EMBRY-RIDDLE
Aeronautical University
WORLDWIDE

**2014-15
Undergraduate/Graduate
CATALOG**

worldwide.erau.edu

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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.

The Embry-Riddle catalog is published annually and, as updates are made, it is important for you to remain aware of any changes that may affect you.

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 **2014-2015** catalog is effective July 1, 2014.

For access to previous catalogs, view the Catalog Archive (http://catalog.erau.edu/worldwide/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 fire science. 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 150 campuses across the globe - more than 90 of which are located on military bases, 12 enrollment dates per year, five modes of learning and course work that can be completed as it fits into your busy life.

Read the Chancellor's Welcome: A Message from Dr. John R. Watret (p. 5)

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

- Find the latest news about the Worldwide Campus (http://worldwide.erau.edu)
- Find or learn more about a Worldwide Location near you (http://worldwide.erau.edu/locations)
- Learn more about the technology and learning modalities used by the Worldwide Campus (http://worldwide.erau.edu/about-worldwide/technology-modern-student)

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.

Contact the Worldwide Campus

Visit us in person at one of our more than **150 locations**, call us at 800-522-6787, or **email** us.

- Visit our contact page for additional listings (p. 7)

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 (SACS-COC) to award degrees at the associate's, baccalaureate's, master's, and doctoral levels. Learn more about our Accreditation, Associations, and State Authorizations.

Chancellor's Welcome

A Message from Dr. John R. Watret

To our students,

Embry-Riddle Aeronautical University – Worldwide has a distinctive mission and history that set us apart from other universities. Worldwide has grown from humble beginnings at Fort Rucker in 1970, with 20 students and a single location, to more than 150 locations in the United States, Canada, Europe, the Middle East, and Asia, and more than 27,000 students and 90,000 annual registrations. Today we are at the threshold of further growth on a global basis.

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

- **Our commitment to student 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 always 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 student service.** The faculty and staff at Embry-Riddle Worldwide pride themselves in their careful support of our students.

- **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 take pride in being able to offer them quality education that meets 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.
Chancellor
Worldwide Campus

Accreditation, Associations, and State Authorizations

Regional Accreditation

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 (SACS-COC) to award degrees at the associate, baccalaureate's, master's, and doctoral levels.

Contact information for SACS-COC:

1866 Southern Lane
Decatur, Georgia, 30033-4097
(404) 679-4500

This information is provided to enable interested constituents to:

1. Learn about the accreditation status of the institution
2. File a third-party comment about the institution's decennial review of accreditation
3. File a complaint against the institution for alleged non-compliance with a standard or requirement
4. Provide a note of exemplary service or quality standards related to the institution

Normal inquiries, such as admissions requirements, financial aid, educational programs, etc., should be addressed directly to the Embry-Riddle Aeronautical University – Worldwide Campus by contacting (800) 522-6787 or worldwide@erau.edu.

Associations

Embry-Riddle Aeronautical University – Worldwide has developed creative, mutually beneficial partnerships and working relationships with numerous corporations, organizations, and government entities throughout the world. Relationship models include collaboration; sharing of vision, goals and resources; physical co-location arrangements; corporate training programs; research projects; and joint ventures, to name a few. Worldwide develops corporate and organization-specific relationships to meet the needs of aviation, aerospace, and related industries.

Embry-Riddle Aeronautical University is an approved Professional Development Provider (PDP) for the National Business Aviation Association (NBAA).

Embry-Riddle Aeronautical University – Worldwide is a Registered Education Provider (REP) recognized by the Project Management Institute (PMI). As a Registered Education Provider, Embry-Riddle has agreed to abide by PMI-established quality assurance criteria.

Embry-Riddle Aeronautical University – Worldwide offers several business programs accredited by the Accreditation Council for Business Schools & Programs (ACBSP). This achievement means that Embry-Riddles' accredited business programs have been peer-reviewed, scrutinized, and meet the stringent requirements set forth by the ACBSP.

State Authorization

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.

Review specific state authorization information. (http://worldwide.erau.edu/locations/state-authorization)

Contact Worldwide

General Information (http://worldwide.erau.edu/about-worldwide)
Phone: (800) 522-6787 –OR- (800) 359-3728
E-mail: worldwide@erau.edu

Contact us at one of our 150 locations (http://worldwide.erau.edu/locations)

Worldwide Campus (http://worldwide.erau.edu)
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900

Admissions (http://worldwide.erau.edu/admissions)
(800) 522-6787
E-mail: wwadmissions@erau.edu

Financial Aid (http://worldwide.erau.edu/finance/financial-aid)
(866) 567-7202
Email: wwfinaid@erau.edu

Registrar
(Log in to ERNIE (http://ernie.erau.edu). On the left menu, scroll over Campus Services, then Worldwide Services, and then click on Registrar Staff.)
(866)393-9046
E-mail: worldwide.registrar@erau.edu

Disability Support Services
(Log in to ERNIE (http://ernie.erau.edu). Click on Student Services Tab, Under Student Affairs click on Disability Services.
386) 226-6396 or 888-292-5727
E-mail: wwdss@erau.edu

Office of Professional Education (http://proed.erau.edu)
Phone: (386) 226-7694
Fax: (386) 323-8692
Toll free: (866) 574-9125
E-mail: training@erau.edu

Department of Online Learning (http://worldwide.erau.edu/degrees-programs/online-campus)
Online Campus Advising
(800)359-3728
E-mail: wwadvise@erau.edu

Student Account Services
(Log in to ERNIE (http://ernie.erau.edu). Click on the Student Services tab in the upper right.)
Phone: (386) 226-6280

Career Services
Website: http://careers.erau.edu

European Contact
Embry-Riddle Aeronautical University
CMR 429
APO, AE 09054
Telephone number from U.S.: 011.49.631.303.27811
Email: europe.rdo@erau.edu

Military and Veteran Student Services (http://worldwide.erau.edu/about-worldwide/military-veterans)
Embry-Riddle Aeronautical University-Worldwide
600 S. Clyde Morris Blvd.
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 is the world's oldest and largest fully accredited university specializing in aviation and aerospace. A truly international institution, the University educates undergraduate and graduate students at its residential campuses in Daytona Beach, Florida and Prescott, Arizona; at its Worldwide Campus locations around the globe; and through online learning.

Embry-Riddle offers its students a wide array of undergraduate and graduate degree programs in aviation, aerospace, transportation, business, engineering, and related high-tech fields.

The University recently launched its first Ph.D. degree programs, the Ph.D. in Aerospace Engineering, the Ph.D. in Aviation, and the Ph.D. in Engineering Physics. The Aviation Doctorate, the first of its kind in the nation, is designed for working professionals who want to enhance their contributions to the aviation and aerospace organizations that employ them. The Engineering Physics doctorate builds on the University's solid program of space research, which is funded by NASA, the National Science Foundation, the U.S. Air Force, and other agencies. The new Ph.D. in Aerospace Engineering provides the pinnacle to Embry-Riddle's undergraduate and master's degrees in Aerospace Engineering, a program that in its entirety is the largest of its kind in the nation.

These new Ph.D. programs expand the applied research opportunities in which Embry-Riddle faculty and students assist the aviation/aerospace industry, government agencies, and others in meeting real-world challenges.

The University's 185-acre eastern campus in Daytona Beach is adjacent to Daytona Beach International Airport, with Kennedy Space Center and Orlando each only an hour's drive away. On campus, the new College of Arts & Sciences building will open in 2013. Other near-term construction projects are a Research Park and Greek housing. The Jim W. Henderson Administration & Welcome Center opened in 2012. Other recent additions to the campus include the James Hagedorn Aviation Complex, the High-Altitude Normobaric Lab, the College of Business academic hall, and the Apollo residence hall. Other complexes worthy of note include: the College of Aviation academic hall, the Lehman Engineering & Technology Center, and the Advanced Flight Simulation Center.

With active faculty advisement, student teams from the Daytona Beach campus regularly take top honors in competitions such as SAE engineering events and NASA Means Business, as well as in flight competitions such as NIFA SAFECON and the Women's Air Race Classic.

The university's 539 acre Western Mountain campus is located in the mile high pines of Prescott, Arizona. The campus offers extensive recreational facilities and opportunities in and near the campus, to include mountain biking, kayaking, skiing and snowboarding, and other outdoor activities. The campus itself is home to the 20,000 square foot Aerospace Experimentation and Fabrication Building, the nation's largest university Accident Investigation Lab, and the world's first College of Security and Intelligence: which features programs in Global Security and Intelligence, Cyber Intelligence and Security, and Forensic Biology. The campus's flight team has won 9 national championships in NIFA SAFECOM competitions, and more than any other institution in the last decade. The campus's business program's Phi Beta Lambda team has won 8 consecutive state championships, and has recently added a degree in Global Business. The College of Aviation offers degrees for professional pilots in both fixed wing and rotary wing options. It's athletic teams compete in the NAIA's CalPac conference, regularly winning conference championships in multiple sports. The campus was recently named one of the top 1% nationally in million dollar return on investment by affordablecollegesonline.org (http://www.affordablecollegesonline.org/campus-colleges/most-affordable-small-private-colleges).

The Worldwide Campus provides educational opportunities for working civilian and military professionals. Its academic programs are offered at more than 150 locations in the United States, Europe, Asia, Canada and the Middle East and through Web-based online learning. Based on their unique requirements, classroom students can select online courses, and deployed military students can shift from classroom to 100% online course delivery. With Worldwide's new EagleVision technology, students at different geographical locations can receive instruction at the same time.

As aviation and aerospace continue to evolve, so does Embry-Riddle. The University is committed to the expansion of opportunities for students to work more closely with the aviation industry in the United States and in other nations. Guiding the process of evolution are dedicated teachers, administrators, alumni, trustees, and advisory board members who share our students' love of aviation and who strive to ensure Embry-Riddle's continued position as the world's premier aviation and aerospace university.

Message from the President

To Our Students:

Thank you for choosing Embry-Riddle Aeronautical University for one of the most important investments you will make in your future.

With thousands of students enrolled in our programs today, and over 100,000 alumni, you are now a member of a worldwide family of leaders in the aviation and aerospace industry.

Our commitment is to provide you with quality programs and faculty, as well as responsive and caring student services. In reviewing this catalog, you will see a broad range of academic opportunities that prepare our graduates for fulfilling careers within our dynamic industry. Many courses include projects where you will work with others as a team to solve real-world challenges.

As you read the history of Embry-Riddle, it will be clear that our University is evolving. In 88 years we have grown from the world's finest aviation institute to an internationally respected comprehensive university, committed to teaching, research, and professional service to the aviation and space community. With more than 150 locations all over the world, we can truly say that the sun never sets on Embry-Riddle.

I welcome you to an exciting and global University, and to the Embry-Riddle experience.

John P. Johnson, Ph.D.
President and CEO

Mission of the University

Our Mission

At Embry-Riddle, our mission is to teach the science, practice and business of aviation and aerospace, preparing students for productive careers and leadership roles in service around the world.

Our technologically enriched, student-centered environment emphasizes learning through collaboration and teamwork, concern for ethical and responsible behavior, cultivation of analytical and management abilities, and a focus on the development of the professional skills needed for participation in a global community. We believe a vibrant future for aviation and aerospace rests in the success of our students. Toward this end, Embry-Riddle is committed to providing a climate that facilitates the highest standards of academic achievement and knowledge discovery, in an interpersonal environment that supports the unique needs of each individual.

Embry-Riddle Aeronautical University is the world's leader in aviation and aerospace education. The University is an independent, non-profit, culturally diverse institution providing quality education and research in aviation, aerospace, engineering and related fields leading to associate, bachelor, master and Ph.D. degrees.

Our Vision

Embry-Riddle will be the world's source for innovation and excellence in aerospace education and applied research.

Our Values

The strength of our university is firmly rooted in our values. We expect that our students, faculty and staff share and demonstrate the values of student success, a positive learning environment and mind-set, safety first in all situations, personal growth, integrity, honesty, trust, diversity, open communication, teamwork, character, change for progress, fiscal soundness, healthy investments, and a can-do attitude.

"The strength of our university is firmly rooted in our values"

Embry-Riddle's History

Aviation and Embry-Riddle: The Lifelong Partnership

In 1903 Orville and Wilbur Wright made history with their sustained, controlled flight of a powered aircraft. Only a few short years later, the advent of regular passenger service and the start of World War I combined to produce a dynamic new industry to meet the demands of commercial and military aviation.

Unlike many other developments at the end of the Industrial Revolution, aviation required a special education — learning how to fly, learning about safety and weather, and learning about engines — from skilled maintenance to the outer limits of performance.

The need for trained pilots and mechanics quickly led to the establishment of a new type of school, one focused totally on aviation. In the beginning, these organizations were often a combination of airplane dealership, airmail service, flight training center, and mechanic school. The original Embry-Riddle operations fit that mold precisely.

On Dec. 17, 1925, exactly 22 years after 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. The following spring the company opened the Embry-Riddle School of Aviation, coinciding with the implementation of the Air Commerce Act of 1926, which required, for the first time, the certification and medical examination of pilots.

Within three years the school had become a subsidiary of AVCO, the parent of American Airlines. Embry-Riddle remained dormant during most of the 1930s, mirroring the casualties of the Great Depression, and the Lunken Airport operation was phased out. By the end of the decade, however, World War II erupted in Europe and the demand for skilled aviators and mechanics grew significantly. Embry-Riddle's second life was about to begin.

In South Florida, Embry-Riddle opened several 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. Some 25,000 men were trained by Embry-Riddle during the war years.

After the war, under the leadership of John and Isabel McKay, Embry-Riddle expanded its international outreach while strengthening its academic programs.

With Jack R. Hunt as president, in 1965 Embry-Riddle consolidated its flight, ground school, and technical training programs in one location by moving northward to Daytona Beach, Florida. This move, which proved to be a moment of singular importance, was made possible by Daytona Beach civic leaders who donated time, money, and the use of personal vehicles. The relocation signaled the rebirth of Embry-Riddle and the start of its odyssey to world-class status in aviation higher education.

In 1968, Embry-Riddle was accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award degrees at the associate, bachelor, and master levels, and in 1970 changed its name from "Institute" to "University." Also in 1970, centers were established at U.S. military aviation bases to serve the educational needs of active-duty military personnel.

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 been an outstanding companion to the University's eastern campus in Daytona Beach.

Continuing Hunt's legacy was Lt. Gen. Kenneth L. Tallman, president of Embry-Riddle for five years. He came to the University after a distinguished 35-year military career that included service as superintendent of the U.S. Air Force Academy. Under Tallman's

leadership, a school of graduate studies and the electrical engineering degree program were introduced. He led the University into research with the addition of the engineering physics degree program. He also developed stronger ties between Embry-Riddle and the aviation/ aerospace industry.

Dr. Steven M. Sliwa led the University from 1991 through 1998. Sliwa, the University's third president, is best known for creating an entrepreneurial environment and for developing strategic partnerships with industry. These partnerships included 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, which included an $11.5 million congressional line-item appropriation. In addition, new academic and research programs were created at his direction to respond to structural changes in the industry while increasing market share in the University's core programs.

