundary-value problems of partial differential equations by employing the methods of Fourier series, orthogonal functions, operational calculus including Laplace transforms, other integral transforms and Cauchy's residue calculus. Applications to heat transfer, fluid mechanics, elasticity and mechanical vibrations. Computer applications.

**MATH 546 Application-Based Advanced Engineering Mathematics 3 Credits (3,0)**
This course is designed to present a general approach of introducing a survey of core advanced engineering mathematics topics. The general approach is sought is to present a representative physical circumstance then subsequently develop the mathematical representation (mathematical model) fitting that circumstance noting areas where approximations are needed and introduced or dismissals are applied.

# Meteorology (WEAX)

## Courses

**WEAX 517 Advanced Meteorology 3 Credits (3,0)**
A graduate-level treatment of major topics in meteorology with an emphasis on aviation weather hazards. Topics include, but are not limited to: atmospheric structure and circulation, atmospheric kinematics and thermodynamics, mid-latitude and tropical cyclones, convective and non-convective weather features, local wind phenomena, and fundamental concepts in weather analysis and forecasting. Students will also be introduced to the use of numerical weather prediction products in weather forecasting. Assignments and projects will focus on conducting basic atmospheric analysis and forecasting using internet-based weather data and forecasting products, and provide the student with practical experience in making informed weather-sensitive decisions.

# Organizational Behavior and Leadership (OBLD)

## Courses

**OBLD 500 Leadership Foundations in Research 3 Credits (3,0)**
Foundational concepts for the Master of Science in Leadership Program. Discovery of critical thinking framework, fallacies, digital literacy tools, library research, and writing using the APA style manual. Application of intellectual elements, standards, virtues, and barriers within different leadership contexts, such as coaching, mentoring, sense-making, storytelling, communication, and global citizenry.

**OBLD 511 Organizational Leadership 3 Credits (3,0)**
Exploration of leadership in organizations. Evaluation of organizational leadership theory and research. Examination of internal and external organizational factors impacting leadership effectiveness. Analysis of leadership requisite for equitably and strategically leading a diverse workforce in a variety of workplaces.
**Prerequisites:** OBLD 500

**OBLD 519 Organizational and Employee Behavior 1.5 Credit (1.5,0)**
Organizational and employee behavior intervention strategies for managers. Equitable organizational design, recovery, and renewal for global workforce. Challenges and subjectivity in human behaviors and cultural, social, and ethical value formation and implementation.

**OBLD 521 Leadership Communication 3 Credits (3,0)**
This course explores the impact of communication in leading contemporary technical organizations and provides a broad survey of the technical aspects of communications. Emphasis is placed on the application of theory to practice to develop students' managerial and strategic communication skills so that they may grasp not only how, but also what, why, when, and by what means leaders effectively communicate. Students will have the opportunity to gain an understanding of why good communication skills are important in business, how communications today is affected by technology, why effective communication can be difficult, how communication is used in teams, and what issues exist in overcoming intercultural communication barriers. Students will practice communicating conclusions to problems in concise and persuasive writing and speaking. Written assignments involve preparing technical reports and use of APA style manual.
**Prerequisites:** OBLD 500

**OBLD 535 Leadership & Organizational Design 3 Credits (3,0)**
Learn the various ways organizations structure and adapt to their environment. How leaders and followers participate in designing and developing effective organizations of all types. Organization design and accompanying theories focus on macro level. Examine the whole organization and relationship to its environment. Topics include: organization design factors and theories; how organizations adapt to environments to survive and thrive; role of organizational culture; principles of organizational development; leadership skills in planning organizing, and supporting organizational activities for different sizes and types of organizations.
**Prerequisites:** OBLD 500

**OBLD 632 Strategic Decision-Making for Leaders 3 Credits (3,0)**
Leading a team, board, or organization involves making critical decisions and evaluating the decisions of others. With fast-changing environments, decisions are made under severe time constraints and with insufficient information. Data literacy is essential for leaders and decision-driven data analytics are necessary for organizational effectiveness. Topics include approaches to the decision-making process, application of data in decision making, using analytics to make decisions, and organizational decision-making.
**Prerequisites:** OBLD 500

**OBLD 633 Adaptive Leadership in Complex Environments 3 Credits (3,0)**
In constantly changing environments, leaders routinely create and revise strategies. This course explores the role of leaders in developing unity, focus, credibility, and direction within organizations. Students will be exposed to several strategic frameworks and develop an understanding of which models might be useful in certain situations. Students also learn how to scan the environment; develop and deploy coalitions; identify critical success factors and barriers to implementation, and create viable actions plans.
**Prerequisites:** OBLD 500

**OBLD 634 Leadership Ethics and Corporate Social Responsibility 3 Credits (3,0)**
Students are exposed to several topics of ethics from foundational to applied. Topics include ethical dilemmas, morals, virtues, organizational business situations, and societal issues. The course focuses on the role of ethics in decision-making on three levels: the individual, the organization, and society.
**Prerequisites:** OBLD 500

**OBLD 635 Organizational Change 3 Credits (3,0)**
Use of leadership system and strategies to advance organizational objectives. Theories and concepts of planned change. Anticipate the need for change; champion change agendas; diagnose organizational issues and spot opportunities; develop change action plans, strategies, and techniques; and assess, monitor, and stabilize changed organizations.
**Prerequisites:** OBLD 500

**OBLD 641 Resonant Leadership: Leading Change 3 Credits (3,0)**
The objectives of this course are to broaden and deepen the student's self-awareness and prepare them to be a life-long learner. Success in today's organizations depends on your ability to learn and adapt quickly to new and changing situations. The course is based on a model of self-directed learning and development. Gaining self-awareness and being mindful of oneself is extremely valuable in understanding and formulating your own career and life vision, in assessing your skills and abilities and in designing plans to reach your objectives. From mastery of this basic process comes the ability to manage change and lead others effectively.
**Prerequisites:** OBLD 500

**OBLD 671 Entrepreneurship and Leadership 3 Credits (3,0)**
In this course, students explore the roles and interrelationships of leadership and entrepreneurship in successful enterprises in a global environment. The primary focus is on analyzing the leadership skills and entrepreneurship that enhance organizational success. Topics to be explored are the approaches and models of leadership, entrepreneurship, organization change, implementing an entrepreneurial strategy inside existing organizations, product innovation and technology, and developing new ventures. In addition, students gain insight to the important elements required for a supportive environment needed to sustain the corporate entrepreneurship process. Lastly, the entrepreneurship orientation of organizations for the future is discussed.

**OBLD 690 Graduate Leadership Capstone 3 Credits (3,0)**
Communicate vision and values through leadership storytelling. Pre-Requisite: Completion of all Leadership Program Courses.

# Project Management (PMGT)

## Courses

**PMGT 500 Foundations of Project Management 3 Credits (3,0)**
In this course, students will be introduced to the project management profession and international methodologies. The role of the project manager will be examined through performance and personal competencies. Additionally, the organization's governance is considered as a foundation for project success.

**PMGT 505 Aviation Project Management and Frameworks 3 Credits (3,0)**
An introduction to aviation project management including projects and project managers. International frameworks and an aviation specific framework are examined. Organizational governance is considered as a foundation for project success. The uniqueness of aviation projects is emphasized.

**PMGT 515 The Project Lifecycle and Methodologies 3 Credits (3,0)**
Examine the aviation project life cycle. Gain a working knowledge of project management methodologies, tools, and techniques. Differentiate between predictive and iterative approaches.
**Prerequisites:** PMGT 505

**PMGT 520 Fundamentals of Project Scope, Schedule, Cost, and Resource Management 3 Credits (3,0)**
In this course, students study project management with focus on the development and management of project scope, schedule, cost, and resources, following global project management standards and the profession's ethical framework. The course includes an emphasis the technical planning of integration, scope, schedule as they are applied to initiating, planning, execution, monitoring and controlling, and closing of projects. The integration of technical skills, general management skills, and project management skills for successful project completion is emphasized.
**Prerequisites:** MSPM: HROM 530

**PMGT 530 Fundamentals of Project Quality, Communication, Stakeholder, Resource, and Procurement Management 3 Credits (3,0)**
In this course, students study project management with focus on the development and management of project quality, communication, stakeholder, resource, and procurement management, following global project management standards and the profession's ethical framework. The course includes an emphasis the technical planning of integration, scope, schedule as they are applied to initiating, planning, execution, monitoring and controlling, and closing of projects. The integration of technical skills, general management skills, and project management skills for successful project completion is emphasized.
**Prerequisites:** PMGT 520

**PMGT 549 Applied Project Management 1.5 Credit (1.5,0)**
Exposure to project management tools, techniques, and practices. Utilization of project management software. Discussion and application of key performance metrics for success.

**PMGT 550 Project Management Professional 3 Credits (3,0)**
Aligned with global project management standards, Domain 1, People. Equip project managers with essential skills to effectively manage teams and navigate diverse challenges in project environments. Conflict management, team leadership, performance support, negotiation and emotional intelligence.

**PMGT 560 Construction Project Professional 3 Credits (3,0)**
Aligned with global construction project management standards focus on Domain 1, Contracts Management. Oversee the contract lifecycle, risk, claims, and Interface Management for Construction and Built Environment Projects.

**PMGT 575 Agile Project Management Professional 3 Credits (3,0)**
Aligned with global agile project management standards focus on Domain 1, Mindset, and Domain 2, Leadership. Apply agile principles within project teams and organizations. Deliver results through high-value increments, stakeholder feedback, and continuous improvement. Foster a culture of trust, learning, and collaboration within teams, promoting self-organization and high performance.

**PMGT 600 Organizational Decisions for Project Preparation and Launch 3 Credits (3,0)**
Consider organizational strategy, competencies, and fit for project type. Explore project lifecycle stages and integration strategies across various aviation practice areas. Evaluate innovation and research opportunities. Address supply chain, safety, and compliance aspects with comprehensive risk assessments. Develop human resource and team management strategies. Define technical objectives, quality standards, and aviation regulations. Conclude with environmental and sustainability assessments.
**Prerequisites:** PMGT 505

**PMGT 610 Aviation Project Planning 3 Credits (3,0)**
Develop a comprehensive project plan within high-risk aviation settings governed by multiple regulatory bodies. Detailed planning tactics, risk mitigation strategies, regulatory compliance, and intricate project integration across aviation practices.
**Prerequisites:** PMGT 505

**PMGT 613 Assessing and Managing Project Risk 3 Credits (3,0)**
More difficult economic conditions, increasing competition, and exponentially expanding technology create greater uncertainty and risk in projects. With these complex challenges come complex threats and opportunities. Uncertainty and associated risks have become more complex as project spans organizational, national, and cultural bounds. In this course, the student will investigate the iterative nature of planning, identification, qualitative and quantitative analysis, response, and control of risk events for both threats and opportunities. Additional course skills will include contingency and reserve development and the use of Project Management Information Systems (PMIS).
**Prerequisites:** PMGT 530

**PMGT 614 Directing and Controlling Projects 3 Credits (3,0)**
In this course, students will gain increased knowledge and experience in the art and science project management. Emphasis is placed on directing and controlling projects. The student the opportunity to understand the necessity for managing increasingly complex projects required in an increasingly complex business environment. Practical exercises using project management software will be used to challenge the student to develop higher levels of project management ability. Exercises will require critical thinking and problem-solving techniques required in complex projects.
**Prerequisites:** PMGT 613

**PMGT 620 Advanced Project Planning 3 Credits (3,0)**
Master advanced project planning techniques, including schedule risk analysis using Monte Carlo, PERT, and tornado diagrams. Create network diagrams, time-phased budgets, change control, and earned value methodologies. Learn to conduct effective project audits and optimize outcomes through sophisticated planning and analysis tools.
**Prerequisites:** PMGT 610

**PMGT 630 Project Execution - Predictive 3 Credits (3,0)**
Predictive project management tools tailored for high-risk aviation settings. Adopt change control strategies, risk metrics, and recovery plans to enhance project resilience. Comply with regulatory requirements while mastering the application of earned value management.
**Prerequisites:** PMGT 620

**PMGT 640 Project Execution - Agile 3 Credits (3,0)**
Agile project management tools, sprints, and scrum methodologies tailored for high-risk aviation contexts. Adopt change control, risk metrics, and recovery plans, ensuring adaptability in dynamic environments. Comply with regulatory requirements while mastering the application of earned value management.
**Prerequisites:** PMGT 620

**PMGT 650 Advanced Project Management Professional 3 Credits (3,0)**
Aligned with global project management standards, focus on Domain 2, Processes, and Domain 3, Business Environment. Execute projects, manage communications, assess and mitigate risks, engage stakeholders strategically, and evaluate budgets, resources, schedules, and quality. Explores critical processes such as change management, procurement, governance, and knowledge transfer for project continuity.

**PMGT 652 Concepts and Practices of Project Management 3 Credits (3,0)**
This course provides graduate students, who are not enrolled in a project management degree program, an appreciation for the depth and breadth of the project management profession. The course will address the complete project model including initiating, planning, executing, monitoring and controlling and closing. Emphasis will be placed on gaining a knowledge of common terminology, principles, techniques and tools that are found global standards for project management.

**PMGT 660 Advanced Construction Project Professional 3 Credits (3,0)**
Aligned with global construction project management standards Domain 2, Construction Stakeholder Engagement, Domain 3, Strategy/Scope Management, Domain 4, Governance. Use innovative methodologies like Obeya/Big Room and Commitment based Management (CbM). Ensure stakeholder engagement and recognize cultural impacts on communication. Execute Strategy and Scope Management by defining project outcomes and implementing change orders. Evaluate governance.

**PMGT 675 Advanced Agile Project Management Professional 3 Credits (3,0)**
Aligned with global agile project management standards focus on Domain 3, Product and Domain 4, Delivery. Continuously identify and resolve problems, impediments, and risks in a timely manner, fostering effective communication. Implement continuous improvement principles, enhancing the quality, effectiveness, and value of the product, process, and team.

**PMGT 690 Project Management Capstone 3 Credits (3,0)**
This course is designed to provide the student the opportunity to apply knowledge gained throughout the degree program. Demonstration of the study of project management, paying particular attention to technical project management, project leadership, and business strategy. Pre-Requisite: The Project Management Capstone is the last course taken in the MSPM Program. All coursework must be complete before attempting the capstone.

# Research (RSCH)

## Courses

**RSCH 650 Research Methods and Analysis 3 Credits (3,0)**
This course is designed to equip students with the theoretical techniques and skills to identify and evaluate qualitative and quantitative research problems. The course introduces both qualitative and quantitative data analysis. Sampling and data gathering in systematic manners are incorporated into research methodologies. The use of numerical analysis on qualitative data is covered to result in significance solutions and recommendations.

**RSCH 665 Statistical Analysis 3 Credits (3,0)**
The review, design, planning, analysis and statistical interpretation of data to support research studies and industrial applications. Students will build on statistical theory and learn advanced techniques that can be applied to problem solving, research analysis and numerical interpretation of data. Students will learn to identify parametric and non parametric statistics, develop correlation methods for linear and non linear data, and statistical significance testing between samples and within samples. Students will undertake projects using computer programs for data that is derived or given. Statistical results will be presented in tabular, graphical and numerical ways in accordance with the American Psychological Association format.

**RSCH 670 Research Methods 3 Credits (3,0)**
This course is designed to equip students with the theoretical techniques and skills to identify research problems and apply appropriate qualitative and quantitative research methods. The course presents strategies of inquiry for evaluating research problems that require numerical and non-numerical data analysis in order to understand relationships among quantitative variables and themes of qualitative data. The course develops the student's understanding of sampling, data collection, and analysis for incorporation into research methodologies. Format and structure of scholarly reports, meeting the conventions of the student's field of study, are presented to elevate the student's understanding of research frameworks involving problem identification, review of literature, research methodology, and reporting results, conclusions, and recommendations.

**RSCH 700A Thesis I 3 Credits (3,0)**
This course is the first of a two-course sequence (RSCH 700A and RSCH 700B) to complete the degree program through the accomplishment of a thesis. The student will propose and begin to develop a written document on a aviation/aerospace topic, supervised throughout its preparation by the student's Thesis Committee. The document is intended to demonstrate the student's mastery in a topic related to their program of study and be of satisfactory quality for publication. Following satisfactory performance within this course, the student will continue to RSCH 700B for the completion and submittal of the thesis. NOTE: For Thesis Option students, RSCH 700A and 700B must be taken in that order, as part of the research specialization sequence following RSCH 670.
**Prerequisites:** RSCH 670

**RSCH 700B Thesis II 3 Credits (3,0)**
This course is the second of a two course sequence (RSCH 700A and RSCH 700B) to complete the degree program through the accomplishment of a thesis. The student will complete their thesis under the supervision of the student's Thesis Committee. The document is intended to demonstrate the student's mastery of the topic and be of satisfactory quality for publication. Following satisfactory performance within this course, the student will be permitted to graduate from the program.
**Prerequisites:** RSCH 700A

# Safety (SFTY)

## Courses

**SFTY 530 Safety, Health and Environmental Legislation, Litigation & Compliance 3 Credits (3,0)**
This course is a survey of the complex regulatory and legal settings surrounding occupational safety, health and environmental management. Occupational safety, health and environmental regulations, and how they affect industry, legal responsibility, and accountability; ethical considerations in and external to the organization; and the international environment and how it may affect projects are all examined.

**SFTY 540 Disaster Preparedness and Emergency Response 3 Credits (3,0)**
This course is designed to increase the student's knowledge of disaster preparedness and emergency response procedures, safety and health hazards and controls, and enforcement issues. Topics include elements of an emergency response plan, training requirements, the incident command system, medical surveillance, and post-emergency recovery. Major elements involved in disasters and emergencies, systems use, and attention to essential human services are covered.

**SFTY 570 Fire Safety Management 3 Credits (3,0)**
Fire behavior, fire chemistry, detection systems, fire prevention and control methods. Development of fire prevention programs and emergency action plans and response.

**SFTY 580 Environmental Protection for the Safety, Health and Environmental Manager 3 Credits (3,0)**
Environmental hazard prevention, mitigation, and compliance techniques. Focus on sustainable practices, environmental regulations, and strategic environmental management.

**SFTY 590 Hazard Control Methods in Occupational Safety and Health 3 Credits (3,0)**
This course focuses on the application of scientific, engineering and technical principles and methods used to identify, evaluate and control workplace safety and health hazards. Hazard elimination and engineering controls are emphasized in the course. General industry topics, such as the following, are addressed: job safety analysis; inspections and audits; facility design, layout and maintenance; machine safeguarding; walking and working surfaces; materials handling; production operations; and, occupational health hazards and controls.

**SFTY 600 Occupational Safety and Health Management 3 Credits (3,0)**
This course provides a broad overview of occupational safety. It begins with an exploration of the history of the subject, moves through the OSH Act, workers' compensation, safety program development and management, and finally addresses hazards and controls. The application of safety and health management principles to the management of complex technical industries is covered.

**SFTY 611 Industrial Hygiene and Toxicology 3 Credits (3,0)**
Concepts in industrial hygiene and toxicology to prevent occupational illnesses. Recognizing, evaluating, and controlling occupational health hazards. Overview of federal and state laws and regulations.

**SFTY 619 Human Factors and Ergonomics 3 Credits (3,0)**
This course emphasizes the role of human factors in workplace and work task design with emphasis on complex technical industries. Topics include traditional material such as anthropometry, control/display design, visual and auditory acuity and their importance in work design, circadian rhythms and their implications for work design and shift work, psychomotor skills, and learning and memory. Also included are concepts of physiological aspects in ergonomics and the anthropometric principles in workspace and equipment design.

**SFTY 691 Graduate Capstone Course 3 Credits (3,0)**
The Master of Science in Occupational Safety Management Graduate Capstone Course is the culminating effort of the student's entire learning experience. The student will complete a project that includes identifying an occupational safety and health research problem; completing a thorough review of the scholarly literature; formulating and testing hypotheses or research questions; collecting and appropriately analyzing qualitative or quantitative data; and, interpreting and reporting research findings using scientific judgement to improve the field of occupational safety and health or to provide solutions to an occupational safety and health problem. The Capstone Course will be taken as the last class in the student's degree program.

# Space Studies (SPAC)

## Courses

**SPAC 500 Overview of the Space Ecosystem 3 Credits (3,0)**
Strategic perspective on the global space economy by evaluating the entire market ecosystem. History of the development of government and commercial space programs. Analyses of the major space market segments including consideration of: market attractiveness, market size and growth, market actors, upstream and downstream markets, and the analytic tools to perform market analyses. Fundamentals of strategy, business and finance.

**SPAC 505 The Launch Industry 3 Credits (3,0)**
Focused, integrated, and full range perspective of the launch industry. Adjacent sectors are only considered in their interfaces with the launch industry.

**SPAC 510 The Satellite Communications Industry 3 Credits (3,0)**
Focused, integrated, and full range perspective of the communications satellite industry. Adjacent sectors are only considered in their interfaces with the communications satellite industry.

**SPAC 511 Geospatial Analytics 3 Credits (3,0)**
Overview of the full scope of the satellite remote sensing industry including history, technology, operations and business. Covers a range of markets including commercial, government civil, and national security.

**SPAC 512 Human Spaceflight Industry 3 Credits (3,0)**
Introduction to launch, mission operations, and facilities for crewed and uncrewed missions at U.S. and foreign sites. Satellite and spacecraft launch facility system discussion covers safety, meteorology, communications, and tracking, as well as navigation and control systems. Examples of mission control, operations, and systems include spacecraft project descriptions and control site operations. U.S. mission operations include NASA, DoD, and commercial space operations and launch sites. Legacy spacecraft operations including the Space Shuttle (STS) and Russian Soyuz examined along with future commercial space transportation programs.

**SPAC 514 Commercial and Governmental Space Infrastructure 3 Credits (3,0)**
Provides overview of full scope of commercial and civil satellite industry including history, technology, operations and business. Covers range of markets including commercial, government civil, and national security. Focuses on industry verticals not addressed in detail in other MSO courses.

**SPAC 515 Cybersecurity Applications in Space 3 Credits (3,0)**
Cybersecurity as it relates to both military and civilian space system applications. Reviews cybersecurity principles; space system design, manufacturing, and operational considerations; technical and environmental constraints for both planetary orbits and deep space trajectories; cyber threats and attack vectors; risk mitigation and resilience; cybersecurity standards and regulations.

**SPAC 520 Principles of Space Systems 3 Credits (3,0)**
Fundamental principles of space systems including spacecraft subsystems, satellite payloads, and space environment interactions.

**SPAC 525 Space Law and Policy 3 Credits (3,0)**
The complex interplay between geopolitics, international law, and national space innovation systems which underlies all space activities will be examined. Divided into 3 segments: 1) the geopolitical history of space, 2) principles of space law, and 3) national space innovation systems.

# Space Systems (MSSS)

## Courses

**MSSS 530 Earth Observation Systems 3 Credits (3,0)**
How critical decisions are needed to manage complex space transportation programs, with recognition that risks are higher, the environment less forgiving, time to market longer, and stakeholder involvement much greater than typical development programs. Addresses skills, tools and knowledge to effectively lead Earth observations programs in the future, emphasizing that basic structures of the industry are changing from government ownership to private ownership, from total vertical market integration to market segmentation, and from government as dominant customers to private sector as dominant customers.

**MSSS 540 Human Spaceflight Systems 3 Credits (3,0)**
Address critical factors needed to manage complex human spaceflight (HSF) systems. Emphasis on HSF as the highest profile program of leading spacefaring nations, while also the most complex and expensive systems in space ecosystems. Develop skills, tools and knowledge to effectively lead HSF programs in the future, while managing critical crew and passenger safety considerations in an environment where costs and risks are being transferred from governments to the private sector.