Embry-Riddle's fourth president, Dr. George H. Ebbs, led the University from 1998 through 2005. During his tenure the annual college guide produced by U.S. News & World Report consistently ranked Embry-Riddle's Aerospace Engineering program No. 1 in the nation among schools without doctoral programs, a ranking the University has achieved every year since 2001. Embry-Riddle's program in Aerospace Engineering is the largest in the nation, as are its programs in Aeronautical Science and Engineering Physics.

Under the leadership of Dr. Ebbs, a new graduate degree program in safety science was introduced, as well as new undergraduate degree programs in Computer Science, Global Security and Intelligence Studies, Mechanical Engineering, Software Engineering, and Space Physics. In addition, major construction was initiated at the Daytona Beach and Prescott residential campuses.

Dr. Ebbs presided over three military contracts worth a total of more than $57 million. Under those contracts Embry-Riddle provides aviation-related degree programs to the U.S. military in Europe; trained Air Force, Air National Guard, and international flight safety officers at Kirtland Air Force Base in Albuquerque, N.M.; and trained Air Force pilots at the U.S. Air Force Academy in Colorado Springs.

Dr. John P. Johnson is the University's fifth President. He previously served as Embry-Riddle's Interim President and as Provost and Chief Academic Officer. Before joining Embry-Riddle, he was the Provost and Vice President for Academic Affairs at Texas A&M University, Texarkana, and served as Dean at the Medical University of South Carolina and at Northern Kentucky University.

Under Dr. Johnson's leadership Embry-Riddle has expanded its research activity; has launched Ph.D. degree programs, in Aerospace Engineering, Aviation, Engineering Physics, Human Factors, and in Mechanical Engineering; and is developing a global strategy to take its aviation and aerospace expertise overseas. Working with the FAA and industry leaders, Dr. Johnson has positioned the University as one of the nation's leaders in the development of next-generation air traffic management technology.

For his leadership in aerospace education and research he received the Jimmy Doolittle Fellowship Award from the U.S. Air Force Association in 2007. He also received the 2010 John K. Lauber Award for Aviation Safety from the University Aviation Association, honoring the University's record of safe flying and operations as part of the safety-culture initiative established by Dr. Johnson. The National Aeronautic Association awarded Embry-Riddle the prestigious 2008 Collier Trophy for the development and implementation of ADS-B technology under his stewardship.

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.

To apply for admissions, go to worldwide.erau.edu/admissions/apply-now/index.html.

High School Graduates

Graduates Under the Age of 20

The following documentation is required for consideration of admission for all applicants under the age of 20 who are not active members of the United States military and not a transfer student.

- Official high school transcript or equivalent (GED)
- Home-schooled applicants must show an official document that is equivalent to high school completion and/or may be required to complete GED
  - Rigor of high school academic program and academic performance will be assessed at a 2.5 GPA or higher on a 4.0 scale
- SAT with a minimum score of 1000 from the critical reading and mathematics components **-OR-**
- ACT with a minimum composite score of 21
- Essay of 300-500 words
- Two letters of recommendation from a school counselor, teacher, or employer
- Official transcripts from all postsecondary, accredited degree-granting institutions, 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
- Two years of history or social science
- Two years of science in at least two different areas, with at least one lab experience

Admission into some degree programs may require an applicant of any age to have higher GPA, SAT, or ACT scores, and/or meet other special requirements.

Graduates Age 20 and Older

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

- Official high school transcript or equivalent (GED) with a 2.5 GPA or higher assessed on a 4.0 scale
- Official transcripts from all postsecondary, accredited degree-granting institutions attended, if applicable
- Resume

(For applicants with schooling outside the U.S., please see International Students (p. 13)**.)**

Graduates 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

Transfer Student Applicants

Applicants who graduated from high school and subsequently completed a minimum of 12 semester hours of college-level credit from an accredited degree-granting institution are considered transfer students. 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.

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 also have:

- Official transcripts from all colleges and universities (post-secondary) accredited degree-granting institutions attended
- Military documents, if applicable

Admission into some degree programs may require an applicant to have a higher CGPA and/or meet other special requirements.

Former Embry-Riddle Students

For Undergraduate Students: A degree-seeking student whose attendance at the University is interrupted will be required to reapply for admission in any of the following circumstances:

- Enrollment at another institution without advance, written approval
- A matriculated student who fails to enroll within two years from the ending date of their last course
- A student who fails to enroll within one year of admission
- Academic suspension or dismissal

A dismissed student must satisfy the conditions for readmission as indicated in the letter of dismissal before being readmitted. A written petition must accompany the application and application fee 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 who fails to enroll within two years from the ending date of their last course
- A student who fails to enroll 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

A dismissed student must satisfy the conditions for readmission as indicated in the letter of dismissal before being readmitted. A written petition must accompany the application and application fee for consideration of readmission.

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.
- 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 at their home location. Students can find information on their home location using the Worldwide Location Finder (http://worldwide.erau.edu/locations/index.html?address=). Academic advisors for the Online Campus can be found on the Worldwide Online Advisors (https://ernie.erau.edu/portal/page/portal/campus_services/ww_services/worldwide_online/advisors) page in ERNIE (http://ernie.erau.edu).

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.

- Students granted standard conditional admission due to academic deficiency will remain on conditional status until they have completed nine hours of graduate work. 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 or risk being placed on warning or being dismissed 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 the academic advisor at their home location. Students can find information on their home location using the Worldwide Location Finder (http://worldwide.erau.edu/locations/index.html?address=). Academic advisors for the Online Campus can be found on the Worldwide Online Advisors (https://ernie.erau.edu/portal/page/portal/campus_services/ww_services/worldwide_online/advisors) page in ERNIE (http://ernie.erau.edu).

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 was previously admitted to the institution but who did not attend, or 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).

Non-Degree Seeking and Transient Students

Undergraduate

Embry-Riddle recognizes that working adults may be interested in furthering their education for professional- and/or self-enhancement and not to pursue a degree with Embry-Riddle. We also recognize that transient students, 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 the same academic standards as degree-seeking students. 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- and/or self-enhancement and not to pursue a degree with Embry-Riddle. We also recognize that transient students, 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. Non-degree-seeking and transient 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.

Certificate Seeking Students

Undergraduate

Embry-Riddle recognizes that working adults may be interested in furthering their education for professional- and/or self-enhancement and not to pursue 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. Official or unofficial 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.

Graduate General Admissions Requirements

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

Certain degree programs may require higher than the minimum GPA's listed above and/or additional criteria or documentation for consideration of admission.

** 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.

International Students

An international student is defined as any non-United States citizen intending to study at campuses located outside the United States, students who live outside of the United States and are enrolled through the Online Division of our Worldwide Campus, 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 the 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, to include the cumulative grade-point average, unless specifically exempted through a qualifying ERAU program. 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. The approved agencies are:

World Education Services, Inc.
Bowling Green Station
P.O. Box 5087
New York, NY 10274-5087
Phone: (212) 966-6311
Fax: (212) 739-6100
www.wes.org (http://www.wes.org)

Educational Credential Evaluators (ECE)
P.O. Box 514070
Milwaukee, WI 53203-3470
Phone: (414) 289-3400

www.ece.org (http://www.ece.org)

International Education Research Foundation, Inc.
P.O. Box 3665
Culver City, CA 90231
Phone: (310) 258-9451
Fax: (310) 342-7086
www.ierf.org (http://www.ierf.org)

Josef Silny & Associates, Inc.
International Education Consultants
7101 SW 102 Avenue
Miami, FL 33173
Phone: (305) 273-1616
Fax: (305) 273-1338
Translations: (305) 273-1984
www.jsilny.com (http://www.jsilny.com)

American Association of Collegiate Registrars and Admissions Officers (AACRAO)
One DuPont Circle NW, Suite 520
Washington, DC 20036
Phone: (202) 293-9161
Fax: (202) 872-8857
ies.aacrao.org (http://ies.aacrao.org)

Academic Credentials Evaluation Institute, Inc. (ACEI)
P.O. Box 6908
Beverly Hills, CA 90212
Phone: (310) 275-3530
Fax: (310) 275-3528
www.acei1.com (http://www.acei1.com)

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), 213 (computer based), or 79-80 (Internet based) **-OR-**
   b. Attain a minimum score on the International English Language Testing System Academic (IELTS) of 6.0 **-OR-**
   c. Successful completion of a college-level English composition course with a grade of "C" or better from a regionally accredited institution of higher learning (or equivalent, if from an overseas institution).

2. TOEFL and IELTS scores must be sent directly to Embry-Riddle by the testing agency. For testing dates and locations, please use the following contact information.

   TOEFL Services (Worldwide Campus school code 2860)
   Education Testing Service
   P.O. Box 6151
   Princeton, NJ 08541-6151
   Phone: (609) 771-7100
   Toll Free: (877) 863-3546
   Fax: (610) 290-8972
   www.ets.org (http://www.ets.org)

   IELTS: www.ielts.org (http://www.ielts.org) (Worldwide Campus school code 5190)

Department of Homeland Security/Student Exchange Visitor

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

Fort Lauderdale, FL
Houston, TX
Miami, FL
Los Angeles, CA
Oakland, CA

Oklahoma City, OK
Orlando, FL
Phoenix-Chandler, AZ
Phoenix-Sky Harbor, AZ
Portland, OR
San Diego, CA
Seattle, WA
Sky Harbor, AZ
Tucson, AZ
Whidbey Island, WA

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.

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 2, or by email at wwintstc@erau.edu.

International students interested in attending any European Worldwide campuses may contact:

Embry-Riddle Aeronautical University
Europe Regional Office
CMR 429
APO AE 09054-0429
DSN: 483-7811
Civilian: 011-49-631-303-27811
Fax: 011-49-631-303-27810
E-mail: europe.rdo@erau.edu
-OR-
International students interested in attending our Berlin Campus may contact:
Embry-Riddle Aeronautical University
Europe Regional Office
Europaallee 6
D-67657 Kaiserslautern
Germany
Phone: +49(0)30 53063549
E-mail: berlin@erau.edu

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. International students receive an orientation that familiarizes them with University policies and procedures.

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 2, or by email at wwintstc@erau.edu.

For additional information, visit the International Student Services website on the Student Services tab via ERNIE at ernie.erau.edu.

Disclosure of Criminal Convictions

Embry-Riddle Aeronautical University reserves the right to consider a student's or applicant's character, academic and behavioral record, criminal record, or other pertinent information in granting or denying admission; making related assignments or schedules; or imposing reasonable, appropriately tailored requirements to protect the campus environment.

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.

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 broadband Internet connection to access e-mail, online course materials, library databases, ERAU's Intranet, and the World Wide Web. Productivity software such as word processing and presentation software must be installed and certain courses may require access to spreadsheet or other software. It is the responsibility of each student to ensure his or her access to a computer with the required software.

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. Although the software used to send some of these communications automatically includes an "unsubscribe" link at the bottom of each message, do not unsubscribe since this will hinder the University's ability to provide you with important information. 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 awards are 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

Eligibility Requirements

To be considered eligible to apply for most financial programs students must:

1. Be a U.S. citizen or eligible noncitizen.
2. Be accepted in a degree program (Associate's, Bachelor's, Master's or Doctorate).
3. Be enrolled or accepted for enrollment as at least a half-time student in a degree program.
4. Be making satisfactory academic progress toward a degree.
5. Be registered with Selective Service, if required to do so.
6. Establish financial need.
7. Not be in default on a loan or owe a repayment on a previous financial aid award received at any institution.

The Application Process

After applying for admission to the University, students are encouraged to complete the Free Application for Federal Student Aid (FAFSA) on the web at www.fafsa.ed.gov (http://www.fafsa.ed.gov). The FAFSA must be completed each year. Students should renew their aid application each year through the Internet at www.fafsa.ed.gov (http://www.fafsa.ed.gov).

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 do not have to be repaid. Most of these programs are based on the student's financial need. For more information visit the Worldwide Financial Aid Website (http://worldwide.erau.edu/finance/financial-aid).

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 in the Finance section at http://worldwide.erau.edu/finance/index.html. This includes information about eligibility criteria, application procedures, and deadline dates.

Grants

- Federal Pell Grant
- Florida Resident Access Grant
- Florida Bright Futures Scholarship Program
- Georgia Hope Scholarship and TEG (Tuition Equalization Grant)
- Kentucky Scholarships and Grants

- Ohio National Guard
- Pennsylvania State Grant

Loans

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

Scholarships

Embry-Riddle endowed and term scholarships are funds that are generously donated to help students pay for their education. If you are selected for a scholarship it will be paid in the Fall and Spring semesters 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 (http://worldwide.erau.edu/finance/financial-aid/applying-for-aid). Completing a FAFSA application does not require you to use Federal aid.

Embry-Riddle Worldwide students are eligible for University Institutional Scholarship Opportunities. Students can apply during the months of April and May each year. The application is **open April 1 at 8 a.m. EST and closes May 31 at 5 p.m. EST**. Recipients are chosen by the Worldwide Scholarship Committee and notifications will be sent via ERAU email by the end of June for the upcoming academic year.

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.

- Worldwide Scholars
- CAO Top 10
- Project Management
- External Scholarship Opportunities - not sponsored by Embry-Riddle.

Payments

Extended Payments

Students who use financial assistance to pay their University charges may have the payment date extended for the amount of their award if their funds are not ready to be disbursed by the date payment is due. This is called a payment extension.

Any difference between the total charges and the amount of the extension granted must be paid according to the University's payment procedure. To qualify for a payment extension, students must have applied for financial assistance and must have received final approval of their award.

Payment Plan

Students who are requesting to defer payment have the option of signing up for a Tuition Payment Plan.

The plan offered requires a $20 set-up fee and one-third of the term's tuition at the time of enrollment. In 30 days, the next one-third payment will be automatically debited via the pay method the student chose at the time of enrollment. The final one-third payment will be automatically debited 30 days later.

The Payment Plan agreement can be accessed online by logging into ERNIE (http://ernie.erau.edu), then going to the Student Services tab and

choosing Campus Solutions Student Center. Once on the student home page, scroll down to finances and select My Student Account.

Payment for the cost of books, course materials, and shipping fees may not be deferred.

Students are encouraged to contact Worldwide Campus (%20worldwide@erau.edu) or Worldwide Admissions (%20wwadmissions@erau.edu) and Student Affairs, and Worldwide Student Accounting (%20bursar@erau.edu) for details regarding costs and payments.

Helpful contacts can be found on the Worldwide Contact Us (http://worldwide.erau.edu/about-worldwide/contact-us) page.

Credit Cards

MasterCard, Visa, Discover, or American Express may be used to pay for tuition, fees, and books.

Delinquent Accounts

When a student's account is delinquent, registration for any subsequent semesters will be denied. A delinquent student account will result in suspension of all academic processing, and information on class performance, grades, and transcripts will be withheld.