**MSSS 550 Space Transportation Systems 3 Credits (3,0)**
How critical decisions are needed to manage complex space transportation programs. Emphasis on space transportation as the foundation upon which all space programs depend, and how transportation presents unique cost, engineering and operational challenges for all space systems. Manage successful programs through skills, tools and knowledge to effectively lead dynamic space transportation programs and reduce barriers to entry in the future.

**MSSS 560 SATCOM Systems 3 Credits (3,0)**
Critical decisions are needed to manage complex Satellite Communications (SATCOM) programs. SATCOM industry is the most successful commercial industry in the space economy by a wide margin, with downstream customers (i.e. broadcast, direct broadcast and fixed communications) that total over $200 Billion in annual revenue. Emphasis on technical, political, and economic uncertainty associated with potential doubling in size in the next 20 years. Management demands include the skills, tools and knowledge to effectively lead SATCOM programs in the future.

**MSSS 570 Space Science Systems 3 Credits (3,0)**
Critical decision-making to manage complex space science systems. Space science segment is characterized by steady progress rather than revolutionary change, in contrast with other components of the space ecosystem. Manage successful space science systems through skills, tools and knowledge to lead through insufficient budgets and intense competition.

# System Engineering (SYSE)

## Courses

**SYSE 500 Fundamentals of Systems Engineering 3 Credits (3,0)**
An introduction to the fundamental principles, processes, and practices associated with the application of Systems Engineering across the system life cycle. Translate needs and priorities into system requirements; derive requirements. Methods and standards; concept definition; interface definition; requirements development and management; system baseline definition and management; system architecture development; integrated schedule management and analysis; risk assessment; systems integration, verification, and validation. Mathematical and graphical tools for system analysis and control, testing and evaluation of system and technology alternatives. Reliability and maintainability, design trade-offs and trade off models.

**SYSE 505 System Safety and Certification 3 Credits (3,0)**
Concepts, principles, methods and process applied for development of safety-critical and mission-critical software-intensive systems. The issues of system safety, requiring additional analysis and design techniques, are discussed from the perspective of computer hardware and software. The course discusses the safety requirements, hazard and risk analysis, failure modes and effect analysis, fault tolerance, basics of hardware and software reliability, levels of integrity, nature of faults and redundancy, and issues of verification, validation and certification. Safety standards across application domains, including SAE, ARP4754 & ARP4761 and RTCA DO-178C & DO-254 for safety considerations in development of aircraft systems are analyzed. The related certification roles, process, objectives, and activities are discussed. Selected software tools supporting safety and reliability assessment of hardware laboratory experiments with tools, and producing appropriate reports.

**SYSE 515 Mathematical Applications in Systems Engineering 3 Credits (3,0)**
Applied and context-driven approach to understanding key topics from the calculus, economics and probability and statistics series for engineers. An introduction to fundamental topics in economics, probability and statistics and calculus in the context of systems engineering; analytical skills for system planning, design, and analysis.

**SYSE 530 System Requirements Analysis and Modeling 3 Credits (3,0)**
The development, definition, and management of requirements for system or product. The system requirements process; requirements elicitation techniques; alternative requirements analysis techniques; requirements specification; requirements verification and validation; requirements management, and requirements standards and tools. Stakeholder identification, risk analysis, trade off analysis as it relates to the requirements.

**SYSE 560 Introduction to Systems Engineering Management 3 Credits (3,0)**
Fundamental principles of engineering management in the context of systems engineering. Effective technical planning, scheduling, and assessment of technical progress. Techniques for life cycle costing; performance measurement; modern methods of effective engineering management; quality tools; quality management; configuration management; concurrent engineering; risk management; functional analysis; conceptual and detail design assessment; test evaluation. Systems engineering planning and organization; communication and SE management tools and techniques. Development of a Systems Engineering Management Plan, Integrated Master Schedule and/or Integrated Master Plan.

**SYSE 610 System Architecture Design and Modeling 3 Credits (3,0)**
Concepts and techniques for architecting systems and the process of developing and evaluating architectures. Generating functional, physical, and operational architecture. Modeling and analysis approaches; generation of analyzable architecture models; interface design; architecture frameworks; enterprise engineering; design for reliability, maintainability, usability, supportability, producibility, disposability, and life cycle costs; validation and verification of systems architecture; the analysis of complexity; methods of decomposition and re-integration; trade-offs between optimality and reusability; the effective application of COTS; and practical heuristics for developing good architectures.

**SYSE 625 System Quality Assurance 3 Credits (3,0)**
Principles and techniques of planning, organizing, controlling, and improving the quality, safety, reliability, and supportability of a system throughout the system life cycle. Establishing a baseline control; cognitive systems engineering and the human-systems integration in complex systems environments. Methods of developing fitness for use; quality costs; quality planning; statistical analysis and control; experimental design for quality improvement; System Reliability, Maintainability, and Availability; applied quality programs such as ISO 9001:2000, ISO 14001, CMMI.

**SYSE 650 Digital Engineering with Artificial Intelligence and Machine Learning 3 Credits (3,0)**
Explore the principles and applications of Digital Engineering (DE), focusing on how Artificial Intelligence (AI) and Machine Learning (ML) enhance modern engineering practices. In-depth understanding of Model-Based Systems Engineering (MBSE), digital twins, digital threads, and system lifecycle management; leveraging industry-standard tools such as Genesis Vitech, and MATLAB. AI and ML-driven analytics optimize system design, performance, and decision-making.

**SYSE 660 Organizational Systems Management 3 Credits (3,0)**
Concepts of organizational management and leadership from a systems and complex systems perspective. Strategic management; organizational transformation; organizational environments. Modeling of marketing, finance, organizational behavior, and strategic and operational management.

**SYSE 697 Systems Engineering Project 3 Credits (3,0)**
A project in systems engineering as a conclusion of the academic coursework for the MSSYSE program. Culminate in a written document that will demonstrate the student's proficiency in the chosen project topic and must be of a quality suitable for publication. Pre-Requisite: Students must be admitted to MSSYSE and must have completed all other program course requirements, including the approved elective set.

**SYSE 700A Systems Engineering Graduate Thesis I 3 Credits (3,0)**
First of a two-course sequence (SYSE 700A and SYSE 700B). Propose and develop a thesis on a systems engineering topic. Supervised by the student's Thesis Committee. Consists of a research proposal in systems engineering that the student will undertake at the conclusion of the academic coursework for the program. Culminate in a written document demonstrating proficiency and suitable for MSSYSE degree.

**SYSE 700B Systems Engineering Graduate Thesis II 3 Credits (3,0)**
Completion of the thesis under supervision of the student's Thesis Committee. Must complete SYSE 700A first. Culminating in a written document demonstrating proficiency and suitable for a formal, high-quality Master of Science in Systems Engineering degree. Demonstrate the student's mastery of the chosen topic and must be of a quality suitable to support the completion of an approved research thesis.
**Prerequisites:** SYSE 700A

# Uncrewed and Autonomous Systems (UASE)

## Courses

**UASE 501 Introduction to Uncrewed Aircraft Systems Design 3 Credits (3,0)**
Broad overview of uncrewed aircraft system (UAS) design. Survey major UAS sub-systems including airframe, propulsion, power, communication, embedded computer hardware/software, detect-and-avoid, automation, and ground control station. Literature and case studies exploring current engineering practices, technologies used, and past lessons learned. Culminates with development of design specification for a UAS given requirements specification and knowledge acquired in the course.

**UASE 531 Robotics and Control 3 Credits (3,0)**
Modeling, design, planning, and control of robotic systems. Robotics and control design decisions specific to uncrewed systems including remotely operated and autonomous uncrewed aerial systems (UAS) and uncrewed space systems. Robotics foundations in kinematics, dynamics, control, motion planning, trajectory generation, programming, telemetry, sensor integration, remote operation, and design. Task and motion planning for utilization within uncrewed system technology.

**UASE 638 Human Factors in Uncrewed Aerospace Systems 3 Credits (3,0)**
Overview of major human factors issues associated with uncrewed systems including remotely operated and autonomous uncrewed aerial systems (UAS) and uncrewed space systems operations across a variety of platforms employed in both commercial and military operations. Differences and commonalities between occupied and unoccupied systems with a focus on the human factor issues encountered by individual uncrewed operators (pilots and sensor operators) as well as UAS teams. Human factor issues surrounding uncrewed launch, recovery, long duration operations, fatigue, human performance, Ground Control Station (GCS) design, use of automation, Situation Awareness (SA), Crew Resource Management (CRM), integration into the National Air Space (NAS), attitudes and perspectives of both government agencies and public entities, use of technology to compensate for no-pilot-onboard, and regulatory issues and solutions. Discussions of human capabilities and limitations related to safe and effective operation of uncrewed aircraft and space systems in a variety of commercial and military operations.

**UASE 691 Uncrewed and Autonomous Systems Capstone Design Project I 3 Credits (3,0)**
Coherent and significant design experience in fabrication of a prototype, and/or publication of refereed article. Emphasizes the synthesis of most of the topics covered in MSUASE degree including design of airframe, innovative propulsion systems, autonomy, guidance, navigation, and control systems, payloads, networking, electronics, advanced manufacturing, as well as systems engineering and end-to-end integration of components and systems in meeting requirements and specifications. An interruption in enrollment is permissible between 691 and 692; i.e. student is not required to enroll in term immediately following UASE 691. If such an occurrence is anticipated, it is recommended that an independent project, rather than team option, be pursued.

**UASE 692 Uncrewed and Autonomous Systems Capstone Design Project II 3 Credits (3,0)**
Coherent and significant design experience in fabrication of a prototype, and/or publication of refereed article. Emphasizes the synthesis of most of the topics covered in MSUASE curriculum including the design of airframe, innovative propulsion systems, autonomy, guidance and navigation and control systems, payloads, networking, electronics, advanced manufacturing, as well as systems engineering and end-to-end integration of components and systems in meeting requirements and specifications. An interruption in enrollment is permissible between 691 and 692; i.e. student is not required to enroll in term immediately following UASE 691. If such an occurrence is anticipated, it is recommended that an independent project, rather than team option, be pursued.

# Uncrewed Systems (UNSY)

## Courses

**UNSY 501 Application of Uncrewed and Autonomous Systems 3 Credits (3,0)**
This course prepares students to understand the task-oriented application of uncrewed and autonomous systems and their respective elements and technologies in various operational domains and conditions. It introduces common use cases; business models; selection criteria; limitations and constraints; and ethical, safety, and legal considerations for the application of uncrewed and autonomous systems. Students will examine the use of different platforms and technologies, including their task assignment, effectiveness, cost and acquisition factors, capabilities and limitations, challenges, and future potential. Through their research, students will be able to evaluate uncrewed and autonomous system tasking, appraise environmental and operational requirements, and predict system collaboration opportunities. Students will also assess considerations for system application as they relate to ethical, safety, and legal guidelines.

**UNSY 502 Current Issues in Uncrewed and Autonomous Systems 3 Credits (3,0)**
Examines state-of-the-art technologies and issues that affect the uncrewed and autonomous systems industry. Through tailored discussions and written deliverables, students demonstrate knowledge of current topics to include regulation, systems development, systems integration and systems applications. Other topics may be examined at the instructors discretion based on the current state of industry.

**UNSY 503 Legal and Regulatory Issues in Uncrewed and Autonomous Systems 3 Credits (3,0)**
This course introduces students to the legal and regulatory context in which uncrewed and autonomous systems operate. Students will investigate the evolution of federal, state, and local laws and regulations governing the use of uncrewed and autonomous systems to evaluate how past, present, and future policies may influence operations within the industry. Students will examine how administrative processes function and how uncrewed and autonomous system stakeholders can participate in these processes. Using case law as well as selected readings and examples, students will expand their understanding of legal, regulatory, and ethical issues created by or specific to uncrewed and autonomous systems and their applications. The course will provide students with a better understanding of the various legal issues that may affect different stakeholders in the industry locally, nationally, as well as globally.

**UNSY 515 sUAS Operation Fundamentals 3 Credits (3,0)**
This course introduces students to essential topics, concepts, and airmen knowledge associated with regulatory-compliant use of small uncrewed aircraft systems (sUAS) within the U.S. National Airspace System (NAS). Through the review of relevant regulations and documentation and scenario-based practice with interactive electronic and web-based tools, students will gain the required aeronautical knowledge, exercise regulatory compliance, and learn to apply best practices. With the successful completion of this course students can expect to be prepared for the Federal Aviation Administration Part 107 Remote Pilot Certification examination while also attaining a comprehensive understanding of key factors supporting the productive, purposeful, responsible, and legal operation of sUAS.

**UNSY 520 sUAS Practical Application and Assessment 3 Credits (3,0)**
This course prepares students to safely and effectively perform small uncrewed aircraft system (sUAS) operations in support of graduate level research and educational goals. Through instructor-supported demonstration, practice, and refinement, students will develop proficiency in knowledge, skills, and abilities (KSA)s relating to sUAS operations. Students will be introduced to and practice basic to advanced sUAS control and system management, checklist and emergency procedures, flight planning, crew resource management, and platform-specific sUAS applications. The combination of interactive scenario-based modeling & simulation tools and actual (live) sUAS operation will help students to develop sUAS airmanship skills in settings that support the incremental exposure to increasingly complex use cases. Thereby, instructor-provided guidance and feedback during practice will prepare students for the application-oriented assessment of proficiency. With the successful completion of this course, students can expect to have attained KSAs that support the productive, purposeful, responsible, and legal operation of sUAS and will be able to demonstrate appropriate application of airmanship. Pre-Requisites: FAA Part 107 Remote Pilot Certificate and acquisition of items detailed in the ERAU-Worldwide sUAS Toolkit; Eligibility: Students must be U.S. citizens or permanent residents, must be physically located within the U.S., and hold an FAA Part 107 Remote Pilot Certificate while participating in the UNSY 520 course.
**Prerequisites:** UNSY 515

**UNSY 603 Uncrewed and Autonomous Systems Operational Configuration 3 Credits (3,0)**
Explore uncrewed and autonomous system configuration optimization in support of task-oriented system application in unique operating environments. Analyze functional requirements and operational conditions to determine technology and processes suitability for optimized task completion. While adhering to established standards, best practices, and regulatory requirements, address real-world operational challenges through the selection of appropriate combinations of components and payloads to support the successful employment of the system. Gain a thorough understanding of platform configurations, critical system elements, and interdependencies to evaluate uncrewed and autonomous solutions with a focus on optimizing task completion.
**Prerequisites:** UNSY 501

**UNSY 606 Uncrewed and Autonomous Systems Interoperability and Control 3 Credits (3,0)**
This course allows students to examine the technologies, processes, and concepts associated with uncrewed and autonomous systems interoperability and control. Students will analyze command, control, and communication (C3), automation, and interaction requirements in uncrewed and autonomous system applications and evaluate concepts, methods, and technologies affording the functional control and operational capabilities of such systems. Students will be introduced to the types and classifications of system control elements, including their applications, capabilities, limitations, and constraints. Students will investigate concepts, methods, and technologies employed in uncrewed and autonomous system C3, automation, and interoperation and examine associated issues and current application challenges in order to evaluate, recommend, and defend potential solutions.
**Prerequisites:** UNSY 501

**UNSY 620 sUAS Operational Planning and Safety Management 3 Credits (3,0)**
This course allows students to build upon their previously attained small uncrewed aircraft system (sUAS) operational knowledge, skills, and abilities (KSA)s. Students will apply concepts, methods, and tools of effective planning and management of sUAS operations toward graduate-level applied research goals in real-world-relevant settings. Through scenarios-based training, interactive modeling and simulation, and actual (live) sUAS operation, students will gain further exposure and practical experience in the task-oriented application of sUAS. A comprehensive application exercise will allow students to demonstrate proficiency. With the successful completion of this course students can expect to have gained further KSAs supporting the purposeful, productive, legal, and responsible operation of sUAS. Pre-Requisite: FAA Part 107 Remote Pilot Certificate and acquisition of items detailed in the ERAU-Worldwide sUAS Toolkit; Eligibility: Students must be United States citizens or permanent residents, must be physically located within the United States, and hold an FAA Part 107 Remote Pilot Certificate while participating in the UNSY 620 course.
**Prerequisites:** UNSY 520

**UNSY 625 sUAS Advanced Fixed-Wing Operations 3 Credits (3,0)**
This course further prepares graduate students to safely and effectively perform small uncrewed aircraft system (sUAS) advanced fixed-wing (FW) operations. Through instructor-supported demonstration, practice, and refinement, students will develop proficiency in graduate-level knowledge, skills, and abilities (KSA)s relating to FW sUAS application. Students will review and practice FW sUAS control and system management, apply checklist and emergency procedures, conduct flight planning, apply crew resource management (CRM), and assess platform-specific traits and common applications. The combination of interactive scenario-based modeling & simulation tools and actual (live) sUAS operation will help students to develop uncrewed airmanship skills in settings that support the incremental exposure to increasingly complex use cases. Thereby, instructor-provided guidance and feedback during practice will prepare students for the application-oriented assessment of proficiency. With the successful completion of this course a student can expect to have gained further comprehension of key factors supporting productive, purposeful, responsible, legal, and safe operation of FW sUAS and will be able to demonstrate appropriate application of uncrewed airmanship. Pre-Requisites: FAA Part 107 Remote Pilot Certificate and acquisition of items detailed in the ERAU-Worldwide sUAS Toolkit; Eligibility: Students must be United States citizens or permanent residents, must be physically located within the United States, and hold an FAA Part 107 Remote Pilot Certificate while participating in the UNSY 625 course.
**Prerequisites:** UNSY 515 and UNSY 520

**UNSY 635 Remote Sensing Data Analysis 3 Credits (3,0)**
This course introduces students to advanced data collection and analysis methods in support of uncrewed and autonomous system (UNSY) application for remote sensing (RS) purposes. A comprehensive review of RS in the UNSY context is provided, and students will have the opportunity to explore concepts, methods, and tools of RS data analysis and management through hands-on interactive manipulation of real-world examples as well as virtualizations. Students will gain further operational awareness of RS requirements and considerations for the task-oriented application of UNSYs and develop the knowledge and skills to support graduate-level research objectives with RS-data-based analysis methods. With the successful completion of this course, a student can expect to have gained further comprehension of key factors supporting the purposeful, productive, and replicable employment of UNSYs in real-world-relevant RS use cases and developed competencies in planning UNSY-based RS data collection and management as well as analysis of results and presentation of findings.
**Prerequisites:** UNSY 501

# Office of Professional Education

The Office of Professional Education (OPE) provides customized corporate training, as well as courses, seminars, and workshops designed for individuals and organizations in the aviation, aerospace, and related industries. All OPE courses impart current knowledge and information and present timely issues relevant to our industry on a wide variety of topics.

To access existing training programs, or to inquire about customized corporate training, contact OPE directly.

OPE training courses and programs offer certificates of completion and/or Continuing Education Units (CEUs). These courses will not count toward any academic degree or program.

Courses are scheduled to accommodate the needs of working professionals. The training may be full time, part time, one time, on-site, through online learning, or a blend of any of these delivery methods. On-site training is available globally.

**Visit ProEd.erau.edu to register or to learn more about:**

- Professional Programs
- Training for Your Organization

# Faculty and Administration

## Officials of the University and Senior Leadership

**Butler, P. Barry**
*President*
B.S., M.S., Ph.D., University of Illinois at Urbana-Champaign

**Austin, Kelly M.**
*Senior Vice President for Academic Affairs and Provost*
B.S., M.A., Slippery Rock University; M.B.A., Embry-Riddle Aeronautical University; Ph.D., University of Pittsburgh

**Cruise, Rodney**
*Senior Vice President and Chief Operating Officer*
B.A., Warner Southern

**Howard, Randall**
*Senior Vice President and Chief Financial Officer*
B.S., Birmingham-Southern College; M.S., Air Force Institute of Technology; Ph.D., University of Georgia

**Ruckert, Jason**
*Senior Vice President for Enrollment Management, Marketing and Student Affairs*
B.A., M.A., University of Central Florida; Ph.D., Barry University

**Dowling, Kelly**
*Senior Vice President for Philanthropy and Alumni Engagement*
MBA, University of Central Florida; B.A., Stetson University; CFRE; CAP

**Barczyk, Sarah**
*Vice President for Communications*
B.A., Seton Hill University; M.S., Seton Hill University

**Ernst, Jeremy V.**
*Vice President for Research and Doctoral Programs*
B.S., Clemson University; M.Ed. and Ed.D., North Carolina State University

**Sevastos, Charlie**
*Vice President and General Counsel*
B.A., Rollins College; J.D., University of Florida

**Watret, John**
*Chancellor, Worldwide Campus*
B.S., Herlot-Watt University; M.S., Ph.D., Texas A&M University; P-ASEL; FRAeS

**Witcher, Kenneth**
*Chancellor, Prescott Campus*
M.A.S., Embry-Riddle Aeronautical University; Ph.D., Northcentral University; FRAeS

## Enrollment Management

**Bowen, Dagmar**
*Director of Financial Aid*
A.A. and B.A.S., Daytona State College.

**Clarke, Charles R.**
*Director of Student Recruitment*
B.S., Embry-Riddle Aeronautical University.

**McLoughlin, Martin**
*Director of Military and Veteran Student Services*
A.S. Daytona State College

**Kisseloff, Valerie L.**
*Senior Director of Admissions*
B.S., State University of New York at Binghamton;
M.S., Embry-Riddle Aeronautical University.

**Trombley III, Edward F.**
*Worldwide Registrar*
B.A. and M.S., State University of New York at Oswego.

## Worldwide Academic Administration

### College of Aviation

**Mrusek, Bettina, M.**
*Associate Professor and Dean, College of Aviation*
M.B.A., Park University;
M.S., Embry-Riddle Aeronautical University;
Ph.D., Northcentral University.

### College of Arts & Sciences

**Siedschlag, Alexander**
*Professor and Dean, College of Arts and Sciences*
M.A. and Ph.D., Ludwig Maximilians Universität München.

### College of Business

**Sharma, Maneesh K.**
*Professor and Dean, College of Business*
B.S. and Ph.D., The University of Alabama.

## Worldwide Administration

**Pepin, James E.**
Vice Chancellor, Student Success
B.S., Park University
M.B.A., Trident University International

**Goon, Dean**
Dean of Academic Innovation
B.S., M.A., The Ohio State University
Ed.D., Liberty University

**Ponciano, Henry**
Dean of Students, Worldwide
B.A. and M.S., University of Rhode Island

## Faculty

**College of Aviation**

- **Departments of:** Flight | Applied Aerospace Science | Aeronautics | Aviation English

**School of Engineering**

**College of Arts & Sciences**

- **Departments of:** Emergency, Disaster and Global Security Studies | Human Factors, Safety and Social Sciences | Humanities and Communication | Mathematics, Science and Technology

**College of Business**

- **Departments of:** Business Administration | Decision Science and Analytics | Management

## Faculty - College of Aviation

**Adams, Trevor J.**
*Associate Professor of the Practice*
M.S., Mississippi State University; M.A., Western Governors University; Ed.D., University of Calgary

**Aldrin, Andrew J.**
*Associate Professor of the Practice*
*Executive Director of Space Programs*
E.M.B.A., TRIUM; Ph.D., University of California-Los Angeles

**Balog, Clint R.**
*Associate Professor*
A.S., B.S., and M.A.S., Embry-Riddle Aeronautical University; Ph.D., Capella University

**Beatty, Kevin J.**
*Instructor*
B., Ashford University; M.B.A., Webster University

**Benny, Daniel J.**
*Associate Professor*
A.A., Harrisburg Area Community College; B.A., Alvernia College; M.A., Norwich University; M.A.S., Embry-Riddle Aeronautical University; M.S., SUNY Maritime College; M.A., Southern New Hampshire University; M.A., American Public University System; Ph.D., Capella University