If the delinquent status is not resolved, the University may place the account with a commercial collection agency for further collection and/or litigation action. The student is also subject to the costs of collection (33-50%) and reasonable attorney's fees.

Delinquent accounts may be reported to one or all three major credit bureaus.

Tuition and Fees

Payment in full or payment arrangements are required on or before the session start date of each month.

Detailed tuition rates are published on the web at http://worldwide.erau.edu/finance/index.html.

User Fees

Application fee (nonrefundable)	$50
Late registration fee	$25
Transcript fee (includes service charge)	$10
Graduation fee (nonrefundable)	$100
Duplicate diploma	$50
Previously earned diploma	$50

University Withdrawal/Refund Schedule

First week	100%*
After first week	0%*

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

Students who withdraw from a course when the effective date of the withdrawal does not fall under a refund period are responsible for their tuition. Request for refunds due to circumstances clearly beyond the student's control, such as illness, required military service, etc., must be in writing and accompanied by appropriate documentation, such as a physician's statement, military orders, etc.

For nonmilitary students enrolled in Alaska, California, Georgia, Indiana, Kentucky, Maryland, Nevada, North Dakota, Oregon, and Tennessee, refund tables are available at local Worldwide locations or on the State

Authorization and Compliance site (http://worldwide.erau.edu/locations/state-authorization).

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).

Department of Education Withdrawal/Refunds Policy

Students receiving financial aid who withdraw will be subject to the return-of-funds policies specified by the U.S. Department of Education. Refunds of federal aid for students who officially withdraw on or before the 60% point of the enrollment period will be determined by calculating the amount due under the Federal Return of Title IV Funds policy.

Student Services & 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

The Academic Advisor is responsible for orientation, which includes advising students of University regulations and procedures. These regulations and procedures include:

- Discussing academic programs to help students understand what each offers
- Discussing possible credit transferability for incoming students
- Prior learning assessment
- Course prerequisite requirements
- Enrollment, textbooks, financial assistance, and payment requirements
- Class attendance
- General student support and services

A student's primary point of contact is the Campus Director at their Worldwide Campus home location (http://worldwide.erau.edu/locations/index.html?address=). For Online students not associated with a Worldwide Campus location, their primary contact is their Online Academic Advisor at the Online Campus (https://ernie.erau.edu/portal/page/portal/campus_services/ww_services/worldwide_online/advisors).

Books, Library and Supplies

Textbook Purchase

Please consult the Campus Director at your Worldwide location or your Student Affairs Office advisor for information on ordering textbooks. Students may search for textbook information by term on the Worldwide Master Textbook & Materials List site. Online, EagleVision Home, and certain classroom books may be purchased through the Worldwide bookstore website (http://store.nexternal.com/erau/storefront.aspx).

Identification Cards

Applying for a student identification card, known as the EAGLEcard, is done through your ERNIE (http://ernie.erau.edu) login under Student Services (https://ernie.erau.edu/portal/page/portal/students/services/worldwide). 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: Bringing the Library to You

The Hunt Library, located on the Daytona Beach Campus, is the Library for all Worldwide students, faculty and staff, regardless of location. The Hunt Library slogan, "Bringing the Library to You," defines our commitment that the Worldwide community has access to all library resources and services.

The mission of the Hunt Library is to provide materials, services, and facilities to students, faculty, and staff in support of the University's commitment to excellence in teaching, learning, and research for both the Daytona Beach and Worldwide campuses.

Hunt Library users will find resources in a variety of formats: books, government documents, periodicals, microforms, conference proceedings, videos, DVDs, and electronic resources.

The Hunt Library's web pages are located at library.erau.edu; choose the Hunt Library link.

The electronic library includes round-the-clock access to EAGLEsearch (http://library.erau.edu/find/eaglesearch.html), which allows researchers to search much of Hunt Library's collection simultaneously, as well as the Library's online catalog, Voyager (http://voyager.db.erau.edu:7008/vwebv/searchAdvanced), and over 100 online databases (http://guides.erau.edu/databases) (which include many full-text resources).

Help

The Hunt Library is the researcher's primary resource provider. Regardless of their location, members of Embry-Riddle's Worldwide community have circulation (check-out) privileges, online quick-help opportunities, and access to a web-based document delivery system.

Research Librarians are also available via telephone at (800) 678-9428 or (386) 226-7656 and by chat (http://library.erau.edu/help/ask-a-librarian) (8 a.m.-5 p.m. Eastern) or by e-mailing us at library@erau.edu (%20library@erau.edu). Research Librarians will provide detailed advice on research strategies, referrals to relevant reference sources, assistance with literature searches, and help navigating the library's website.

An overview of the Hunt Library's help features is available from http://library.erau.edu/help/

How to Contact the Hunt Library

Phone: (800) 678-9428 or (386) 226-7656 (8 a.m.-5 p.m. Eastern)
E-mail: library@erau.edu
Internet: library.erau.edu/home.html

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 the Director of Enrollment Management-Asia (%20asia@erau.edu) for any specifics regarding ERAU Asia.

Visit asia.erau.edu 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 his/her academic advisor at their local campus (local campuses can be found on the Worldwide Locations page (http://worldwide.erau.edu/locations)) or their advisor in the Online Campus (https://ernie.erau.edu/portal/page/portal/campus_services/ww_services/worldwide_online/advisors).

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

Registration

Students are responsible for initializing enrollment each term by contacting their home location/campus. For contact information, find your location on the Worldwide Locations (http://worldwide.erau.edu/locations) page.

At all campus 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.

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 the Campus Director, the Executive Director of Online Learning, or the Registrar for students who have outstanding incompletes or a history of incompletes.

EAGLET Online Writing Lab

EAGLET (Electronic Access to Grammar, Language, and Essay Tutoring) is an online writing lab for Embry-Riddle students. It provides writing help, usually via two- to five-minute videos.

It covers all aspects of the writing process, from brainstorming through organizing and drafting, to editing and proofreading. It also contains advice on avoiding common grammar and punctuation problems, tips and guidance on researching, and documentation for using APA style use.

EAGLET is accessed via the Student Services tab (https://ernie.erau.edu/portal/page/portal/students/services/worldwide) in 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 specific catalog year.

For more information regarding either of these types of curricular agreements, please contact the Worldwide Campus location (http://worldwide.erau.edu/locations/index.html?address=) that you plan to attend. For online students, contact the Executive Director of Online Learning (onlineadvising@erau.edu).

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

Degree Completion Time Limit

For Graduate Students: All requirements for an Embry-Riddle master's degree must be completed within seven years from the date of enrollment into the degree program. If a student must reapply for admission, the seven years commences from the new enrollment date rather than the initial enrollment date. If a student changes program, the seven years commences from the request date for the change of program. Transferring to a different curricular version or catalog year of the same degree

program does not qualify a continuing student to restart the seven year completion limit.

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.

Assessment of Prior Credit

For 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.

When an undergraduate military student with a Servicemembers Opportunity Colleges (SOC) student agreement is unable to take a required course at Embry-Riddle Aeronautical University – Worldwide, they should follow the process as detailed in Chapter 8 of the current SOC Degree Network System (DNS)-4 Handbook (http://www.soc.aascu.org/pubfiles/dphandbk/DNS-4_Handbook_Ch8.pdf) and/or the Guaranteed-Transfer Courses tool (http://www.soc.aascu.org/dnstools/GrntdTransfCrs.html) to find a current course from another DNS member institution that is guaranteed to transfer to Embry-Riddle Worldwide.

If a course from another institution is listed in the transferability table in the current SOC DNS-4 Handbook as transferable for an Embry-Riddle Worldwide course, and which satisfies a degree requirement, then the student does not require prior approval before taking that course.

Students should submit transcripts upon completion of the course for credit application. If a course from another academic institution is not listed in the DNS-4 handbook as having guaranteed transferability, students are advised to take the course at Embry-Riddle Worldwide, if possible. If the course cannot be taken from Embry-Riddle, students should obtain prior approval from Embry-Riddle for a specific course that will satisfy the degree course requirement and transfer to Embry-Riddle Worldwide.

Embry-Riddle Aeronautical University limits academic residency to no more than 25 percent of the degree requirements for all undergraduate degrees for active-duty service members (no more than 30 percent for completely online delivery).

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.

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 only to degree-seeking students. Certificate-only or non-degree-seeking students are not eligible for transfer credit. The only exception to this policy is for specific established corporate agreements.

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.

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, 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, 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, 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, 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 (http://www2.acenet.edu/credit/?fuseaction=browse.main) and the Guide to the Evaluation of Educational Experiences in the Armed Forces (http://www.acenet.edu/news-room/Pages/Military-Guide-Online.aspx).

3. Credit may be granted on the basis of certain FAA licenses with appropriate rating.

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.

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 two-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.

Course Equivalency Exams

As per University policy, exams (including CLEP, 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.

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

For Graduate Students: 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.

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.

Specifics regarding transferring from a completed Embry-Riddle master's program to the MBAA program are detailed in the Graduate Academic Programs (p. 56) section of the catalog.

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

undergraduate degree will not be accepted toward the requirements for a graduate degree.

Credit will only be considered for course work that is not more than seven years old at the time the admissions application is received at Worldwide Headquarters. This includes previously earned ERAU graduate credit that is more than seven years old at the point of readmission.

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 seven-year 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 seven-year limit for such applicants commences on the date the service member separates from active military service.

Graduate students who believe their knowledge and prior learning experience qualify them for 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 department chairs will review the petition and make the determination of credit.

There are eligibility maximums established for VAP credit awards. Credits awards through the VAP process are generally minimal.

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

Veterans Transfer Credit

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.

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

Course Load

For Undergraduate Students: Due to compressed term length at the Worldwide Campus, six semester hours constitute the minimum load for full-time student status for students enrolled at a campus location. 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. A student whose cumulative GPA is 3.00 or higher may enroll for an overload of three credit hours with advance approval from the Campus Director. Requests for overloads in excess of three credits must be approved by the College Dean or designee.

For Graduate Students: The maximum course load for graduate students is nine credit hours per term. Three semester credit 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. If a student demonstrates exceptional academic performance, a maximum of a one-course overload may be approved by the Campus Director or Executive Director of Online Learning.

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

For Undergraduate Students: With the exception of flight courses, which may be repeated only once, a student may attempt a course only three times, including the initial grade, repeat grades, and any withdrawals or audits.

In determining the Cumulative Grade Point Average (CGPA), the grade for a second course attempt replaces the first, and the grade for a third course attempt replaces the second. The grade(s) and credit hours for the third and all subsequent attempts will be used in calculating the CGPA.

All course attempts are recorded on the University transcript.

For Graduate Students: A graduate student may repeat any university course without limit.

All course attempts are included in the computation of the Cumulative Grade Point Average (CGPA), with one exception. Graduate students may petition to repeat one course in which a grade of less than "B" was earned for the purpose of improving their CGPA. Both grades earned are recorded on the University transcript, but, in this instance, only the replacement grade is included in the calculation of the grade point average.

Additional repeated coursework beyond that approved petition will not be used to revise the student CGPA.

All course attempts are recorded on the University transcript.

Dropping a Course

Students may drop a course with no notation of course enrollment on their transcripts during the drop period only.

Due to the compressed term schedules at Worldwide locations, the drop period extends through the first week of each term.

Withdrawal from a Course (W)

The authorized withdrawal period extends to the middle of the term, unless otherwise established by any contract or memorandum of understanding/agreement currently in effect. Students may withdraw and receive a "W" grade up to the middle of the term.

Students attempting to withdraw from a course after the middle of the term 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.

If a student fails to complete the formal withdrawal process during the allowed withdrawal period, a grade of "F" will be assigned for the course.

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

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 have 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 due to military deployment or official military travel.

A "late drop" or "late withdrawal" will be considered for military personnel who receive "short" notice of military deployment or "short" notice of official military travel, preventing continued enrollment in a class.

Drops or withdrawal requests meeting the criteria below will be processed as a drop or withdrawal based on the student's request and the information submitted.

Eligible students may request a "late drop" or "late withdrawal" if **ALL** of the following criteria have been met:

- The military student is notified of travel after the end date of the scheduled drop/add period, or for a withdrawal request, after the midpoint for the class.
- The student is unable to complete the class due to the deployment/ travel.
- The military student submits signed and official deployment or travel orders **dated after the drop/add period end date for a given class, or for a withdrawal request, after the midpoint of the class.** A student also may submit a letter from the student's military command stating that the student received notification of deployment or military travel with the date that the student was notified of the deployment/ travel after the scheduled drop/add period or after the midpoint of the class.
- The student submits the request for a late drop or late withdrawal **within 30 days of receiving notification of the deployment/travel.**

Auditing a Course (AU)

Academic credit is not granted toward degree requirements for audited courses.

Students may change their registration from audit to credit during the "add" period only. They may change from credit to audit until 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.

All audited courses are added to courses taken for credit in determining the student's course load for a term.

Incomplete Grades (I)

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. An incomplete grade must be completed no later than 30 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 30 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.

Grade Point Averages (GPA, CGPA)

For Undergraduate Students: 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 credit hours attempted in that term. The CGPA is determined by dividing the total number of grade points by the total number of hours attempted at the University.

For undergraduate students, grade points and hours attempted are accrued in courses graded A, B, C, D, and F.

For Graduate Students: 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 credit hours attempted in that term. The CGPA is determined by dividing the total number of grade points by the total number of hours attempted at the University.

For graduate students, grade points and hours attempted are accrued in courses graded A, B, C, F, and WF. For graduate students, the following grades are issued by the graduate faculty: A, B, C, F, and Incomplete.

The GPA is computed each semester on the 4-point scale: A = 4.00, B = 3.00, etc. The Graduate Capstone Course is given a letter grade and is calculated into the GPA.

A graduate student must maintain a 3.00 GPA to graduate.

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 Registrar's Office, via ERAU email.

Students who are enrolled at a full-time status and earn a GPA of 3.500-4.00 for a term and maintain a minimum 2.0 cumulative GPA will be named to the Dean's List. Students who are enrolled at a full-time status and earn a GPA of 3.200-3.499 for a term and maintain a minimum 2.0 cumulative GPA will be named to the Honor Roll.

Academic Warning, Probation, Undergraduate Suspension, and Graduate Dismissal

For Undergraduate Students:

Warning: A Worldwide Campus student whose cumulative GPA falls between 1.00-1.99 for a term will be placed on academic warning. Any student whose term GPA falls below 2.00 may be placed on warning.

Probation: A student on academic warning whose cumulative GPA remains between 1.00-1.99 for an additional term will be placed on academic probation. Any student whose term GPA falls below 1.00 may be placed on probation.

Suspension: A student on academic probation whose cumulative GPA remains between 1.00-1.99 for an additional term will be suspended from the University. Any student whose cumulative or term GPA falls below 1.00 may be 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 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 must accompany the application for admission 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 2.500 on a 4.00 scale or higher from an

accredited institution. A suspended student who wishes to be readmitted to another campus should apply for readmission to that campus through its Registrar's Office or the equivalent office. Unless readmitted to the University, suspended students will not be permitted to take any further courses with the University.