**Bier, Nicole N.**
*Associate Professor of the Practice*
B.S., United States Air Force Academy; M.A.S., Embry-Riddle Aeronautical University; Ph.D., Capitol Technology University

**Brito, Felix**
*Assistant Professor of the Practice*
*Executive Director, Instructional Design and Development*
M.S., Embry-Riddle Aeronautical University; Ph.D., Capella University

**Britton, Roth**
*Assistant Professor of the Practice*
*Program Coordinator, A.S. in Aeronautics & B.S. in Aeronautics*
B.S. and M.B.A., Embry-Riddle Aeronautical University

**Burgess, Scott S.**
*Professor*
*Chief, U.S. Flight Operations*
B.S., Oregon State University; M.A.S., Embry-Riddle Aeronautical University; Ph.D., Northcentral University

**Burns, Melissa**
*Assistant Professor of the Practice*
A.S., B.S., and M.B.A., Embry-Riddle Aeronautical University

**Burton, Sharon**
*Assistant Professor of the Practice*
Ph.D., Capitol Technology University; D.B.A., National Graduate School of Quality Management

**Cerreta, Joseph S.**
*Associate Professor*
*Chief, Standardization and Training*
B.A., Excelsior College; M.A.S., Embry-Riddle Aeronautical University; Ph.D., Northcentral University

**Cirulli, David**
*Instructor of the Practice*
M.B.A., DeVry University

**Cross, David S.**
*Associate Professor of the Practice*
B.S., Vanderbilt University; M.A.S. and M.B.A., Embry-Riddle Aeronautical University; M.Ed., Middle Tennessee State University; Ed.D., Oklahoma State University; Ph.D., Northcentral University

**Ellingburg, Elena**
*Instructor*
M.A., Georgia State University

**Galante, Anthony T.**
*Associate Professor of the Practice*
*Chief, Public Safety Training and Outreach*
B.S. and M.A.S, Embry-Riddle Aeronautical University; M.A. and M.A., American Public University

**Gelb, Brendan J.**
*Associate Professor of the Practice*
B.S. and M.S., Embry-Riddle Aeronautical University

**George, Kelly A.**
*Associate Professor*
B.B.A. and M.A., Southern Methodist University; Ph.D., Embry-Riddle Aeronautical University

**Gorman, Mary K.**
*Associate Professor of the Practice*
*Curriculum Coordinator, Department of Applied Aerospace Science, Department of Aeronautics*
B.S., The College of William and Mary in Virginia; M.S., University of Richmond; Ph.D., Walden University

**Haines, Robert L.**
*Instructor*
A.A.S., Embry-Riddle Aeronautical University; B.A., Governors State University; M.S. and Ph.D., Capella University

**Halawi, Leila A.**
*Associate Professor*
*Research Coordinator*
B.S. and M.S., Beirut University College; D.B.A., Nova Southeastern University

**Harvie, David P.**
*Assistant Professor*
*Program Coordinator, M. Aviation Cybersecurity*
M.S., North Carolina State University; Ph.D., University of Kansas

**Herman, Rachel M.**
*Instructor*
B.A., University of Georgia; M.A., Georgia State University

**Holley, Samuel J. Jr.**
*Professor of the Practice*
B.S., University of North Carolina-Pembroke; M.A.S., Embry-Riddle Aeronautical University; M.Ed., Florida Atlantic University; Ph.D., University of Southern California

**Hunt, Dave R.**
*Associate Professor of the Practice*
*Program Coordinator, B.S. in Pilot Operations*
B.S., M.A.S., M.B.A.A., M.S.P.M., Embry-Riddle Aeronautical University

**Janke, Christian**
*Associate Professor of the Practice*
*Program Coordinator, A.S. in Uncrewed & Autonomous Systems & B.S. in Uncrewed and Autonomous Systems*
M.S., Embry-Riddle Aeronautical University

**Jenkins, Larry W.**
*Associate Professor of the Practice*
B.A., University of North Carolina at Chapel Hill; M.A., University of Southern California; M.A.S., Embry-Riddle Aeronautical University; Ed.D., North Carolina State University

**Johnson, Jeff**
*Associate Professor of the Practice*
*Program Coordinator, B.S. in Aviation Safety*
M.A.S., Embry-Riddle Aeronautical University; Ph.D., Bowling Green University

**Jones, Felicia**
*Assistant Professor of the Practice*
B.S., Howard University; M.S., Johns Hopkins University; Ph.D., George Washington University

**Joslin, Robert E.**
*Associate Professor of the Practice*
B.S., University of Florida; M.S., Naval Postgraduate School; Ph.D., Embry-Riddle Aeronautical University

**Kanitz, Mark A.**
*Associate Professor of the Practice*
*Program Coordinator, A.S. in Aviation Maintenance & B.S. in Aviation Maintenance*
B.S. and M.A.S., Embry-Riddle Aeronautical University

**Kiernan, Kristine M.**
*Associate Professor*
B.S., Brown University; M.A.S. and Ph.D., Embry-Riddle Aeronautical University

**Kleinke, Stefan**
*Associate Professor of the Practice*
A.A.S., Eastern New Mexico University; B.S., Carl-Friedrich-Gauss-Gymnasium; M.A.S., Embry-Riddle Aeronautical University

**Lee, Rachel**
*Instructor*
B.S., M.P.A. and M.A., Southern Illinois University Carbondale

**Luthi, Kimberly Taylor**
*Assistant Professor*
*Chair, Department of Applied Aerospace Science*
B.A. and M.Ed., University of Florida; Ph.D., Old Dominion University

**Lutte, Becky**
*Associate Professor*
*Chair, Department of Aeronautics*
B.S., Embry-Riddle Aeronautical University; M.P.A. and Ph.D., University of Nebraska Omaha

**Lynch, Jena Kathryn**
*Assistant Professor of the Practice*
*Program Coordinator for Aviation English*
B.A., University of Nebraska at Kearney; M.A., Northern Arizona University

**Maleviti, Eva**
*Assistant Professor*
*Program Coordinator, M.S. in Aviation and Aerospace Sustainability*
B., University of Patras; M.S. & Ph.D. University of Surrey

**Maslanik, Kevin J.**
*Instructor*
B.S., and M.S., Embry-Riddle Aeronautical University

**Miller, Mark D.**
*Associate Professor*
*Program Coordinator, M.S. in Aeronautics*
B.S., United States Naval Academy; M.S., Troy State University; M.A.S., Embry-Riddle Aeronautical University; Ed.D., University of Southern California

**Mrusek, Bettina M.**
*Dean*
*Associate Professor*
M.B.A., Park University; M.S., Embry-Riddle Aeronautical University; Ph.D., Northcentral University

**Reimann, Mark D.**
*Associate Professor*
*Executive Director of Professional Education & Training*
B.S., United States Air Force Academy; M.S., National Defense University; M.S., University of Wisconsin; M.P.A., Valdosta State University; Ph.D., Colorado School of Mines

**Rihn, Joseph T.**
*Instructor*
B.S., Southeastern University; M.A., New York University

**Roberts, Jennifer L.**
*Assistant Professor of the Practice*
*Chair, Department of Aviation English*

**Schaefferkoetter, David**
*Instructor*
B.A. and M.A., Ashford Un

**Scharf, Mark T.**
*Associate Professor of the Practice*
*Chief, Safety*
B.S., United States Air Force Academy; M.Ed., Northwestern Oklahoma State University; M.S., Boston University; M.A.S., Embry-Riddle Aeronautical University; Ph.D., Northcentral University

**Sherman, Patrick J.**
*Assistant Professor of the Practice*
*Chief, Media Operations*
B.A., University of Southen California; M.B.A., Williamette University

**Spiecher, Daniel P.**
*Assistant Professor of the Practice*
*Program Coordinator, M.S. Space Operations*
B.S. and M.S.; Embry-Riddle Aeronautical University

**Stockton, James C.**
*Instructor*
B.S., and M.A.S., Embry-Riddle Aeronautical University; Ph.D., Auburn University

**Terwilliger, Brent A.**
*Associate Professor*
*Program Coordinator, M.S. in Uncrewed and Autonomous Systems*
B.S. and M.A.S., Embry-Riddle Aeronautical University; Ph.D., Northcentral University

**Thelle, James Bernhardt**
*Instructor*
B.S. and M.B.A., Northrop University

**Thirtyacre, David L.**
*Assistant Professor*
*Chair, Department of Flight*
B.S., Washington State University; M.A.S. and Ph.D., Embry-Riddle Aeronautical University

**Thomas, Justin E.**
*Instructor*
B.S.P.A. and M.A.S., Embry-Riddle Aeronautical University

**von Merveldt, Michele J.**
*Instructor*
B.A. and B.A., University of Northern Colorado; M.A., Colorado State University

**Weiland, Linda V.**
*Associate Professor of the Practice*
*Program Coordinator, M. Aviation Maintenance*
B., M.A.S., and M.B.A.A., Embry-Riddle Aeronautical University; Ph.D., Capitol Technology University

**Whisenhant, Michelle K.**
*Assistant Professor of the Practice*
M.S. and Ph.D., Naval Postgraduate School

**Whiteman, Aaron T.**
*Assistant Professor of the Practice*
M.S., Embry-Riddle Aeronautical University

**Wilson, Gloria A.**
*Associate Professor of the Practice*
A/A.S., Central Texas College; B.S., University of Central Texas; M.A.S., Embry-Riddle Aeronautical University

**Wilson, John K.**
*Assistant Professor*
*Assistant Dean*
A.S., B.S., and M.A.S., Embry-Riddle Aeronautical University; Ph.D., Northcentral University

**Winingar, Joseph R.**
*Associate Professor of the Practice*
*Program Coordinator, M.S. in Aviation Safety*
B.S., Embry-Riddle Aeronautical University; M.A., MidAmerica Nazarene University; D.B.A., Walden University

**Witcher, Kenneth L.**
*Associate Professor*
*Chancellor, Prescott Campus*
M.A.S., Embry-Riddle Aeronautical University; Ph.D., Northcentral University; FRAeS

## Faculty - School of Engineering

**Barari, Ghazal**
*Associate Professor of the Practice*
*Program Coordinator, A.S. in Engineering Fundamentals*
Ph.D., University of Central Florida

**Deters, Robert W.**
*Associate Professor*
*Curriculum Coordinator, School of Engineering; Program Coordinator, B.S. in Engineering Technology*
B.S., West Virginia University; M.S. and Ph.D., University of Illinois at Urbana – Champaign

**Doyle, Colin**
*Assistant Professor*
*Program Coordinator, B.S. in Software Engineering*
M.S., University of Oklahoma; Ph. D., Southern Methodist University

**ElAli, Taan S.**
*Professor*
*Program Coordinator, B.S. in Engineering*
B.S., Ohio State University; M.S., Wright State University; M.S. and Ph.D., University of Dayton

**Goyings, Ryan R.**
*Assistant Professor of the Practice*
*Program Coordinator, M.S. in Airworthiness Engineering*
B.S., United States Military Academy; M.S., Purdue University

**Jishi, Hassan**
*Assistant Professor*
*Program Coordinator, M.S. in Aerospace Engineering*
B.S., Arizona State University.; M.S., Cranfield University; Ph.D., Khalifa University of Science, Technology and Research

**Lin, Yuetong**
*Associate Professor*
*Program Coordinator, M.S. in Uncrewed and Autonomous Systems Engineering*
M.S. and Ph.D., The University of Arizona

**Mousavi, Mahmood**
*Assistant Professor*
M.Sc., Ferdowsi University of Mashhad; Ph.D., Shiraz University

**Ortega Moody, Jorge**
*Assistant Professor*
M.S., Instituto Tecnológico y de Estudios Superiores de Monterrey; Ph.D., Instituto Politécnico Nacional

**Rahdar, Reza A.**
*Associate Professor of the Practice*
*Program Coordinator, M.S. in Systems Engineering*
B.Eng., Concordia University; M.S., M.S., and Ph.D., Southern Methodist University

**Rencis, Joseph**
*Professor*
*Associate Dean, School of Engineering*
B.S., Milwaukee School of Engineering; M.S., Northwestern University; Ph.D., Case Western Reserve University

**Sanders, Brian P.**
*Associate Professor*
*Executive Director, COA Teaching Technology*
B.S., University of Southern California; M.S., University of Dayton; M.S., Old Dominion University; Ph.D., Air Force Institute of Technology

**Siebold, Karl**
*Associate Professor*
Ph.D., Technical University Braunschweig

**Zhang, Hui**
*Associate Professor*
*B.S. and M.S., Zhejiang University; Ph. D., Indiana University*

## Faculty - College of Arts & Sciences

**Ade, Ann Marie**
*Associate Professor of the Practice*
B.A., Utica College of Syracuse University; M.S., State University of New York; M.A.S., Embry-Riddle Aeronautical University

**Amos, Janice L.**
*Assistant Professor of the Practice*
B.A. and M.A., Northwestern Illinois University

**Aydiner, Cihan**
*Assistant Professor*
*Associate Department Chair, Emergency, Disaster, and Global Security Studies; Program Chair, B.S. in Homeland Security*
B.S., Turkish Military Academy; M.A. and Ph.D., Louisiana State University and A&M College

**Billings, Joel M.**
*Assistant Professor*
*Program Chair, B.S. in Emergency Services*
M.S. and Ph.D., Oklahoma State University

**Bivolcic, Alexander**
*Assistant Professor*
B.S., M.S., and Ph.D., University at Buffalo

**Bradham, John H.**
*Assistant Professor of the Practice*
M.S. and Ph.D., Texas A& M University

**Chamberlain, Darryl J.**
*Assistant Professor*
*Program Chair, B.S. in Data Science*
B.S., University of Florida; Ph.D., Georgia State University

**Chang, Ray H.**
*Associate Professor*
*Program Chair, M.S. in Emergency Services*
M.S., Arizona State University; Ph.D., University of Delaware

**Chua, Kim**
*Instructor of the Practice*
*Director Student Success Singapore*
M.S., Nanyang Technological University; M.A., University of York

**Corbin, Tanya B.**
*Professor*
*Department Chair, Emergency, Disaster, and Global Security Studies*
B.A., University of New Orleans; M.A. and Ph.D., Claremont Graduate University

**Dixon, Zachary P.**
*Associate Professor*
*Associate Department Chair, Humanities and Communication*
B.A. and M.A., University of North Carolina at Wilmington; Ph.D., University of South Florida

**Dux-Speltz, Emily**
*Assistant Professor*
*Director, Virtual Communication Laboratory (VCL)*
M.A. and Ph.D., Iowa State University

**Earnshaw, Keith R.**
*Associate Professor of the Practice*
*Associate Program Chair, M.S. in Occupational Safety Management*
B.S. and M.S., Purdue University; Ph.D., Rensselaer Polytechnic Institute

**Ernst, Jeremy V.**
*Vice President for Research and Doctoral Programs*
*Professor*
B.S., Clemson University; M.Ed. and Ed.D., North Carolina State University

**Faller, Allison A.**
*Associate Professor*
B.A., The University of Montana; M.A. and Ph.D., International Christian University

**Flint, Isaac**
*Assistant Professor*
B.A. and M.S., University of Central Missouri; Ph.D., Michigan Technological University

**Frederick, Christina**
*Professor*
*Senior Research and Scholarship Mentor Chair, College Research Council*
M.S. and Ph.D., University of Rochester

**Friend, Katherine S.**
*Assistant Professor of the Practice*
*Associate Department Chair, Department of Human Factors, Safety and Social Sciences*
B.S. and M.S., Embry-Riddle Aeronautical University

**Gerber-Chavez, Logan**
*Assistant Professor*
B.S., Texas A&M University; M.S., University of Oklahoma; Ph.D., University of Delaware

**Hameed, Muhammad**
*Associate Professor*
M.S., New Jersey Institute of Technology; Ph.D., New Jersey Institute of Technology

**Hanamean, James R.**
*Assistant Professor of the Practice*
B.S., Florida State University; M.S., Colorado State University

**Hardy, Karim**
*Associate Professor*
M., University of Toulon; M., Universite de Nice Sophia Antipolis; D., Ecole des Mines de Paris

**Higgins, David**
*Associate Professor*
*Department Chair, Humanities and Communications*
B.A., University of Southern California; Ph.D., Indiana University-Bloomington

**Hoban, Iuliia**
*Assistant Professor*
*Program Chair, M.S. in Human Security & Resilience*
M.A., University of Denver; M.S., Ph.D., Rutgers University-Newark

**Huang, Jialing**
*Assistant Professor*
M.A., University of Miami; Ph.D., University at Buffalo

**LaFountain, Eric E.**
*Instructor of the Practice*
B.A., University of Colorado; M.A., DePaul University

**Liu, Alex**
*Assistant Professor of the Practice*
M.S. and Ph.D., University of Iowa

**Marcham, Cheryl L.**
*Associate Professor*
*Program Chair, M.S. in Occupational Safety Management*
B.S., Arizona State University; M.S.and Ph.D., The University of Oklahoma Health Sciences Center

**McMasters, Bobby L.**
*Associate Professor of the Practice*
*Program Chair, B.S. in Interdisciplinary Studies*
B.S., Oklahoma State University; M.A.S., Embry-Riddle Aeronautical University; M.Ed. and Ed.D., University of Arkansas

**McQueen, Courtney N.**
*Assistant Professor of the Practice*
M.A., Gratz College; M.F.A., Converse College

**Moran, Katherine**
*Associate Professor*
*Program Chair, M.S. in Human Factors*
B.S. and M.A.S., Embry-Riddle Aeronautical University; Ed.D. University of Southern California

**Muldoon, Bill**
*Managing Director, ERAU-Europe GmbH*
*Assistant Professor of the Practice*
B.A., Ashland University; M.A., Boston College; Ph.D., Capitol Technology University

**Patel, Jeetendra**
*Academic Officer, Singapore*
*Associate Professor of the Practice*
B.S., University College London; M.S., Bristol University; Ed.D., University College London

**Protas, Michelle**
*Assistant Professor*
M.S. and Ph.D., University of Cincinnati

**Reed, Zackery K.**
*Assistant Professor*
*Co-Director, Everything Quantitative for Teachers and Students (EQUATES)*
B.S., Pepperdine University; M.S. and Ph.D., Oregon State University

**Reynolds, Christina**
*Assistant Professor of the Practice*
*Director, Humanistic STEM (H-STEM)*
B.A., Williams College; M.A., Harvard University; Ph.D., University College London

**Riordan, Amy A.**
*Assistant Professor of the Practice*
*Associate Department Chair, Mathematics, Science, and Technology; Director, Everything Quantitative for Teachers and Students (EQUATES)*
B.S. and M.S., Tarleton State University

**Rister, Alex T.**
*Assistant Professor*
*Program Chair, B.S. in Communication*
B.A., University of Florida; M.A., University of North Florida

**Roberts, Donna**
*Professor*
*Associate Dean for Faculty*
B.S. and M.Ed, University of Maryland; M.Ed. and M.H.R., University of Oklahoma; M.A.S. and M.B.A.A., Embry-Riddle Aeronautical University; Ph.D., North Central University

**Sherwood, Audra R.**
*Assistant Professor of the Practice*
B.S. and M.S., University of Wyoming; M.Phil. and Ph.D., Walden University

**Shin, Somi**
*Assistant Professor*
B.A., Seoul National University; M. and Ph.D., Massey University

**Siedschlag, Alexander**
*Dean*
*Professor*
M.A. and Ph.D., Ludwig Maximilians Universität München

**Smith, Timothy A.**
*Professor*
*Department Chair, Mathematics, Science, and Technology; Chair, Worldwide Honors Program*
Ph.D., Florida Institute of Technology

**Tossell, Chad**
*Professor*
*Department Chair, Human Factors, Safety and Social Sciences*
M.S., Arizona State University; Ph.D., Rice University

**Turner-Ledgerwood, Kathleen**
*Assistant Professor*
*Director, Virtual Environment for Communication: Teaching, Outreach and Research (VECTOR)*
M.A. and Ph.D., Northern Illinois University

**Vincenzi, Dennis A.**
*Associate Professor*
B.S., University of Central Florida; Ph.D., University of Central Florida

**Werner, Brett**
*Assistant Professor*
M.S., Regis University; M.S., Ph.D., University of Denver

**Wood, Beverly L.**
*Associate Professor*
B.S., University of Tampa; M.S., University of Wisconsin Oshkosh; Ph.D., University of Virginia

**Young, Tom**
*Assistant Professor*
D., Palmer College of Chriopractic

## Faculty - College of Business

**Bollenback, Denise**
*Associate Professor*
B.S. and M.S., DeVry Institute of Technology – New York; Ed.D., Nova Southeastern University

**Button, Dixie K.**
*Associate Professor*
B.S., University of Florida; M.S.B.A., Boston University; D.B.A., Argosy University, Sarasota

**Canella Higuera, Alfonso F.**
*Assistant Professor of the Practice*
B.S., B.S. and M.S., Massachusetts Institute of Technology; M.B.A., Boston University

**Cankaya, Burak**
*Associate Professor*
M.S. and Doctor of Engineering, Lamar University

**Carter, Clay W.**
*Assistant Professor of the Practice*
B.S.B.A., University of Missouri; M.B.A., Creighton University; M., Creighton University

**Denney, Valerie P.**
*Associate Professor*
B.S., University of Rochester; M.S., Johns Hopkins University; D.B.A, Northcentral University

**Douglas, Stephanie K.**
*Associate Professor*
B.S., University of Wisconsin-Madison; M.S., University of Wisconsin-Whitewater; Ph.D., Colorado State University

**Greene, Kenric G.**
*Assistant Professor of the Practice*
B.S., Brown University; M.B.A., Pace University

**Glassman, Aaron M.**
*Associate Professor*
*Department Chair, Management*
B.S., Empire State College; M.A.S., Embry-Riddle Aeronautical University; D.M., University of Maryland: University College

**Gupta, Aman**
*Professor*
B.S., Thapar Institute of Engineering & Technology; M.S., State University of New York - Buffalo; Ph.D., University of Louisville

**Haley, Gordon R.**
*Assistant Professor of the Practice*
B.A., Wittenberg University; M.S., Case Western Reserve University; D.B.A., Nova Southeastern University

**Hanke, Michale**
*Assistant Professor of the Practice*
B.S., Embry-Riddle Aeronautical University; B.S., University of Hamburg Germany; M.B.A., Embry-Riddle Aeronautical University; M.S., London School of Economics; Ph.D., Cranfield University

**Henkel, Thomas G.**
*Professor of the Practice*
A.S., Community College of the Air Force; B.S., University of Maryland; M.S., Troy University; M.A.S., Embry-Riddle Aeronautical University; Ed.D., Auburn University; Ph.D., Northcentral University

**Hinkes, David M.**
*Assistant Professor of the Practice*
B.A., University of Miami; M.B.A., Barry University; D.B.A., Nova Southeastern University

**Jackson, Susan**
*Assistant Professor*
M.B.A., Embry-Riddle Aeronautical University; E.D.B.A., Rollins College

**Koursaris, Constantine M.**
*Associate Professor*
B.S., Southern University and A&M College; M.S., M.S., Ph.D., Florida Institute of Technology

**Lange, Paul D.**
*Assistant Professor of the Practice*
M.S., University of Southern California; M.S., The National Graduate School of Quality Management; M.A.S. and M.B.A.A., Embry-Riddle Aeronautical University

**Mandel, Christopher**
*Assistant Professor of the Practice*
B.S., Virginia Polytechnic Institute and State University; M.B.A., George Mason University

**Marion Jr, James W.**
*Associate Professor*
*Department Chair, Decision Science and Analytics*
M.S., University of Wisconsin - Platteville; MSc. and M.B.A., Heriot-Watt University; Ph.D., Capella University