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 Registrar's Office 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 (p. 11) of the catalog for further information.

For Graduate Students:

Warning: Students whose cumulative grade point average (CGPA) falls below 3.00 are placed on academic warning. Students with a term GPA below 3.0 may be placed on academic warning. Students on academic warning must raise their cumulative grade point average (CGPA) to 3.00 within the next term of graduate work.

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

1. Student is on conditional status and fails to satisfy the conditions of his/her admission.
2. Student earns less than a "B" in three graduate courses.
3. Student earns an "F" in any two graduate courses.
4. Student is on academic warning and fails to earn a 3.00 CGPA within the next term of graduate work.
5. Student earns less than a 2.500 CGPA.
6. Student whose term GPA falls below 1.00.

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

Students may appeal their academic dismissal from the University by submitting a petition in writing detailing the existence of any exceptional mitigating circumstances to the Office of Enrollment Management within 30 days of the receipt of the dismissal notice. A dismissed student who wishes to be readmitted to another campus should apply for readmission to that campus through its Registrar's Office or the equivalent office. Unless readmitted to the University, dismissed students will not be permitted to take any further courses with the University.

Graduate students hoping to return to the University on conditional-admission status who are on warning or dismissal should speak with their academic advisor, who will work with the Registrar's Office if status adjustments are necessary. A student on conditional-admission status who fails to satisfy the conditions of his/her admission may be dismissed.

Graduate students on conditional-admission status should refer to the Graduate Conditional Admission section (p. 12) of the catalog for further information.

Suspension and Dismissal for Cause

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

1. 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.
2. Conduct that disrupts the educational process of the University.
3. 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:

1. **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.
2. **Cheating:** A broad term that includes, but is not limited to, the following:
   a. Giving or receiving help from unauthorized persons or materials during examinations.
   b. The unauthorized communication of examination questions prior to, during, or following administration of the examination.
   c. Collaboration on examinations or assignments expected to be, or presented as, individual work.
   d. 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.

Transfer or Change in Degree Program

Change of Degree Program

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

When a student elects to change program 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 within a degree program, the catalog year remains the same.

Students considering such changes should contact the Campus Director at their campus location (campuses can be found on Worldwide Locations (http://worldwide.erau.edu/locations) page), or for online students, Online Advising (https://ernie.erau.edu/portal/page/portal/campus_services/ww_services/worldwide_online/advisors), 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.

Specifics regarding transferring from a completed Embry-Riddle master's program to the MBAA program are detailed on the Graduate Academic Programs (p. 56) page.

Earning Multiple Degrees and Minors

Two Degrees of the Same Rank

To earn a second baccalaureate degree, students must complete a minimum of 30 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 credit hours of course work over and above that required for the primary degree. At least 30 credit hours must be completed in residence.

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 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 Registrar's Office.

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 their 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 Registrar's Office.

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 2.0 GPA or higher.

Both degree programs will be reflected on the student transcript, and each will generate an individual diploma. A minor is reflected on the student transcript but is 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.

Specifics regarding transferring from a completed Embry-Riddle master's program to the MBAA program are detailed in the MBAA degree program (p. 56).

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.

Continuous Student Status

Continuous student status is maintained through enrollment beyond the drop period in at least one course within a two-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 complete at least one course at Embry-Riddle in any two-year period from the end date of last course.
3. Have been suspended or dismissed from the University.
4. Have completed a bachelor's, master's, or Ph.D. degree.
5. Are graduate students who do not complete the degree requirements of a graduate program within seven years from the date of initial enrollment in the graduate program.

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 two-year period showing that the student has done one of the following to maintain continuous student status:

1. Enrolled in a course at a Degree Network System-4 member school that can be applied toward degree completion
2. Passed a nationally recognized exam (ie. CLEP/DANTES) that can be applied toward degree completion
3. 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
4. Completed a course at another institution to be used toward an ERAU degree after receiving prior written approval

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, major, 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 of each new catalog and/or addendum.

Students enrolled through an active-duty military degree completion program or Servicemembers Opportunity Colleges are under the catalog upon which the applicant's evaluation and letter of acceptance were based.

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.

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 or addendum. Students electing to graduate under the provisions of a later catalog or addendum must meet all requirements (admission, transfer, graduation, etc.) contained in that catalog or addendum.

Transcript Requests

Embry-Riddle transcripts are provided through the Scrip-Safe® Transcripts on Demand™ (TOD) service.

- Current students may request an official transcript via the ERAU Online Student Services Portal at ERNIE (http://catalog.erau.eduHTTP://ernie.erau.edu). 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 Scrip-Safe® Transcripts on Demand™ (TOD) 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 ERNIE at no cost.

- Prior students and alumni may request an official transcript by visiting the Scrip-Safe (http://iwantmytranscript.com)® Transcripts on Demand™ (TOD) 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 TOD 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.

There is a fee for either official paper or electronic transcripts. The fee is the same regardless of the format in which the transcript is issued.

The Registrar's Office does not provide unofficial transcripts. Electronic transcripts may be obtained through the TOD service only. Transcripts are not available via fax.

Placement Examinations

The purpose of the English and Mathematics Placement Exams is to help ensure that students are initially placed in English and Mathematics courses in which they can be successful and those that will prepare them for subsequent courses. ERAU Worldwide English and Mathematics placement policies are as follows:

English

1. Students in the following categories must take the English Placement Examination:
   a. All undergraduate students enrolling at ERAU for the first time.
   b. Undergraduate students seeking readmission to ERAU who have not previously taken the placement examination or have not satisfactorily completed ERAU ENGL 123.

2. For students who do not possess transfer credit equivalent to ENGL 106 or above, the following placement criteria apply:
   a. Students who score 70% or above on the placement examination may enroll in ENGL 123.
   b. Students who score at least 50% but less than 70% on the placement examination must take ENGL 106.
   c. Students who score less than 50% on the placement examination must take both GNED 104 and ENGL 106.

3. Students who possess transfer credit equivalent to ENGL 106 or above and who score less than 70% on the placement examination should take ENGL 106. Students who possess transfer credit equivalent to ENGL 106 or above and who score less than 50% on the placement examination should take both GNED 104 and ENGL 106.

4. The placement examination may be taken one time only; there will be no opportunity to retake the examination after the first time it is completed and scored.

5. ENGL 106 cannot be used to satisfy General Education Communication Theory and Skills requirements.

Mathematics

1. Students in the following categories must take the Mathematics Placement Examination:
   a. All undergraduate students enrolling at ERAU for the first time.
   b. Undergraduate students seeking readmission to ERAU who have not previously taken the placement examination or have not satisfactorily completed ERAU MATH 111 or MATH 140.

2. For students who do not possess transfer credit equivalent to MATH 106 or above, the following placement criteria apply:
   a. Students who score 70% or above on the placement examination may enroll in MATH 111 or MATH 140.
   b. Students who score at least 50% but less than 70% on the placement examination must take MATH 106.
   c. Students who score less than 50% on the placement examination must take both GNED 103 and MATH 106.

3. Students who possess transfer credit equivalent to MATH 106 or above and who score less than 70% on the placement examination should take MATH 106. Students who possess transfer credit equivalent to MATH 106 or above and who score less than 50% on the placement examination should take both GNED 103 and MATH 106.

4. The placement examination may be taken one time only; there will be no opportunity to retake the examination after the first time it is completed and scored.

5. 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 Registrar's Office. Non-disclosure forms remain in place permanently,

unless the office is notified otherwise. Students may grant online access to select individuals via the student information system.

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 via fax 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 the Scrip-Safe® Transcripts on Demand™ (TOD) (http://iwantmytranscript.com) service
5. Must be signed and dated by the student or former student

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

The student must submit a written request to the Registrar's Office. The Registrar's Office must make the records available for inspection and review within 45 days of the request.

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 (http://ernie.erau.edu) or contact the Registrar's Office (worldwide.registrar@erau.edu).

Grades

Grading System

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
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
T	Transfer credit	N/A
N	No grade submitted by instructor/No grade required	N/A
X	Credit by means other than course equivalency exam	N/A
XP	Credit by course equivalency exam	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	Passing	2
F	Failure	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
N	No grade submitted by instructor/No grade required	N/A
P	Passing grade (credit)	N/A
IP	In Progress	N/A
S	Satisfactory (noncredit)	N/A
T	Transfer credit	N/A

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 (http://ernie.erau.edu), click on the Student Services tab in the upper right, then click on the Campus Solutions Student Center under Academics.)

The University is prohibited by federal law from releasing grade information without the express written authorization of the student. Students may grant online access to selected individuals if they desire via the student information system.

Written authorization must be granted each term because blanket authorizations are prohibited by law.

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 between the student and instructor, the student has eight weeks after final grades have been issued to initiate a written appeal to the Campus Director for students taking courses at Worldwide campuses, or the Executive Director of Online Learning for

online students. The Campus Director will then follow applicable University policy to render a final decision.

Graduation

Graduation Requirements

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.

For undergraduate degree completion, at least 25 percent of semester credit hours must be earned through ERAU instruction to achieve residency.

Students pursuing any undergraduate degree must earn a minimum cumulative grade point average (CGPA) of 2.00 for all courses completed within the degree program at the University. Students pursuing any graduate degree must earn a minimum cumulative grade point average (CGPA) of 3.00 for all work completed within the degree program at the University.

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 and selecting "Apply for Graduation" from the drop down area under Academics. 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

For Undergraduate Students: Graduation honors status recognizes students who have demonstrated excellent performance throughout their academic careers. They 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. The honors level will appear on the student's 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

For Graduate Students: Graduate students are recognized through inclusion of the notation "With Distinction" on diplomas and transcripts. To be eligible, graduate students must have completed their degree program with a CGPA of 4.0, based on grades received in all courses that apply to specific degree requirements.

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 Registrar's Office.

Diplomas are not distributed at the graduation ceremony.

Graduation Ceremony

Any eligible student may participate in the Worldwide graduation ceremony held annually in Daytona Beach, FL.

Eligible students may also choose to attend the formal graduation ceremony held at the residential campus in Prescott, AZ. Additionally, select Worldwide campuses conduct local regional graduation ceremonies.

Worldwide and other University officials are often guests at graduation festivities. Ask your Campus Director about the graduation ceremony nearest you.

To be eligible, undergraduate students must be within 12 credit hours of degree completion. Graduate students must be degree complete to participate.

The cost of regalia for any Worldwide student who attends a Worldwide graduation ceremony in Daytona Beach, Prescott, or at a recognized regional ceremony is paid through the Worldwide Registrar's Office.

The Worldwide student ceremony, held in Daytona Beach, is generally about a week prior to the Daytona Beach residential campus student ceremony. Please consult ERNIE (http://ernie.erau.edu) for graduation ceremony schedules.

Students who wish to participate in the Prescott student ceremony must notify the Worldwide Registrar's office of their intent via the graduation application and must work with the Prescott campus bookstore to obtain appropriate graduation regalia. Students may be subject to additional graduation fees for participation in the Prescott ceremony.

Worldwide students are not permitted to participate in the Daytona Beach residential campus student ceremony.

Graduation ceremony deadline dates are:

Ceremony	Location	Deadline
Spring	Worldwide @ Daytona Beach	February 1
Spring	Prescott	February 1
Winter	Prescott	October 1

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 when registering for a course.

Class Attendance

Regular attendance and punctuality are expected in all classes. Worldwide instructional staff members determine the attendance policy that is appropriate for their individual class, and must share the criteria for attendance/participation with their students via the course syllabi. Student attendance may include, for classroom-based instruction, physical presence in the classroom during assigned meeting times, as well as participation in the classroom setting. 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 feel appropriate to achieve their 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)

   Christmas/New Year's
   Martin Luther King Day
   President's Day
   Memorial Day

Independence Day
Labor Day
Columbus Day
Veterans Day
Thanksgiving

Student Class Participation

Students enrolled in any class modality are expected to log in to their courses through Blackboard beginning the first day of the term and 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 instructor.Students log in on the last day of the term for review of final assignments, verification of coursework submitted to the instructor, and to review any final changes/announcements from the instructor.

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 no eating, drinking, or tobacco use in the classroom. Please abide by rules posted in the classroom, conveyed by the instructor, or communicated by your local campus staff.

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 campus 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 campus location staff. Worldwide Emergency Preparedness Plans (https://ernie.erau.edu/portal/page/portal/safety_services/ehs/emergency-preparedness-ww) are posted on ERNIE.

Student Affairs

The Student Affairs Office is comprised of the following student services: Student Life, Orientation, International Student Services, Disability Support Services, Counseling Support, and Ombudsman. Student Affairs oversees all non-academic disciplinary matters and maintains disciplinary records.

Student Life

The Student Life unit provides Worldwide students with the opportunity to enhance their academic learning experiences through development of, exposure to, and participation in social, cultural, and intellectual programs. Students are encouraged to become a member of the Worldwide Campus Facebook Fan Pages, and to follow ERAU Worldwide Campus on Twitter (@ERAUWorldwide).

We highly recommend that qualified students apply to become a member of the Alpha Sigma Lambda National Honor Society (ASL) Nu Kappa Chapter. Alpha Sigma Lambda's purpose is to recognize the achievements of adults who accomplish academic excellence while facing the competing interests of home and work. Alpha Sigma Lambda is the premier National Honor Society created exclusively for nontraditional undergraduate students. To learn more about the benefits of Alpha Sigma Lambda, other Honor Societies, and scholarship opportunities, visit the website via ERNIE at ernie.erau.edu.

Online Orientation

The New Student Orientation provides students with an abundance of information regarding the campus, as well as immediate access to student support services. This orientation helps students understand the nature and purpose of the campus, their membership in the academic community, and their relationship to the intellectual, social, and cultural climate of the campus. The New Student Orientation is available online for increased flexibility at worldwideorientation.erau.edu. Other goals of the New Student Orientation include:

- Facilitate in the transition of new students into the campus, taking into consideration their status as First Year, Transfer, or Graduate students.
- Guide new students in a review of academic policies and procedures.
- Inform students of our academic programs and various learning modalities.
- Increase student awareness about funding options.
- Initiate new students into the intellectual and cultural climate of the campus.
- Prepare newly admitted students for their first enrollment.

Disability Support 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.

The University does not provide diagnostic testing but will make referrals for evaluation by area specialists. Costs associated with testing referrals are the responsibility of the student.

Services for Worldwide students are coordinated through the Worldwide Student Affairs Office and needs are addressed on an individual basis. The Student Affairs provider will collaborate with the University Director of Disability Support Services to identify resources, examine and clarify

academic issues, and strategize approaches that deliver optimum student service.

Prospective students considering a program of study are encouraged to visit the Disability Support Services website via ERNIE at ernie.erau.edu, or contact the Student Affairs office by telephone at (386) 226-4911 or by e-mail at wwdss@erau.edu, for information on eligibility concerns or campus-specific services.

Disclosure of Criminal Convictions

Embry-Riddle Aeronautical University reserves the right to consider a student's or applicant's character, academic and behavioral record, criminal record, or other pertinent information in granting or denying admission; making related assignments or schedules; or imposing reasonable, appropriately tailored requirements to protect the campus environment.

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.

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 (https://crm.oriononondemand.com/crm/forms/I7875qI7B0420x6702A75) located in ERNIE. The Student Affairs Office 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 Student Affairs Office their decision, or recommended action. The Student Affairs Office will communicate with the student and provide further guidance if appropriate.

At any time, students may contact the Student Ombudsman to gain advice and specific direction in seeking a resolution.

Fill out this form (https://crm.oriononondemand.com/crm/forms/I7875qI7B0420x6702A75) to submit a grievance electronically.

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. For additional information visit ERNIE at ernie.erau.edu. The Ombudsman may also make recommendations to the appropriate authorities about changes to University policy and procedures.

How the Ombudsman can help you

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

- Discuss any university-related issue
- Determine what attempts have already been made to resolve the issue
- Listen, clarify issues and offer assistance in defining options
- Define university policies and procedures.
- 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 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.
- When you have a disagreement or problem not related to the University.
- 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.

Student Conduct

If an enrolled or continuing student is found to be responsible for an infraction of any of the following rules or regulations, he/she will be subject to disciplinary action through the University Judicial System. Any student who leaves the University prior to the disposition of an alleged violation(s) will not be allowed to register for future semesters until the matter has been adjudicated through the normal judicial process. Sanctions imposed will depend on the severity of the violation(s) and/or the student's previous disciplinary record. The following is a list of violations:

Student Code of Conduct

1. **Abusive/Threatening Behavior:** Any conduct that threatens or endangers the health and/or safety of a member of the University community (including oneself) on university property, or at an activity/event sponsored or supervised by the University.*
   a. **Verbal/Written:** Threats, intimidation, harassment, coercion, profanity.
   b. **Physical:** Sexual misconduct, stalking, fighting, false imprisonment, intimidation.
2. **Computer Security Violations:** Any misuse of computing facilities, software, or hardware; unauthorized use of another individual's computer account; misuse of one's own computer account; or any violation of the policies for using computing network resources at ERAU or through the ERAU system.
3. **Disorderly Conduct:** Excessively loud, lewd, indecent or obscene conduct that is inappropriate for a University setting.
4. **Theft:** Theft or attempted theft, unauthorized possession, misuse or wrongful appropriation, vandalism or malicious destruction, or sale of property belonging to the University, an organization affiliated with the University, or a member of the University community.
5. **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.
6. **Weapons Possession:** The possession or use of a weapon, including, but not limited to firearms; BB guns; air guns; dangerous chemicals; incendiary devices and other explosive substances, including fireworks; slingshots; martial arts devices; or other objects classified or used as weapons with potential for danger or harm.**

7. **Criminal Violation:** Violation of any State or Federal criminal code while on University property or at any event sponsored, supervised, or controlled by the University.
8. Any other just cause, including behavior deemed unethical.
9. **Military Installations**: Students taking courses on a U.S. military installation 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 U.S. Government, and students may be barred from access to a military installation.

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

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. **Warning:** A disciplinary warning is a verbal or written notice given to a student whose behavior is in violation of University policy.
2. **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.
3. **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.
4. **Dismissal:** Dismissal is the involuntary and permanent separation of the student from the University.

The Non-Academic Judicial Affairs board convenes to adjudicate and make decisions on students who are facing University suspension or dismissal.

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.

The presence on campus 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, temporarily or permanently bar from all or any part of University-owned or University-controlled property. 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.

Alumni Services

Alumni Networks

Embry-Riddle's Alumni Association Networks offer graduates ongoing opportunities to:

- Connect with each other for professional and social purposes
- Make an impact in their communities through service projects
- Stay informed about developments at their alma mater and in the aviation/aerospace industry
- Our Alumni Networks are organized by city/geographical location and meet several times a year. Virtual networks are also available. These online communities are organized around shared professional interests and university affiliations, such as college majors

Find out which networks are ideal for you (based on your city of residence, degree, career, etc.). Alumni may join as many networks as they wish. Membership is free.

Alumni Benefits

All Embry-Riddle Alumni are eligible to receive a "Forever an Eagle" membership card.

Card-carrying alumni enjoy exclusive benefits such as free parking on campus for up to 30 days; access to recreational facilities; and a 10 percent discount on selected items in the Embry-Riddle Bookstore.

Embry-Riddle Alumni can also benefit from several vendor relationships, which can be viewed online at the eaglesNEST (http://www.eraualumni.org).

Homecoming

Alumni reconnect with friends and their alma mater each year at Homecoming held at the Daytona Beach and Prescott campuses.

Highlights at both events include:

- Golf tournament
- EagleNIGHT and Alumni Awards

Every even year (2014, 2016, etc.), the Daytona Beach Campus hosts Wings and Waves Air Show Homecoming and every odd year (2015, 2017, etc.), the Prescott Campus host Wings Out West Air Show Homecoming. Performances include:

- A jet team
- Embry-Riddle aerobatic pilot Matt Chapman
- The Embry-Riddle Jet Dragster
- Civilian and military demonstrations

Alumni are encouraged to attend all Homecoming activities, regardless of their campus affiliation

Air Shows and Conferences

The Alumni Association, in partnership with the University, is involved in several national and international air shows and conferences throughout the year. Special alumni receptions are held at each event.

Air shows in which the Alumni Association regularly participates include:

- EAA Air Venture, Oshkosh, Wis.
- Farnborough Airshow, England
- Heli-Expo
- National Business Aviation Association
- Paris Airshow, France
- Singapore Airshow
- Sun n' Fun, Lakeland, Fla.
- Women in Aviation International Conference
- Dubai Airshow
- Association of Unmanned Vehicle Systems International
- American Association of Airport Executives
- American Institute of Aeronautics and Astronautics

Alumni can RSVP to attend an alumni reception by visiting the eaglesNEST (http://www.eraualumni.org).

Support for Next-Generation Eagles

Alumni Legacy Scholarship

Sons and daughters of Embry-Riddle graduates are automatically eligible for this $1,500 award. The scholarship may be renewed annually for fulltime students attending Embry-Riddle. Make sure to check the "*Parents attend ERAU option,*" when completing the application for admission.

Alumni Endorsement Grant

As an alumnus/a, you have the opportunity to assist students with an Alumni Endorsement Grant. Your endorsement is worth $4,000 over a four year period to an incoming student attending either the Prescott or Daytona Beach campus. Each eligible incoming student referred by an alumnus/a can receive up to $1,000 off their tuition and fees each school year. For information visit: www.eraualumni.org/endorse.

Alumni Association Endowed Scholarship

The Alumni Association Endowed Scholarship was established in 2011 to celebrate Embry-Riddle's milestone achievement—reaching 100,000 alumni. The scholarship benefits students attending Embry-Riddle's three campuses. Join in the celebration! Make a contribution online today: givingto.erau.edu.

Career Opportunities

Embry-Riddle alumni have a host of career services available to them. These include resume assistance, networking, and mentoring opportunities, access to online job search tools found on the Embry-Riddle Alumni website (http://www.eraualumni.org), and an annual Industry/ Career Expo.

Alumni Connections

The eaglesNEST (http://www.eraualumni.org) is the Embry-Riddle Alumni information and networking hub. Alumni can view photos and current and past alumni publications; read alumni and University news; review and register for upcoming events; and browse the official University archives — all via the eaglesNEST.

The exclusive, password-protected section of eaglesNEST allows alumni to create a personal profile, search for and network with former classmates and peers in their profession, and sign up for the alumni mentor program.

The eagleNEWS electronic newsletter keeps alumni in the "Embry-Riddle Loop" on a monthly basis.

The alumni magazine "Lift," which includes in-depth articles on alumni, the University and the aerospace industry, is published twice annually and posted on eaglesNEST. (http://www.eraualumni.org)

Alumni can also follow the Alumni Association on Facebook, Twitter, YouTube, and LinkedIn.

Student Alumni Ambassadors

SA-Ambassadors are student liaisons between the office of Alumni Relations and the entire student body. They promote awareness of Alumni Relations programs and support a culture of philanthropy on campus through community service activities. They also work to establish and safeguard ERAU traditions for current and future Eagles.

Mentor Program

The Alumni Mentorship program is provided to all Embry-Riddle alumni who have registered and updated their profile on the alumni online community (www.eraualumni.org (http://www.eraualumni.org)).

It is a free service that benefits alumni who want to network with peers working in their current profession, local area, or in a different career field. Mentors can also share their expertise with students interested in their profession.

Governance

The Alumni Association is guided by an Alumni Advisory Council whose mission is to create and sustain the vision that serves as the cornerstone for the Association in engaging, cultivating and serving Embry-Riddle graduates. Council members guide and support the Alumni Association staff; they volunteer to serve two-year terms.

Embry-Riddle Legacy

The University Archives is the official repository for the historical records and artifacts for all three Embry-Riddle campuses and its predecessor bodies. The holdings document the history of Embry-Riddle from its origins to the present. Visit www.eraualumni.org/archives (http://www.eraualumni.org/archives) to search Embry-Riddle's archives and to learn more about the university's formative years.

Recognizing Excellence

The Embry-Riddle Alumni Awards Program recognizes alumni and their achievements in their careers, their service to the university and community, and/or in the aviation and aerospace industries.

A formal awards ceremony is held annually at each residential campus' Alumni Weekend/Homecoming celebration, making it a key part of the festivities. Alumni Award recipients may attend the ceremony at the Daytona Beach or the Prescott campus.

Visit the alumni website www.eraualumni.org/awards (http://www.eraualumni.org/awards) to nominate your fellow Eagle(s) for a number of awards.

Participation

The excellence of any educational institution depends heavily on the quality, interest, and participation of its alumni.

Embry-Riddle's alumni serve as guest speakers and on advisory councils; act as media experts; promote and recruit prospective students to Embry-Riddle; and are active in many other activities. They provide role models for current students to emulate and continually build the outstanding reputation of the University through their accomplishments and association with their alma mater.

The Alumni Association values the active participation and feedback of our alumni. To get involved, contact the Alumni Association at (800) 727-3728 or by email at eralumni@erau.edu.

Surveys

Student surveys provide essential information in assessing the effectiveness of Embry-Riddle academic programs and services. Three basic types of student surveys are used: an end-of-course survey, a student satisfaction survey, and an Alumni Survey.

The end-of-course survey is completed at or near the end of each course, the student satisfaction survey is conducted annually and the alumni survey is sent to all graduates approximately one year after graduation.

The survey information you provide is essential for continuous quality improvement and increased institutional effectiveness.

Military

Servicemembers Opportunity Colleges (SOC) Consortium

Embry-Riddle Aeronautical University – Worldwide is a member of the Servicemembers Opportunity Colleges (SOC) Consortium. The SOC Consortium consists of colleges and universities committed to expanding and improving voluntary postsecondary educational opportunities for service members worldwide.

SOC Consortium members subscribe to principles and criteria to ensure that quality academic programs are available to eligible military personnel and family members of active-duty military personnel. SOC principles and criteria will be adhered to when processing all SOC student actions and requests.

A list of current SOC Consortium member institutions and publications can be found on the SOC website (http://www.soc.aascu.org).

Degree Network System (DNS)

Embry-Riddle Aeronautical University – Worldwide is a core member of the SOC DNS-4 for bachelor's degrees and an affiliate member of the DNS-2 for select two year degrees. The DNS is a subgroup of SOC Consortium member institutions selected by the military services to deliver specific associate and bachelor's degree programs to service members and their families.

As a member of the DNS, we have agreed to adhere to academic policies intended to support military students in their academic endeavors toward degree completion.

Additional DNS information can be found at the SOC website (http://www.soc.aascu.org).

Residency Requirement For SOC Students

Embry-Riddle Aeronautical University – Worldwide limits academic residency to no more than 25 percent of the degree requirements for all undergraduate degrees for active-duty service members.

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.

Veteran Student Services

Embry-Riddle degree programs are approved by the appropriate State Department of Veterans Affairs (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.

Title 38, United States Code, sections 3474 and 3524, requires that education assistance to veterans and other eligible persons be discontinued when the student ceases to make satisfactory progress toward completion of the training objective. Accordingly, benefits will be interrupted for undergraduate students who remain on academic probation beyond two consecutive periods of 12 credit hours and for graduate students who are on academic warning and fail to earn a 3.00 CGPA within the next 12 hours of graduate work or are otherwise subject to dismissal.

The VA will be appropriately notified of the 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 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.

For further information concerning approved programs of study and the application process, eligible persons should contact the Veterans Certifying Official at the Worldwide Campus location they plan to attend. Students enrolled through the Online Campus and Worldwide international campus locations should contact the Worldwide Military & Veteran Student Services Office (http://www.worldwide.erau.edu/finance/military-veterans/veterans) in Daytona Beach, Florida.

Worldwide Military and Veteran Student Services
Embry-Riddle Aeronautical University
600 S. Clyde Morris 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 (http://www.gibill.va.gov).

Co-ops, Internships, Study Abroad and Career Services

Co-Ops/Internships

Embry-Riddle's Cooperative Education program provides students with an important link between theories and concepts learned in the classroom and the practical application of the acquired knowledge and skill in industry. This program bridges the gap between student life and the work world, combining students' academic and career interests with work experiences in business, industry, and government.

In order to provide students with practical work experience which may be applied towards their academic program, the work experience must be relevant to the student's academic and career goals. The work experience will also help promote self-reliance and the development of a personal style in a productive and professional environment.

Undergraduate students must be active full-time students who have a cumulative GPA of 2.5+ and have completed 30 credit hours of college credit. If a transfer student, you must have completed 30 credit hours of college credit with at least 12 credit hours with ERAU.

Graduate students must be active full-time students who have a cumulative GPA of 3.0+ and have completed 6 credit hours with ERAU. Nine credit hours must be completed before starting the actual coop/internship.

International students must meet the above requirements plus the following: If your coop/internship is less than full-time you must be enrolled in a classroom course. Undergraduates must work 20 hours per week. International students need to have the approval of the local SEVIS advisor and need to have their F1 (I-20) status updated to reflect Curricular Practical Training. International students are required to be enrolled "full-time". The coop/internship must be part of your program of study. Students are required to take this program for credit purposes. The work opportunity cannot exceed 15 weeks and does not exceed 3 workopportunities (undergraduate) and 1 work opportunity (graduate).

Study Abroad

Recognizing the unquestionable benefits of international exposure in today's increasing globalization, Embry-Riddle offers its students a wealth of opportunities to study abroad. We feel these programs provide students with unique experiences that will greatly enhance not only their academic and professional lives but also their personal lives. Motivated students in good academic standing that meet the qualification criteria have the unique opportunity to take a variety of two to six week summer programs throughout the world, or semester or year-long exchanges through our partner schools that will be directly applicable to their degree programs at Embry-Riddle.

Career Services

Worldwide Career Services provides self-directed career resources to all Worldwide students and alumni of Embry-Riddle Aeronautical University.