**Massie, Raymond G.**
*Instructor of the Practice*
B.A. and J.D., Seton Hall University; LL.M., The John Marshall Law School

**Mau, Ronald R.**
*Professor*
*Department Chair, Business Administration*
B.S., M.S., M.B.A., and Ph.D., University of Kansas

**McGunagle, Doreen M.**
*Associate Professor*
B.B.A., Florida Atlantic University; M.B.A., Nova Southeastern University; Ph.D., Capella University

**Merritt, Daisha M.**
*Assistant Professor*
*Associate Department Chair, Management*
Ph.D., James Madison University

**Mumbower, Stacey M.**
*Assistant Professor*
M.S. and Ph.D., Georgia Institute of Technology

**Nelson, Darrin P.**
*Associate Professor of the Practice*
B.S. and M.A.S., Embry-Riddle Aeronautical University; M.A., College of Notre Dame

**O'Reilly, Peter E.**
*Associate Professor of the Practice*
B.S. and M.B.A., St. John's University; D.P.S., Pace University

**Petrescu, Maria**
*Associate Professor*
B.A., West University of Timisoara; M.B.A., Nova Southeastern University; Ph.D., Florida Atlantic University

**Pittenger, Linda M.**
*Associate Professor*
B.S. and M.B.A., Jacksonville University; Ph.D., Case Western Reserve University

**Richardson, Tracey M.**
*Associate Professor*
M.S., Troy University; Ed.D., Argosy University

**Rietsema, Kees**
*Associate Professor*
M.B.A., Golden Gate University; M.A.S., Embry-Riddle Aeronautical University; Ph.D., Capella University

**Roberts, Robin A.**
*Associate Professor*
B.S., M.A. and DMgt, University of Phoenix

**Robinson, Elliot T.**
*Assistant Professor of the Practice*
*Project and Product Development Manager*
B.S. and M.Sw.E, Embry-Riddle Aeronautical University

**Rodriquez, Rachel M.**
*Associate Professor of the Practice*
*Associate Dean, Student Success and Accreditation*
B.B.A., University of Minnesota; M.B.A., Florida Atlantic University; M.S., Embry-Riddle Aeronautical University; Ph.D., Northcentral University

**Santonino, III, Michael D.**
*Associate Professor*
B.S., New York Institute of Technology; M.B.A. and D.B.A., Nova Southeastern University

**Schmid, Celeste R.**
*Associate Professor of the Practice*
B., San Diego State University; M.P.A. and Ph.D., University of Southern California; J.D., California School of Law

**Sharma, Maneesh K.**
*Dean*
*Professor*
B.S. and Ph.D., The University of Alabama

**Siskos, Dimitrios**
*Assistant Professor*
B.A., Alexander Technological Educational Institution of Thessaloniki; M.S., City University of Seattle; D., Swiss Management Center

**Sobieralski, Joseph**
*Associate Professor*
B.A., M.S. and Ph.D., Southern Illinois University Carbondale; M.H.R.I.R., University of Illinois at Urbana-Champaign

**Szakonyi, Annamaria**
*Assistant Professor*
M.A., Webster University; Ph.D., Saint Louis University

**Walton, Robert O.**
*Associate Professor*
B.A., University of North Carolina at Wilmington; M.B.A., Sacred Heart University Luxembourg; M.A.S. and M.S. Embry-Riddle Aeronautical University; Ph.D., Northcentral University

**Warnock Smith, David**
*Professor*
*Associate Dean, Academics and Operations*
B.S., Cardiff University; Ph.D., Cranfield Univeristy

**Watkins, Daryl V.**
*Professor*
B.S., U.S. Naval Academy; M.B.A., University of California; D.M., University of Phoenix

**Wills, Michael S.**
*Assistant Professor of the Practice*
B.S. and M.S., Illinois Institute of Technology; M.A., King's College, University of London; SSCP, CISSP, CAMS

# Board of Trustees

The Board of Trustees is composed of individuals of national, state, and local prominence. These members serve without remuneration and give freely of their time in establishing policy and providing guidance to the administration in the furtherance of the educational goals of the University.

## Chairman of the Board

**Mr. Mori Hosseini**
*Chairman of the Board of Trustees*
*Chairman and Chief Executive Officer*
*ICI Homes*
Daytona Beach, FL

## Members of the Board

**Mr. Michael Amalfitano**
*President and CEO*
*Embraer Executive Jets*
Melbourne, FL

**Mr. John Amore**
*Chief Executive Officer*
*Global General Insurance*
*Zurich Financial Services (Retired)*
Palm Beach, FL

**Ms. Leanne Caret**
*EVP & Senior Advisor*
*The Boeing Company (Retired)*
Argyle, TX

**Mr. Kenneth Dufour**
*President*
*Aviation Management Consulting, Inc.*
Rockford, IL

**Dr. Charles Duva**
*President and Chief Executive Officer*
*Duva Enterprises*
Ormond Beach, FL

**Mr. Jim Henderson**
*Vice Chairman of the Board of Trustees*
*Executive Chairman*
*Assured Partners, Inc.*
Orlando, FL

**Dr. Janet Kavandi**
*President, Sierra Space*
*Sierra Nevada Corporation (Retired)*
Ormond Beach, FL

**Mr. Neal J. Keating**
Windermere, FL

**Mr. Joseph Martin**
*Treasurer of the Board of Trustees*
*Office of the Chairman and Vice Chairman of the Board Fairchild Semiconductor International, Inc. (Retired)* Naples, FL

**Dr. Sally Mason**
*President Emerita*
*University of Iowa*
Hilton Head, SC

**Mr. Steven Nordlund**
*Vice President and General Manager, Air Dominance Phantom Works*
*Boeing Defense, Space & Security (Retired)*
St. Louis, MO

**Mr. David O'Maley**
*Chairman Emeritus*
*Ohio National Financial Services, Inc.*
Cincinnati, OH

**Mr. Kenn Ricci**
*Principal*
*Directional Aviation Capital*
Cleveland, OH

**Mr. Glenn S. Ritchey**
*President and Chief Executive Officer*
*Jon Hall Automotive Group*
Daytona Beach, FL

**Mr. Jean Rosanvallon**
*Special Senior Advisor to the Chairman and CEO*
*Dassault Falcon Jet, Inc.*
South Hackensack, NJ

**Mr. Zane Rowe**
*Secretary of the Board of Trustees*
*Chief Financial Officer, Workday*
Palo Alto, CA

**Mr. Jon Slangerup**
*Chief Executive Officer, Lind Marine*
Los Angeles, CA

**Mr. Steven M. Varsano**
*Founder, The Jet Business*
London, UK

**General Jacqueline Van Ovost**
*United States Air Force (Retired)*
*Principal, Van Ovost Consulting*
Turtletown, TN

## Board of Trustees Executive Leadership

*Jim Henderson*
*Mori Hosseini*
*Joe Martin*
*Sally Mason*
*Zane Rowe*

## Trustees Emeriti

*General Ronald Keys*

# Emeriti

## President Emeritus

**John P. Johnson**
*President Emeritus*

## Chancellor Emeritus

**Leon E. Flancher**
*Chancellor and Professor Emeritus*

## Dean Emeritus

**Robert Hall**
*Dean of Academics*

## Regional Manager Emeritus

**Joseph J. McEntee**
*Eastern Region*

## Chaplain Emeritus

**Kenan Morris, OFM**

## Professors Emeriti

**Ozrow E. Baker**
*Aviation Business Administration*

**Paul Bankit**
*Aeronautics*

**Alan Bender**
*Arts & Sciences*

**John F. Bollinger**
*Aeronautics*

**Chester Crosby**
*Business*

**Ernest Dammier**
*Aeronautics*

**Leon E. Flancher**
*Business*

**William Herlehy**
*Management*

**Theresa P. Maue**
*Arts & Sciences*

**Vance Mitchell**
*Management*

**Stephen B. O'Brien**
*Aeronautics*

**Eugene L. Round**
*Arts & Sciences*

**James T. Schultz**
*Arts & Sciences*

**David Stoutamire**
*Aeronautical Science*

# Catalog Compliance and Supplements

In compliance with federal laws and regulations, Embry-Riddle Aeronautical University does not discriminate on the basis of race, creed, color, religion, gender, age, national origin, disability, protected veteran status, genetic information, sexual orientation, gender identity, or any other status protected by federal, state or local law in any of its policies, procedures, or practices. An Equal Opportunity institution, the University does not discriminate in its educational programs, admissions policies, financial aid, employment or other school administered programs.

Designed for use during the 2025-2026 academic year, this catalog gives a general description of Embry-Riddle Aeronautical University and provides detailed information regarding the departments within the institution and curricula offered by the University.

Supplements to the catalog are available. The provisions of the catalog do not constitute a contract between the student and the University. The faculty and trustees of Embry-Riddle Aeronautical University reserve the right to change, without prior notice, any provision, offering, or requirement in the catalog. This includes the right to adjust tuition and fees, as necessary. The University further reserves the right at all times to require a student to withdraw for cause.

Supplements to the catalog are provided to reflect updates applied that may include additions, corrections, and/or changes to the initial publication of the catalog and only published in the official online version of the catalog. The printed or published PDF full/entire version of the ERAU Worldwide catalog is not updated after the start of the academic year. Updates to catalog are only published in online catalog.

The **2025-2026** catalog is effective July 1, 2025 through July 31, 2026.

## Supplements:

### *No Updates Available:*

# Index


## A

A.S. in Aeronautics ..... 60
A.S. in Aviation Business Administration ..... 139
A.S. in Aviation Maintenance ..... 61
A.S. in Emergency Management ..... 100
A.S. in Engineering Fundamentals ..... 85
A.S. in Technical Management ..... 140
A.S. in Uncrewed and Autonomous Systems ..... 62
About the University ..... 11
Academic Advisement ..... 28
Academic Integrity ..... 35
Accounting - GR (ACCT) ..... 199
Accounting - UG (ACCT) ..... 168
Aeronautical Engineering (AERO) ..... 168
Aeronautical Science - GR (ASCI) ..... 199
Aeronautical Science - UG (ASCI) ..... 168
Aerospace Engineering (AENG) ..... 199
Air Force Aerospace Studies (USAF) ..... 170
Airline Management (AIRM) ..... 200
Airworthiness Engineering (AWEN) ..... 200
Alumni Engagement ..... 53
Articulations & Educational Academic Agreements ..... 29
Aviation & Aerospace Sustainability (AASI) ..... 201
Aviation Cybersecurity (MACY) ..... 201
Aviation Finance (FIND) ..... 202
Aviation Maintenance - GR (MAVM) ..... 202
Aviation Maintenance - UG (AMNT) ..... 171
Aviation Management (AVMG) ..... 203
Aviation Safety - GR (MSAS) ..... 203
Aviation Safety - UG (BSAS) ..... 172

## B

B.S. in Aeronautics ..... 62
B.S. in Aviation Business Administration ..... 141
B.S. in Aviation Maintenance ..... 65
B.S. in Aviation Safety ..... 70
B.S. in Business Analytics ..... 143
B.S. in Communication ..... 102
B.S. in Data Science ..... 106
B.S. in Emergency Services ..... 108
B.S. in Engineering ..... 86
B.S. in Engineering Technology ..... 89
B.S. in Homeland Security ..... 111
B.S. in Human Factors Psychology ..... 113
B.S. in Interdisciplinary Studies ..... 116
B.S. in Logistics and Supply Chain Management ..... 144
B.S. in Pilot Operations ..... 72
B.S. in Project Management ..... 145
B.S. in Safety Management ..... 118
B.S. in Software Engineering ..... 91
B.S. in Technical Management ..... 147
B.S. in Uncrewed and Autonomous Systems ..... 74
Baggage Handling Systems Implementation (BHSI) ..... 172
Biology, Life Science (BIOL) ..... 172
Board of Trustees ..... 226
Books, Library and Supplies ..... 28
Business - GR (BUSW) ..... 204
Business - UG (BUSW) ..... 172
Business Analytics - GR (BUAN) ..... 204
Business Analytics - UG (BUAN) ..... 173