The Worldwide Career Services website (http://careers.erau.edu/campus/worldwide/services) offers students and alumni a virtual library of job-search aids, including interview tips, sample resumes, and cover letters, resources for experienced job seekers, and links to valuable websites. In addition, exclusive resources, co-op/internship opportunities, and current job listings can be found in our career management system, known as the EagleHire Network (http://careers.erau.edu/find-job/eaglehire).

Industry/Career Expos are held in the fall at both the Daytona Beach, FL, and Prescott, AZ, campuses. More than 100 companies visit these campuses to recruit students for full-time and cooperative education/internship positions, and to provide information on industry.

Additionally, the Virtual Hiring Event is held every spring through the EagleHire Network. Worldwide alumni and students are encouraged to attend these events and publish their resumes in the resume books in the EagleHire Network.

Worldwide Career Services provides a plethora of self-directed resources, along with resume critique assistance. Students are encouraged to begin utilizing these resources early in their education to explore career options and develop a successful job search strategy.

For more information, visit the Embry-Riddle Career Services website (http://careers.erau.edu).

College of Aeronautics

The mission of the College of Aeronautics 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 Aeronautics (http://worldwide.erau.edu/degrees-programs/colleges/aeronautics) website.

Certificate of Completion

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Associate of Science in Engineering Fundamentals

The Associate of Science in Engineering Fundamentals 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 have the chance to complete your associate degree at Worldwide campuses in Atlanta or Phoenix, which offers the same quality educational experience as our residential campuses in Daytona Beach and Prescott. If you decide to continue your studies at another institution, you can simply take your associate degree with you.

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 65 credit hours necessary to obtain your degree. Earning your A.S. degree can help open the door to continued engineering studies at an Embry-Riddle residential campus location in Florida or Arizona.

DEGREE REQUIREMENTS

General Education

General Education		15

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
SPCH 219	Speech	3
ENGL 221	Technical Report Writing	3
Humanities elective (HUMN 140 Series)		3
Humanities/Social Science elective (lower level)		3

Core/Major

ENGR 101	Introduction to Engineering	3
ENGR 115	Introduction to Computing for Engineers	3
ENGR 120	Graphical Communications	3
ECON 225	Engineering Economics	3
ESCI 201	Statics	3
ESCI 202	Solid Mechanics	3
ESCI 204	Dynamics	3
ESCI 206	Fluid Mechanics	3

MATH 241	Calculus and Analytic Geometry I	4
MATH 242	Calculus and Analytic Geometry II	4
MATH 243	Calculus and Analytic 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
Physics Laboratory for Engineers Course (a co-requisite for PHYS 250)*		1
Total Hours		**50**

*   Available in 2016.

Total Degree Requirements	**65**

A.S. in Aeronautics

Take your future to new heights!

Whether you want to break into an aeronautical career, break away from the competition, or advance your current position and earnings potential, the Associate of 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'll be exposed to a multidisciplinary program with courses of study in 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 doesn't have to take long, either. You can earn more than a quarter of the required semester hours from prior life experience and receive your bachelor's degree in as few as three years.

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, Safety, Security, Aviation History, Transportation, and Engineering.

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 licenses and ratings as they relate to this degree.

4. Validated Advanced Placement (VAP) process.

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.

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
Speech/English		6

Humanities

HUMN 330	Values and Ethics	3
Humanities elective		3

Social Sciences

ECON 210	Microeconomics	3
or ECON 211	Macroeconomics	
Social Science elective		3

Physical and Life Science

PHYS 102	Explorations in Physics	3
WEAX 201	Meteorology I	3

Mathematics

MATH 111	College Mathematics for Aviation I	3
MATH 112	College Mathematics for Aviation II	3

Computer Science

CSCI 109	Introduction to Computers and Applications	3
Total Credits		36

Core/Major

Aviation Area of Concentration	9

Make up shortages with HIST 130 History of Aviation in America, TRAN 321 Air Transportation Systems, and non-duplicating courses from the following disciplines: Aeronautical Science, Aviation Maintenance, Safety, Security, and Engineering.

Program Support		9
ASCI 202	Introduction to Aeronautical Science	3
ASCI 254	Aviation Legislation	3
MATH 211	Statistics with Aviation Applications	3
or MATH 222	Business Statistics	

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 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 30 credit hours toward the bachelor's degree. Students may also earn maintenance credit as part of the overall curriculum.

In addition to gaining critical skills needed to succeed in an aviation maintenance career, students will specialize in one of two maintenance functions: Management or Safety.

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 Aviation Maintenance from Embry-Riddle Aeronautical University — Worldwide.

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 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
Speech/English		6

Humanities

HUMN 330	Values and Ethics	3
Humanities elective		3

Social Sciences

ECON 210	Microeconomics	3
or ECON 211	Macroeconomics	
Social Science elective		3

Physical and Life Science

PHYS 102	Explorations in Physics	3
Physical/Life Science elective		3

Mathematics

MATH 111 & MATH 112	College Mathematics for Aviation I and College Mathematics for Aviation II	6

Computer Science

CSCI 109	Introduction to Computers and Applications	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	Powerplant Theory and Applications	3
AMNT 281	Aircraft Propulsion Systems and Applications	3
Total Credits		18

Program Support

ASCI 202	Introduction to Aeronautical Science	3
MATH 211	Statistics with Aviation Applications	3
or MATH 222	Business Statistics	
Total Credits		6

Total Degree Requirements	60

B.S. in Aeronautics

Take your future to new heights!

Whether you want to break into an aeronautical career, break away from the competition or advance your current position and earnings potential, the Bachelor of Science in Aeronautics 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'll be exposed to a multidisciplinary program with courses of study in 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 doesn't have to take long, either. You can earn more than a quarter of the required semester hours from prior life experience and receive your bachelor's degree in as few as three years.

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 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, Safety, Security, Aviation History, Transportation, and Engineering.

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 licenses and ratings as they relate to this degree.
4. Validated Advanced Placement (VAP) process.

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.

B.S. in Aeronautics students who wish to continue on to a master's degree may enroll in the BSA-MAS 4+1 program as outlined in this program.

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 this list, 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
Speech/English		6

Humanities*

HUMN 330	Values and Ethics	3
Humanities elective		3

Social Sciences

ECON 210	Microeconomics	3
or ECON 211	Macroeconomics	
Social Science elective		3

Physical and Life Science

PHYS 102	Explorations in Physics	3
WEAX 201	Meteorology I	3

Mathematics

MATH 111	College Mathematics for Aviation I	3
MATH 112	College Mathematics for Aviation II	3

Computer Science

CSCI 109	Introduction to Computers and Applications	3
Total Hours		**36**

Core/Major

Aviation Area of Concentration	**18**

Make up shortages with HIST 130 History of Aviation in America, TRAN 321 Air Transportation Systems, and non-duplicating courses from the following disciplines: Aeronautical Science, Aviation Maintenance, Safety, Security, and Engineering.

Program Support		**24**
ASCI 202	Introduction to Aeronautical Science	3
ASCI 254	Aviation Legislation	3
ASCI 404	Applications in Aviation/Aerospace Law	3
MATH 211	Statistics with Aviation Applications	3
or MATH 222	Business Statistics	
MGMT 201	Principles of Management	3
MGMT 210	Financial Accounting	3
MGMT 221	Introduction to Management Information Systems	3
RSCH 202	Introduction to Research Methods	3

Professional Development Core		**12**
ASCI 309	Aerodynamics	3
or ASCI 310	Aircraft Performance	
ASCI 490	Aeronautical Science Capstone Course	3
MGMT 436	Strategic Management	3
SFTY 409	Aviation Safety	3

Electives

Professional Development Electives (Upper-Level)	**21**

Select from courses in Aeronautical Science, Management, Economics, Safety, Security, Transportation, and Engineering.

Open Electives (Upper or Lower-Level)	**9**

Total Degree Requirements	**120**

BSA-MAS 4+1 Program: A Unique Opportunity

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 Aeronautics and the Master of Aeronautical Science in five academic years.

Students who are accepted in the BSA-MAS 4 + 1 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 their selected MAS specialization to replace an equal number of elective

courses in the BSA degree. MAS core courses cannot be selected as one of the three (3) MAS courses selected. Before selecting the 3 courses to be taken, students must confer with an advisor to ensure that the courses selected are suitable and align with their selected MAS specialization (a grade of B or better must be achieved). Upon completion of the BSA requirements, students will be enrolled in the MAS 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 and may continue to complete the BSA degree only.

This special program will challenge students and develop their knowledge and understanding of concepts in aeronautical science while integrating their skills in aviation and aerospace applications. As a minimum, the applicant must have at least a 3.00 GPA and have demonstrated superior academic capability.

Footnotes*

Minnesota student residents refer to State of Minnesota Course Requirement (p. 69) statement for Humanities requirements.

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 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 30 credit hours toward the bachelor's degree. Students may also earn maintenance credit as part of the overall curriculum.

In addition to gaining critical skills needed to succeed in an aviation maintenance career, students will specialize in one of two maintenance functions: 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.

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 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
Speech/English		6

Humanities*

HUMN 330	Values and Ethics	3
Humanities elective		3

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Social Sciences

ECON 210	Microeconomics	3
or ECON 211	Macroeconomics	
Social Science elective		3

Physical and Life Science

PHYS 102	Explorations in Physics	3
Physical/Life Science elective		3

Mathematics

MATH 111 & MATH 112	College Mathematics for Aviation I and College Mathematics for Aviation II	6

Computer Science

CSCI 109	Introduction to Computers and Applications	3
Total Credits		36

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	Powerplant Theory and Applications	3
AMNT 281	Aircraft Propulsion Systems and Applications	3
Total Credits		18

Program Support

ASCI 202	Introduction to Aeronautical Science	3
MGMT 201	Principles of Management	3
MATH 211	Statistics with Aviation Applications	3
or MATH 222	Business Statistics	
RSCH 202	Introduction to Research Methods	3
Total Credits		12

Program Core

ASCI 419	Aviation Maintenance Management: A Global Perspective	3
MGMT 210	Financial Accounting	3
MGMT 221	Introduction to Management Information Systems	3
MGMT 311	Marketing	3
or MGMT 325	Social Responsibility and Ethics in Management	
MGMT 314	Human Resource Management	3
or MGMT 317	Organizational Behavior	
MGMT 324	Aviation Labor Relations	3
MGMT 436	Strategic Management	3
ASCI 490	Aeronautical Science Capstone Course	3
Total Credits		24

Program Specialization	18

Choose one specialization

Electives

Aviation Maintenance Electives	12

Aviation Maintenance, Aeronautical Science, Avionics Technology, Managaement, Computer Science, Electrical Engineering Technology

Total Degree Requirements	120

*   Minnesota student residents refer to State of Minnesota Course Requirement (p. 69) statement for Humanities requirements.

Specializations:

Management

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.

MGMT 391	Introduction to Project Management	3
MGMT 411	Logistics Management for Aviation/Aerospace	3
MGMT 420	Management of Production and Operations	3
MGMT 422	Information Technology Management, Strategy, and Governance	3
Upper-Level Management Electives		6
Total Credits		18

-OR-

Safety

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.

SFTY 320	Human Factors in Aviation Safety	3
SFTY 335	Mechanical and Structural Factors in Aviation Safety	3
SFTY 409	Aviation Safety	3
SFTY 440	System Safety Management	3
Upper-Level Safety Electives		6
Total Credits		18

B.S. in Aviation Security

Embry-Riddle Aeronautical University has developed the first-ever online Bachelor's Degree in Aviation Security to help meet the growing demand for skilled professionals.

This program is offered through Embry-Riddle Worldwide and is ideal for high school and two-year college graduates, security professionals, and active or transitioning military with career interests in: Transportation Security Administration; Homeland Security; federal intelligence agencies; U.S. Air Force Security Police; airline or airport security; airport management; corporate aviation security; law enforcement and other security-specific disciplines.

Curriculum is designed to meet the needs and demands of the aviation and aerospace industry, as well as the security profession as a whole. Students will be introduced to both the science and practical application of aviation security, along with a well-rounded selection of general study courses.

Completion of this degree program can also prepare students to test for the Airport Security Coordinator exam and the ASIS International Certified Protection Professional exam.

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 & Skills

ENGL 123	English Composition	3
Speech/English		6

Humanities*

HUMN 330	Values and Ethics	3
Humanities elective (lower or upper level)		3

Social Sciences

ECON 210	Microeconomics	3
or ECON 211	Macroeconomics	
Social Science elective		3

Physical and Life Sciences

PHYS 102	Explorations in Physics	3
Physical/Life Science elective		3

Mathematics

MATH 111 & MATH 112	College Mathematics for Aviation I and College Mathematics for Aviation II	6

Computer Science

CSCI 109	Introduction to Computers and Applications	3
Total Credits		36

Core/Major

Program Support		21
ASCI 202	Introduction to Aeronautical Science	3
ASCI 254	Aviation Legislation	3
RSCH 202	Introduction to Research Methods	3
MATH 211	Statistics with Aviation Applications	3
or MATH 222	Business Statistics	
MGMT 201	Principles of Management	3
MGMT 210	Financial Accounting	3
MGMT 221	Introduction to Management Information Systems	3

Aviation Security Core		42
ASCI 412	Corporate and Business Aviation	3
ASCI 406	Airborne Law Enforcement	3
MGMT 408	Airport Management	3
BSAB 415	Airline Management	3
SCTY 310	Introduction to Security	3
SCTY 312	Global Crime and Criminal Justice Systems	3
SCTY 385	Intelligence Collection and Analysis	3
SCTY 400	Airport Security	3
SCTY 485	Corporate Security	3
SCTY 488	National Security Issues and Terrorism	3
SCTY 410	Physical Security	3
SCTY 420	General Aviation Security	3
SCTY 430	Counterterrorism for Aviation	3
SCTY 490	Aviation Security Capstone Course	3

Aviation Security Area of Concentration		21
Select seven of the following:		
ASCI 410	Unmanned Sensing Systems	
ASCI 315	Unmanned Aerial Systems and Operations	
SFTY 311	Fundamentals of Occupational Safety and Health	
SCTY 315	Studies in Intelligence I	
SCTY 415	Studies in Intelligence II	
SFTY 345	Aviation Safety Program Management	
SFTY 409	Aviation Safety	

| TRAN 321 | Air Transportation Systems |
| TRAN 421 | Transportation Safety and Security |

Total Degree Requirements 120

*   Minnesota student residents refer to State of Minnesota Course Requirement (p. 69) statement for Humanities requirements.

B.S. in Engineering Technology

The Bachelor of Science in Engineering Technology (BSET) program is designed to provide students with knowledge and skills to allow them to operate as a competent practitioner within the field of engineering technology. Students will develop not only technical know-how but also a practical and analytical approach to problem-solving that will allow them to address a range of engineering technology challenges.

Within this context, the main aims of the BSET program are to provide the opportunity for students to progressively acquire a thorough grounding in the concepts and skills of the central topics in engineering technology. The program prepares students with the skills and knowledge to deliver solutions to real engineering technology problems. It shows students how engineering works in a business context, enabling them to achieve results within economic constraints. The program helps students become effective engineer technologists and undertake lifelong learning particularly for continuing professional development.