## C

California Campus Locations ..... 46
California Student Information ..... 46
Catalog Compliance and Supplements ..... 228
Center for Career and Professional Development ..... 42
Certificate Seeking Students (GR) ..... 16
Certificate Seeking Students (UG) ..... 16
Chancellor's Welcome ..... 6
Chemistry (CHEM) ..... 173
Classroom Rules and Regulations ..... 41
Co-Operative Education & Internship - GR (COIN) ..... 205
Co-Operative Education & Internship - UG (COIN) ..... 173
College of Arts & Sciences ..... 100
College of Aviation ..... 60
College of Business ..... 139
Combined Program Pathways College of Arts & Sciences ..... 120
Combined Program Pathways College of Aviation ..... 76
Communication (COMD) ..... 173
Computer Engineering (CESC) ..... 175
Computer Requirements and Email ..... 19
Computer Science (CSCI) ..... 175
Computer Science Engineering (CPSC) ..... 175
Contact the Worldwide Campus ..... 10
Course Drop, Course Withdrawal, and Refund Schedule ..... 23
Courses: Add/Drop, Load, Classification, Withdrawal, GPA ..... 32
Credit: Transfer, Military, Time Limits, and Advanced Standing ..... 29

Criminal Convictions and Violations ..... 52
Current High School Students ..... 14
Cybersecurity (CYBR) ..... 176

## D

Data Science (DSCI) ..... 176
Dean of Students ..... 43
Dean's List, Honor Roll, Warning, Probation, Suspension, and Dismissal 34
Degrees & Programs ..... 58

## E

Earning Multiple Degrees and Minors ..... 36
Economics (ECON) ..... 176
Electrical Engineering (ELEC) ..... 177
Eligibility and Application ..... 20
Embry-Riddle Asia Students ..... 29
Embry-Riddle's History ..... 12
Emergency Management (EMGY) ..... 177
Emergency Services - GR (MSES) ..... 205
Emergency Services - UG (ESVS) ..... 178
Emeriti ..... 227
Engineering (ENGR) ..... 179
Engineering Management (EMGT) ..... 206
Engineering Science (ESCI) ..... 179
Engineering Technology (ETEC) ..... 180
English (ENGL) ..... 180
Enrollment Management ..... 220
Estimated Cost of Attendance ..... 49

## F

F-1 Student Visas ..... 18
Facility and Equipment Information ..... 47
Faculty ..... 220
Faculty - College of Arts & Sciences ..... 223
Faculty - College of Aviation ..... 220
Faculty - College of Business ..... 225
Faculty - School of Engineering ..... 223
Faculty and Administration ..... 220
Finance - GR (FINE) ..... 206
Finance - UG (FINE) ..... 181
Financial Aid and Services ..... 20
Financial Assistance: Grants, Loans, Scholarships ..... 21
First Time and Transfer Students ..... 17
Former Embry-Riddle Students ..... 15

## G

General Education ..... 166
Government (GOVT) ..... 181
Grades ..... 39
Graduate Certificate in Airline Management (IATA) ..... 164
Graduate Certificate in Airworthiness Engineering ..... 99
Graduate Certificate in Aviation and Aerospace Sustainability ..... 83
Graduate Certificate in Aviation Safety ..... 84
Graduate Certificate in Business Intelligence and Analytics ..... 162
Graduate Certificate in Finance ..... 162
Graduate Certificate in Human Factors ..... 137
Graduate Certificate in Human Resources ..... 163
Graduate Certificate in Human Security and Resilience ..... 137
Graduate Certificate in International Business ..... 163
Graduate Certificate in International Society of Transport Aircraft Trading (ISTAT) ..... 165
Graduate Certificate in Leadership ..... 163
Graduate Certificate in Marketing ..... 164
Graduate Certificate in Occupational Safety Management ..... 137
Graduate Certificate in Project Management ..... 164
Graduate Certificate in Systems Engineering ..... 99
Graduate Conditional Admission ..... 16
Graduate Courses ..... 199
Graduation ..... 40

## H

High Reliability Organization (HROM) ..... 206
High School Graduates ..... 14
History (HIST) ..... 181
Homeland Security (HLSD) ..... 181
Honors Seminar (HONR) ..... 182
Housing Information ..... 48
Human Factors (MSHF) ..... 207
Human Factors Psychology (BSHF) ..... 183
Human Resources Management/Development - GR (HRMD) ..... 208
Human Resources Management/Development - UG (HRMD) ..... 183
Human Security and Resilience (MHSR) ..... 208
Humanities (HUMN) ..... 183

## I

Information Security and Assurance (MISA) ..... 185
Institutional & Specialized Accreditations, Affiliations, and State Authorizations ..... 6
Interdisciplinary Studies (BSIS) ..... 185
International Admissions ..... 17
International Student Services ..... 19

## L

Logistics and Supply Chain Management - GR (LGMT) ..... 209
Logistics and Supply Chain Management - UG (LGMT) ..... 185

## M

M.B.A. in Aviation ..... 149
M.S. in Aeronautics ..... 76
M.S. in Aerospace Engineering ..... 94
M.S. in Airline Management ..... 151
M.S. in Airport and Air Mobility Management ..... 151
M.S. in Airworthiness Engineering ..... 95
M.S. in Aviation and Aerospace Sustainability ..... 77
M.S. in Aviation Safety ..... 79
M.S. in Emergency Services ..... 120
M.S. in Engineering Management ..... 152
M.S. in Human Factors ..... 121
M.S. in Human Security and Resilience ..... 123
M.S. in Leadership ..... 153
M.S. in Logistics and Supply Chain Management ..... 154
M.S. in Management ..... 156
M.S. in Management Information Systems ..... 157
M.S. in Occupational Safety Management ..... 124
M.S. in Project Management ..... 158
M.S. in Space Systems ..... 80
M.S. in Systems Engineering ..... 96
M.S. in Uncrewed and Autonomous Systems ..... 80
Management - GR (MGMT) ..... 210
Management - UG (MGMT) ..... 186
Management Information Systems - GR (MMIS) ..... 210
Management Information Systems - UG (MMIS) ..... 187
Marketing - GR (MKTG) ..... 211
Marketing - UG (MKTG) ..... 187
Master of Aviation Cybersecurity ..... 78
Master of Aviation Maintenance ..... 78
Master of Space Operations ..... 79
Mathematics - GR (MATH) ..... 211
Mathematics - UG (MATH) ..... 187
Matriculation, Continuous Student Status, Catalog Applicability ..... 37
Mechanical Engineering (MECH) ..... 188
Message from the President ..... 12
Meteorology - GR (WEAX) ..... 211
Meteorology - UG (WEAX) ..... 188
Minor Courses of Study ..... 59
Minor in Air Cargo Management ..... 160
Minor in Air Traffic Management ..... 81
Minor in Airport Baggage Handling Systems Implementation ..... 126
Minor in Airport Management ..... 160
Minor in Applied Data Science ..... 127
Minor in Applied Meteorology ..... 81
Minor in Artificial Intelligence, Ethics, and Creativity ..... 127
Minor in Aviation Maintenance Operations ..... 81
Minor in Aviation Management ..... 160
Minor in Aviation Safety ..... 82
Minor in Aviation, Technology, and Society ..... 127
Minor in Communication ..... 128
Minor in Crisis, Risk and Resilience Communication ..... 128
Minor in Cybersecurity Application and Management ..... 82
Minor in Economics ..... 128
Minor in Emergency Services ..... 129
Minor in Engineering Sciences ..... 98
Minor in Environmental Science ..... 129
Minor in Helicopter Operations and Safety ..... 82
Minor in Homeland Security ..... 129
Minor in Human Factors ..... 130
Minor in Human Resources ..... 161
Minor in Humanistic STEM ..... 130
Minor in Industrial/Organizational Psychology ..... 131
Minor in International Relations ..... 131
Minor in Leadership ..... 161
Minor in Logistics Management ..... 161
Minor in Management ..... 161
Minor in Management Information Systems ..... 161
Minor in Marketing ..... 162
Minor in Mathematics ..... 131
Minor in Military Science ..... 132
Minor in Military Studies ..... 132
Minor in Occupational Safety and Health ..... 132
Minor in Project Management ..... 162
Minor in Psychology ..... 133
Minor in Research Foundations ..... 133
Minor in Science Literacy ..... 133
Minor in Security and Intelligence ..... 134
Minor in Small Uncrewed Aircraft Systems (sUAS) Operation ..... 82
Minor in Space Policy, History, and Culture ..... 134
Minor in Space Studies ..... 82
Minor in Technical Management ..... 162
Minor in Uncrewed and Autonomous Systems ..... 83
Mission of the University ..... 12

## N

Nevada Student Information ..... 52
Non-Degree Seeking and Transient Students ..... 16

## O

Office of Professional Education ..... 219
Officials of the University and Senior Leadership ..... 220
Organizational Behavior and Leadership - GR (OBLD) ..... 212
Organizational Behavior and Leadership - UG (OBLD) ..... 189
Orientation ..... 43

## P

Payments ..... 22
Physical Science (PHYS) ..... 189
Privacy of Student Records (FERPA) ..... 38
Professional Education Course Descriptions ..... 219
Project Management - GR (PMGT) ..... 212
Project Management - UG (PMGT) ..... 190
Psychology (PSYC) ..... 191
Public Health Science (PHSC) ..... 192

## R

Readmission of Service Members: Higher Education Opportunity Act of 2008 ..... 16
Registration ..... 29
Research - GR (RSCH) ..... 214
Research - UG (RSCH) ..... 192

## S

Safety - GR (SFTY) ..... 214
Safety - UG (SFTY) ..... 192
School of Engineering ..... 85
Security and Emergency Services (SSES) ..... 193
Security Science (SCTY) ..... 194
Skills Assessments ..... 38
Social Networking and Study Abroad ..... 43
Sociology (SOCI) ..... 194
Software Engineering (SWEN) ..... 194
Space Studies - GR (SPAC) ..... 215
Space Studies - UG (SPAC) ..... 195
Space Systems (MSSS) ..... 215
Specialized Academic Opportunities ..... 56
Speech (SPCH) ..... 195
Statistics (STAT) ..... 195
Student Accessibility Services ..... 43
Student Conduct ..... 44
Student Grievance ..... 43
Student Ombudsman ..... 44
Student Responsibilities ..... 29
Student Services and Academic Affairs ..... 28
Student Tuition Recovery Fund Disclosures ..... 52
Surveys ..... 53
System Engineering (SYSE) ..... 216

## T

The Worldwide Campus ..... 6
Title IX ..... 41
Transcript Requests ..... 37
Transfer or Change in Degree Program ..... 36
Transfer Students ..... 15
Tuition and Fees ..... 23

## U

Uncrewed and Autonomous Systems (UASE) ..... 217
Uncrewed Systems - GR (UNSY) ..... 217
Uncrewed Systems - UG (UNSY) ..... 195
Undergraduate Certificate in Airport Baggage Handling Systems Implementation ..... 134
Undergraduate Certificate in Artificial Intelligence, Ethics, and Creativity ..... 135
Undergraduate Certificate in Aviation Maintenance Technology Part 65 . 83
Undergraduate Certificate in Crisis, Risk and Resilience Communication ..... 135
Undergraduate Certificate in Emergency Management Leadership .... 136
Undergraduate Certificate in Engineering Fundamentals ..... 98
Undergraduate Certificate in Occupational Safety and Health ..... 136
Undergraduate Certificate in Uncrewed Systems Technology ..... 83
Undergraduate Conditional Admission ..... 16
Undergraduate Courses ..... 168
US Military Service (USMS) ..... 197

## V

VECTOR ..... 29
Veteran Student Services ..... 53

## W

Worldwide Academic Administration ..... 220
Worldwide Administration ..... 220
Worldwide Campus Admissions ..... 14
Worldwide Campus Catalog ..... 5



EMBRY-RIDDLE
Aeronautical University

worldwide.erau.edu