This BSET program provides an integrated knowledge of engineering that is currently appreciated by most employers of engineering technologists. Core modules will provide students with a thorough understanding of many of the most important and central subjects in engineering technology today, from computer modeling to engineering materials. There is considerable focus on gaining practical experience, and lectures by visiting practicing engineers will ensure students become familiar with current methods and approaches within industry.

The degree integrates the general education courses, core technical skills and several concentration areas such as Aeronautical Science, Helicopter Operations and Safety, Unmanned Aerial Systems, Transportation, Quality Assurance, Safety, Human Factors and other fields in science and technology. The key program features include quality faculty, positive student experience, accreditation, graduate success, over 150 locations worldwide and academic program approval for veterans' education. In a world where cutting edge science and technology drive the growth in economy and business, this degree equips graduates with the comprehensive knowledge and skills to excel in meeting the global engineering and technology challenges.

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, Unmanned Aerial Systems, Transportation, 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 engineering and aviation 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 course

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
SPCH 219	Speech	3
Mathematics		
MATH 143	Precalculus Essentials	3
MATH 241	Calculus and Analytic Geometry I	4
MATH 242	Calculus and Analytic Geometry II	4
Computer Science / Information		
ENGR 115	Introduction to Computing for Engineers	3
Physical and Life Sciences		
CHEM 140	Chemistry for Engineers	4
CHEM 141	Chemistry for Engineers Laboratory	1
PHYS 150	Physics I for Engineers	3
PHYS 160	Physics II for Engineers	3
Humanities		
HUMN 142	Studies in Literature	3
HUMN 210	World Culture	3
HUMN 330	Values and Ethics	3
Social Sciences		
SOCI 210	Introduction to Sociology	3
Total Credits		46

Core/Major

Business		
ECON 210	Microeconomics	3
ECON 211	Macroeconomics	3
MATH 222	Business Statistics	3
Total Credits		9

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	Engineering Materials	3
ETEC 315	Circuit Analysis	3
ETEC 410	Thermodynamics	3
ETEC 415	Control Systems	3
ETEC 420	Applications of Engineering Technology	3
ETEC 485	Professional Seminar	1
ETEC 490	Engineering Technology Capstone	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	123

Concentrations:

Aeronautical Science

Aeronautical Science Concentration		
ASCI 202	Introduction to Aeronautical Science	3
ASCI 309	Aerodynamics	3
ASCI 310	Aircraft Performance	3

Aviation Safety

Aviation Safety Concentration		
SFTY 320	Human Factors in Aviation Safety	3
SFTY 330	Aircraft Accident Investigation	3
SFTY 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
ASCI 428	Advanced Helicopter Systems and Functions	3
ASCI 438	Advanced Helicopter Operations	3
SFTY 345	Aviation Safety Program Management	3
SFTY 409	Aviation Safety	3

Unmanned Aerial Systems

Unmanned Aerial Systems Concentration		
ASCI 315	Unmanned Aerial Systems and Operations	3
ASCI 316	Operational and Business Aspects of Unmanned Aerial Systems	3
ASCI 318	Unmanned Aerial Systems Robotics	3
ASCI 410	Unmanned Sensing Systems	3

Transportation

Transportation Concentration		
TRAN 331	Road & Highway Transportation	3
TRAN 341	Railroad Operations	3
TRAN 351	Urban Transportation and City Planning	3
TRAN 361	Marine Transportation	3
TRAN 371	Pipelines, Land Use, and the Environment	3
TRAN 401	Transportation and the Environment	3

Logistics Management

Logistics Management Concentration		
MGMT 331	Transportation Principles	3
BSAB 410	Management of Air Cargo	3
MGMT 411	Logistics Management for Aviation/Aerospace	3
MGMT 440	Advanced Professional Logistics	3

Management Information Systems

Management Information Systems Concentration		
MGMT 392	Database Management	3
MGMT 422	Information Technology Management, Strategy, and Governance	3
MGMT 492	Information Systems Project Management	3
MGMT 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		
MGMT 424	Project Management in Aviation Operations	3
MGMT 427	Management of the Multicultural Workforce	3
MGMT 461	Global Project Management	3
MGMT 462	Project Management Advanced Concepts	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

B.S. in Transportation

Today's world is on the move. People. Products. All the materials, goods, and services that we rely on in our day-to-day lives must crisscross the globe on a regular basis.

The ability to transport them is the cornerstone of our modern economy. Domestically and worldwide, individuals who can design, operate, and manage efficient transportation systems are needed now more than ever.

You can become one of these sought-after professionals with the new Bachelor of Science in Transportation from Embry-Riddle Aeronautical University – Worldwide.

This specialized degree is designed for individuals seeking a rewarding career in the fast-paced transportation field. Research indicates a significant and growing demand for professionals in this field, with outstanding opportunities in the business, commercial, and military sectors. With the advanced knowledge and skill set developed through the program, you will distinguish yourself as an outstanding candidate for these positions.

The comprehensive curriculum was developed by industry professionals and addresses all major modes of transport: air, highway, rail, and marine. Students will explore critical areas in the science of transportation,

including the important role transportation plays in the larger field of logistics.

Key issues are explored in depth, including:

- Physical characteristics of the air, highway, rail, and marine transportation systems, including carrier vessel design
- Economics, pricing, and the impacting factors for all transportation modes
- Physical distribution, materials management, and analysis
- Systems engineering, integrated logistics support, and business logistics theories and their integration in a practical framework
- Safety and security in transportation networks, vehicles, and facilities
- International business and the role of transportation
- Strategic business management principles
- Current transportation industry issues and challenges

Successful program graduates will be eligible for positions in transportation and logistics analysis, management, research, and planning, and will be prepared to lead the field into the future.

Take the fast track to a career in transportation.

Developed by transportation industry professionals, the Bachelor of Science in Transportation from Embry-Riddle Worldwide will give you the knowledge, skills, and credentials to succeed in the field that moves the world.

Transportation Area of Concentration

The Transportation Area of Concentration (TAOC) is the degree area in which credit for prior transportation learning and experience is placed. Maximum credit that can be awarded in the TAOC for the Bachelor Degree is 15 semester hours.

Many students bring in all or part of this credit based on prior transportation training or experience. However, shortages in the credit required can be made up by taking courses from a list of specified electives.

Sources of prior learning credit include the following:

1. Transfer credit in transportation earned at accredited degree-granting colleges and universities.
2. The recommendations published by the American Council on Education for U.S. Military (http://www.acenet.edu/news-room/Pages/Military-Guide-Online.aspx) 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 transportation licenses and ratings as they relate to this degree.
4. Validated Advanced Placement (VAP) process.

Duplicate Credit

Many Embry-Riddle courses are designed to teach the same skills and knowledge that Transportation students have acquired through experience and training. Students who complete courses in the same transportation specialty for which they were granted Transportation Area of Concentration credit would be duplicating coverage of the same subject matter. Credit for completion of such courses will not be applied toward degree requirements.

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 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 & Skills		
ENGL 123	English Composition	3
Speech/English		6
Humanities*		
HUMN 330	Values and Ethics	3
Humanities elective		3
Social Sciences		
ECON 210	Microeconomics	3
or ECON 211	Macroeconomics	
Social Science elective		3
Physical and Life Sciences		
PHYS 102	Explorations in Physics	3
Physical Science elective		3
Mathematics		
MATH 111 & MATH 112	College Mathematics for Aviation I and College Mathematics for Aviation II	6
or MATH 140 & MATH 142	College Algebra and Trigonometry	
Computer Science		
CSCI 109	Introduction to Computers and Applications	3
Total Credits		36

Core/Major

Transportation Area of Concentration		15
Make up any shortages in this area from specified electives.		

Program Support		9
MATH 211	Statistics with Aviation Applications	3
or MATH 222	Business Statistics	
MGMT 201	Principles of Management	3
RSCH 202	Introduction to Research Methods	3

Transportation Topics		33
TRAN 274	Transportation Science	3
TRAN 301	Transportation Legislation	3
TRAN 321	Air Transportation Systems	3
TRAN 331	Road & Highway Transportation	3
TRAN 341	Railroad Operations	3
TRAN 351	Urban Transportation and City Planning	3
TRAN 361	Marine Transportation	3
TRAN 371	Pipelines, Land Use, and the Environment	3
TRAN 401	Transportation and the Environment	3
TRAN 411	Strategic Intermodal Alliances	3
TRAN 421	Transportation Safety and Security	3

Transportation Support Topics		12
MGMT 210	Financial Accounting	3
MGMT 221	Introduction to Management Information Systems	3

| MGMT 314 | Human Resource Management | 3 |
| MGMT 390 | Business Law | 3 |

| **Transportation Capstone Course** | | 3 |
| TRAN 490 | Transportation Science Capstone Course | 3 |

Transportation-related academic credit

Technical academic courses from regionally accredited colleges/universities, professional and/or military experience/training related to transportation, military training must be recognized by the American Council on Education (ACE), and specific professional training including technical credit recommended from transportation-related occupations.

Electives

| **Transportation Specified Electives** | | 12 |

Any 300-400 Level ASCI, MGMT, SCTY, or SFTY courses or any of the following courses:

| ECON 420 | Economics of Air Transportation | 3 |
| WEAX 201 | Meteorology I | 3 |

| **Total Degree Requirements** | | 120 |

*   Minnesota student residents refer to State of Minnesota Course Requirement (p. 69) statement for Humanities requirements.

Master of Aeronautical Science

In the rapidly changing world of aviation and aerospace, industry professionals must do more than simply keep up – they need to take charge of their futures. In today's global workplace, a graduate-level education is becoming more and more critical in order to reach the upper levels of management. An advanced degree from Embry-Riddle Aeronautical University can help you broaden your knowledge, diversify your talents, and give you an edge on the competitive playing field of aviation.

Students appreciate the MAS program's solid core of classes, partnered with a range of specialties that are tailored to individual interests. You'll master the tools needed in the development, manufacture, and operation of aircraft and spacecraft, and gain a comprehensive understanding of the infrastructure that supports the industry.

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. Graduate level prerequisite courses taken with ERAU must be completed with a grade of B or better.

*Applicants for admission to the **Master of Aeronautical Science (MAS)** program must have prerequisite knowledge in the following areas:*

 • *Quantitative Methods*

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, DANTES, PEP, etc. exam in each of the subject areas as required.*

DEGREE REQUIREMENTS

Major/Core

Core Credits		
ASCI 602	The Air Transportation System	3
ASCI 604	Human Factors in the Aviation/Aerospace Industry	3
RSCH 665	Statistical Analysis	3
RSCH 670	Research Methods	3
Total Credits		12

Areas of Specialization*	
Choose at least one of the eight specializations. MAS students may complete courses leading to multiple specializations. Students wishing to complete multiple specializations must have unduplicated credits in each of the specializations. Students must submit an evaluation request form to declare the desired specializations.	12
Total Credits	12

Electives

Electives/GCP		
ASCI 691	Graduate Capstone Course	3
Department of Aeronautics Graduate Courses (500-600 level)		9

Students electing the Aviation/Aerospace Management Specialization may also use the following courses as electives:

	MGMT 642	Air Carrier, Passenger, and Cargo Management
	MGMT 643	Labor Issues in Air Transportation
	MBAA 514	Strategic Marketing Management in Aviation
	MBAA 520	Organizational Behavior, Theory, and Applications in Aviation
	MBAA 523	Advanced Aviation Economics
Total Credits		12

| **Total Degree Requirements*** | | 36 |

*   For Specializations 1– 8, the degree requirements are 36 semester hours. Dual specialization degree requirements vary depending on the specialization chosen.

Specializations

Specialization 1

Aeronautics

Students must complete 12 credit hours from the following list of courses:

ASCI 509	Advanced Aerodynamics	3
ASCI 510	Advanced Aircraft Performance	3
ASCI 515	Aviation/Aerospace Simulation Systems	3
ASCI 516	Applications in Crew Resource Management	3
ASCI 517	Advanced Meteorology	3
ASCI 560	Advanced Rotorcraft Operations	3
ASCI 603	Aircraft and Spacecraft Development	3
ASCI 607	Advanced Aircraft/Spacecraft Systems	3

Specialization 2

Aviation/Aerospace Education Technology

Students must complete 12 credit hours from the following list of courses:

ASCI 514	Computer-Based Instruction	3
ASCI 515	Aviation/Aerospace Simulation Systems	3
ASCI 550	Aviation Education Foundations	3
ASCI 610	Instructional System Design	3
ASCI 614	Advanced Aviation/Aerospace Curriculum Development	3
ASCI 652	Continuing Education's Role in Aviation	3
ASCI 654	Adult Teaching and Learning Techniques	3
ASCI 663	Memory and Cognition	3

Specialization 3

Aviation/Aerospace Management

Students must complete 12 credit hours from the following list of courses:

ASCI 609	Aircraft Maintenance Management	3
ASCI 612	Aviation/Aerospace Industrial Safety Management	3
ASCI 641	Production and Procurement Management in the Aviation/Aerospace Industry	3
ASCI 642	International Aviation Policy	3
ASCI 643	Management of Research and Development for the Aviation/Aerospace Industry	3
ASCI 644	Integrated Logistics in Aviation Management	3
ASCI 645	Airport Operations and Management	3
ASCI 646	Airline Operations and Management	3

Specialization 4

Aviation/Aerospace Operations

Students must complete 12 credit hours from the following list of courses:

ASCI 515	Aviation/Aerospace Simulation Systems	3
ASCI 518	Aviation/Aerospace Operations Research	3
ASCI 560	Advanced Rotorcraft Operations	3
ASCI 603	Aircraft and Spacecraft Development	3
ASCI 606	Air Traffic Control and the National Airspace System	3
ASCI 617	Airport Safety and Certification	3
ASCI 620	Air Carrier Operations	3
ASCI 622	Corporate Aviation Operations	3
ASCI 623	Aircraft Design and Development	3

Specialization 5

Aviation/Aerospace Safety Systems

Students must complete 12 credit hours from the following list of courses:

ASCI 611	Aviation/Aerospace System Safety	3
ASCI 612	Aviation/Aerospace Industrial Safety Management	3
ASCI 615	Aviation/Aerospace Accident Investigation and Analysis	3
ASCI 616	Transportation Security	3
ASCI 617	Airport Safety and Certification	3
ASCI 618	Aviation/Aerospace Safety Program Management	3
ASCI 634	Aviation/Aerospace Psychology	3

Specialization 6

Human Factors in Aviation Systems

Students must complete 12 credit hours from the following list of courses:

ASCI 513	Space Habitation and Life Support Systems	3
ASCI 516	Applications in Crew Resource Management	3
ASCI 634	Aviation/Aerospace Psychology	3
ASCI 660	Sensation and Perception	3
ASCI 661	Human-Computer Interaction	3
ASCI 663	Memory and Cognition	3

Specialization 7

Space Studies

Students must complete the following four courses:

ASCI 511	Earth Observation and Remote Sensing	3
ASCI 512	Space Mission and Launch Operations	3
ASCI 513	Space Habitation and Life Support Systems	3
ASCI 601	Applications in Space: Commerce, Defense, and Exploration	3

Specialization 8

Unmanned Aerospace Systems

ASCI 530	Unmanned Systems	3
ASCI 531	Robotics and Control	3
ASCI 637	Unmanned Systems Operations and Payloads	3
ASCI 638	Human Factors in Unmanned Systems	3

M.S. in Occupational Safety Management

The risk of workplace injuries, illnesses, and fatalities presents a serious threat in any organization that rely heavily upon safety professionals to help them mitigate these risks and maintain a safe and healthy work environment.

This graduate-degree program helps students and professionals develop the skills and knowledge they need to effectively manage workplace safety and occupational health hazards within numerous environments.

This Master's degree is a proactive and comprehensive safety training that addresses challenges, anticipates trends and complexity, and sets the future knowledge for students as safety professionals. Throughout the program you will experience to become a safety leader trained for an uncertain and complex world.

Through the focused curriculum – which includes writing case studies, writing safety policies and initiatives, and participating in collaborative projects – you will gain a solid foundation in the critical aspects of occupational safety, including:

- Safety Management;
- Fire Safety;
- Human Factor and Ergonomics;
- Systems Safety;
- Industrial Toxicology;
- Occupational Safety and Health Management;
- Safety Legislation;
- Disaster Management;
- Regulatory Compliance;
- Environmental Protection.

The intensive research component will expose you to statistics and research methodology that is both applicable to the workplace and good

preparation for a doctoral program. And through the graduate capstone project, you will explore a real-world safety problem, applying your new knowledge to develop a workable solution.

The Occupational Safety Management coursework also helps prepare students for certification by the Board of Certified Safety Professionals.

Poised for Advancement. Prepared to Lead.

Upon completion of the program, your focused skill set and specialized degree will distinguish you as an astute and knowledgeable safety management professional. With this distinction, you will be ready to take on safety 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. Graduate level prerequisite courses taken with ERAU must be completed with a grade of B or better.

Applicants for admission to the **Master of Science in Occupational Safety Management (MSOSM)** *program must have prerequisite knowledge in the following areas:*

- *Quantitative Methods*

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, DANTES, PEP, etc. exam in each of the subject areas as required.*

DEGREE REQUIREMENTS
Core/Major

SFTY 510	Industrial Hygiene & Toxicology	3
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 619	Human Factors and Ergonomics	3
SFTY 630	System Safety Programs	3
SFTY 691	Graduate Capstone Course	3
RSCH 665	Statistical Analysis	3
RSCH 670	Research Methods	3
Total Credits		36

Master of 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 Systems Engineering (MSysE) 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 perspective to business and technology.

The program is offered in two tracks, allowing students to tailor their education to their career goals. The Technical track concentrates on system design, analysis, and implementation. The Engineering Management track concentrates on organization, process, and management.

The MSysE delivers exceptional learning and an esteemed credential for systems engineers entering the field, engineers wishing to broaden their perspective or advance to management positions, and managers seeking the knowledge and skills necessary for engineering products and services from a systems perspective.

Program-Specific Criteria

Admissions Criteria

Applicants for admission to the MSysE Degree Program must meet the following criteria:

- Provide evidence of an undergraduate cumulative grade point average (CGPA) of 3.0 or higher, on a 4.0 scale
- Submit (3) letters of recommendation, including (1) from a recent instructor*
- Prepare a type-written *Statement of Objectives*, demonstrating strong capacity for written communication and elucidating 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 MSysE track – Technical or Engineering Management – which the applicant intends to pursue and a discussion of why they made this election
  - An explanation of the applicant's overall academic and career objectives, including how the applicant believes that the MSysE program will positively contribute to the achievement of stated goals

Download the MSysE Program Recommendation Form (http://worldwide.erau.edu/Assets/worldwide/forms/WW_graduate-reference.pdf)

In addition to the above Admissions Criteria, all applicants are required to demonstrate a working knowledge of calculus, probability, and statistics (equivalent to MATH 412), evidenced by academic coursework prior to enrolling in any core MSysE courses. Electives may be taken prior to meeting this requirement. The candidate will be notified of academic conditions on admission, including specific information on required course prerequisites, at the time a decision is rendered.

Current students requesting to transfer into the MSysE program will be required to meet the same program requirements stated above.

Prerequisite Knowledge

Graduate level prerequisite courses taken with ERAU must be completed with a grade of B or better.

The Master of 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 (http://

worldwide.erau.edu/Assets/worldwide/forms/MSE-Core-Curriculum.pdf), outlining the Program Outcomes and suggested sequencing of student coursework.

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
SYSE 697	Systems Engineering Project	3
Select one track from the following:		3
Technical Track		
SYSE 610	System Architecture Design and Modeling	
Engineering Management Track		
SYSE 660	Organizational Systems Management	
Total Credits		18

Electives

Electives	
Electives will be chosen from existing Embry-Riddle Daytona Beach and Worldwide courses in other disciplines, and must be approved by the student's advisor or program coordinator.	12
Total Credits	12
Total Degree Requirements	30

M.S. in Unmanned Systems

Unmanned systems range from small unmanned aerial systems (UAS) used to explore volcanoes and other dangerous environments to robotic rovers operating on distant planetary bodies, all with the common goal of ensuring safe, efficient, and effective operations. The Master of Science in Unmanned Systems (MSUS) degree provides students with an education focused on the application, development, and management of unmanned systems, policies and regulations, and related technology necessary to support the growing and dynamic needs of the industry.

This program supports the growth, innovative development, and effective use of unmanned system technology across the respective domains (air, space, ground, and maritime) to address major challenges within the industry, including interoperability, autonomy, airspace integration, communications, education and training, propulsion and power, teaming, and regulation.

The MSUS provides an interactive learning environment to acquire and apply knowledge, work in independent and team settings, communicate across a geographically and experientially diverse population, and assume leadership roles, which represent the fundamental skills necessary to establish or advance a successful career in today's competitive and collaborative working environment.

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. Graduate level prerequisite courses taken with ERAU must be completed with a grade of B or better.

Applicants for admission to the ***Master of Science in Unmanned Systems (MSUS)*** program must have prerequisite knowledge in the following areas:

• Quantitative Methods

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, DANTES, PEP, etc. exam in each of the subject areas as required.

DEGREE REQUIREMENTS

Core/Major

ASCI 531	Robotics and Control	3
UNSY 501	Application of Unmanned Systems	3
UNSY 601	Unmanned Systems Command, Control, and Communications	3
UNSY 605	Unmanned Systems Sensing, Perception, and Processing	3
UNSY 610	Unmanned Systems Autonomy and Automation	3
UNSY 615	Unmanned Systems Power, Propulsion, and Maneuvering	3
RSCH 665	Statistical Analysis	3
RSCH 670	Research Methods	3
UNSY 691	Graduate Capstone Course	3
Total Credits		27

Electives

Electives	9
Select three electives from the following concentration areas:	
Total Degree Requirements	36

Concentrations:

Unmanned Aerospace Systems (UAS) Concentration

ASCI 530	Unmanned Systems	3
ASCI 637	Unmanned Systems Operations and Payloads	3
ASCI 638	Human Factors in Unmanned Systems	3

Aeronautics and Design Concentration

ASCI 509	Advanced Aerodynamics	3
ASCI 510	Advanced Aircraft Performance	3
ASCI 515	Aviation/Aerospace Simulation Systems	3
ASCI 516	Applications in Crew Resource Management	3
ASCI 560	Advanced Rotorcraft Operations	3
ASCI 603	Aircraft and Spacecraft Development	3
ASCI 607	Advanced Aircraft/Spacecraft Systems	3

Human Factors Concentration

ASCI 516	Applications in Crew Resource Management	3
ASCI 634	Aviation/Aerospace Psychology	3
ASCI 638	Human Factors in Unmanned Systems	3
ASCI 660	Sensation and Perception	3
ASCI 661	Human-Computer Interaction	3

| ASCI 663 | Memory and Cognition | 3 |
| SFTY 619 | Human Factors and Ergonomics | 3 |

Space Systems Concentration

ASCI 511	Earth Observation and Remote Sensing	3
ASCI 512	Space Mission and Launch Operations	3
ASCI 601	Applications in Space: Commerce, Defense, and Exploration	3

Safety/Emergency Response Concentration

ASCI 611	Aviation/Aerospace System Safety	3
ASCI 612	Aviation/Aerospace Industrial Safety Management	3
ASCI 615	Aviation/Aerospace Accident Investigation and Analysis	3
ASCI 618	Aviation/Aerospace Safety Program Management	3
SFTY 540	Disaster Preparedness and Emergency Response	3
SFTY 570	Fire Safety Management	3
SFTY 630	System Safety Programs	3

Operations Concentration

ASCI 515	Aviation/Aerospace Simulation Systems	3
ASCI 518	Aviation/Aerospace Operations Research	3
ASCI 560	Advanced Rotorcraft Operations	3
ASCI 606	Air Traffic Control and the National Airspace System	3
ASCI 617	Airport Safety and Certification	3
ASCI 636	Advanced Aviation/Aerospace Planning Systems	3
ASCI 637	Unmanned Systems Operations and Payloads	3
ASCI 645	Airport Operations and Management	3

Education Concentration

ASCI 514	Computer-Based Instruction	3
ASCI 515	Aviation/Aerospace Simulation Systems	3
ASCI 550	Aviation Education Foundations	3
ASCI 610	Instructional System Design	3
ASCI 614	Advanced Aviation/Aerospace Curriculum Development	3
ASCI 652	Continuing Education's Role in Aviation	3
ASCI 654	Adult Teaching and Learning Techniques	3

Aviation/Aerospace Management Concentration

ASCI 636	Advanced Aviation/Aerospace Planning Systems	3
ASCI 641	Production and Procurement Management in the Aviation/Aerospace Industry	3
ASCI 643	Management of Research and Development for the Aviation/Aerospace Industry	3
ASCI 644	Integrated Logistics in Aviation Management	3
ASCI 645	Airport Operations and Management	3

Aviation/Aerospace Research Concentration

ASCI 518	Aviation/Aerospace Operations Research	3
ASCI 643	Management of Research and Development for the Aviation/Aerospace Industry	3
ASCI 638	Human Factors in Unmanned Systems	3

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.

ASCI 322	Aircraft Inspection and Scheduled Maintenance Programs	3
ASCI 327	Aviation Work Force Management in a Global Environment	3
ASCI 419	Aviation Maintenance Management: A Global Perspective	3
ASCI 424	Maintenance Repair and Overhaul in Aviation	3
ASCI 429	Advanced Technologies in Design and Production of Aircraft Structures & Systems	3
ASCI 433	Aviation Logistics and Supply Chain Management	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.

SFTY 320	Human Factors in Aviation Safety	3
SFTY 330	Aircraft Accident Investigation	3
SFTY 409	Aviation Safety	3
Select three of the following:		9
SFTY 335	Mechanical and Structural Factors in Aviation Safety	
SFTY 345	Aviation Safety Program Management	
SFTY 350	Aircraft Crash and Emergency Management	
SFTY 355	Industrial Hygiene and Toxicology	
SFTY 365	Fire Protection	
SFTY 375	Propulsion Plant Investigation	
SFTY 435	Aircraft Crash Survival Analysis and Design	
SFTY 440	System Safety Management	
SFTY 462	Health, Safety and Aviation Law	
Total Credits		18

Minor in Engineering Sciences

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 – Engineering Sciences Major students

ESCI 105	Fundamentals of Engineering	3
MATH 250	Calculus and Analytic Geometry I	3
MATH 251	Calculus and Analytic Geometry II	3
PHYS 150	Physics I for Engineers	3
Select three of the following:		9
ESCI 201	Statics	
ESCI 202	Solid Mechanics	
ESCI 206	Fluid Mechanics	
CESC 220	Digital Circuit Design	
Total Credits		21

Minor in Helicopter Operations and Safety

Helicopter operations represent a multidisciplinary component of the aviation industry with over 55 designated missions. The helicopter has exceptional versatility, which is instrumental in the continued growth of the industry. Students are exposed to historical, manufacturing, safety and operational aspects of the helicopter industry. To comprehend these aspects, students are exposed to physiological issues, challenges in flight environments, newest technologies, the integration of aviation safety, and combining it all together to learn and apply to an actual helicopter operation. This program was designed with the helicopter industry to provide students with applicable knowledge essential to understanding its multidisciplinary aspects.

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
SFTY 345	Aviation Safety Program Management	3
SFTY 409	Aviation Safety	3
Total Credits		21

Minor in Occupational Safety and Health

The Minor in Occupational Safety and Health brings basic skill and knowledge in the field of Safety and Health in order to be able to take into account hazards and associated risks present in our surrounding environment that could be threatening for any industry. Safety is clearly a challenge for our organizations to prevent losses. Moreover, making a safer workplace is always rewarding for people, goods, environment and profit. Though the focused curriculum, you could gain a first foundation in the critical aspects of occupational safety, including:

- 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.

Not open to BS in Technical Management – Occupational Safety and Health Major students

SFTY 311	Fundamentals of Occupational Safety and Health	3
SFTY 321	Ergonomics	3
SFTY 355	Industrial Hygiene and Toxicology	3
Select three of the following:		9
SFTY 315	Environmental Compliance and Safety	
SFTY 341	Occupational Safety and Health Program Management	
SFTY 365	Fire Protection	
SFTY 360	Construction Safety	
SFTY 410	Design of Engineering Hazard Controls	
SFTY 420	Systems Design for Fire & Life Safety	
SFTY 440	System Safety Management	
SFTY 450	Loss Control & Insurance	
SFTY 470	Advanced Occupational Safety and Health Technology	
Total Credits		18

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.

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 B.S. in Aviation Security students.

SCTY 315	Studies in Intelligence I	3
SCTY 385	Intelligence Collection and Analysis	3
SCTY 488	National Security Issues and Terrorism	3
Select three of the following:		9
SCTY 312	Global Crime and Criminal Justice Systems	
SCTY 323	Intelligence and Technology	
SCTY 324	Cybersecurity and Information Assurance	
SCTY 400	Airport Security	
SCTY 415	Studies in Intelligence II	

SCTY 485	Corporate Security	
Total Credits		18

Minor in Transportation

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 Transportation students.

TRAN 331	Road & Highway Transportation	3
TRAN 341	Railroad Operations	3
TRAN 351	Urban Transportation and City Planning	3
TRAN 361	Marine Transportation	3
TRAN 371	Pipelines, Land Use, and the Environment	3
TRAN 401	Transportation and the Environment	3
Total Credits		18

Minor in Unmanned Aerial Systems

Unmanned aerial 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.

ASCI 315	Unmanned Aerial Systems and Operations	3
ASCI 316	Operational and Business Aspects of Unmanned Aerial Systems	3
ASCI 318	Unmanned Aerial Systems Robotics	3
ASCI 410	Unmanned Sensing Systems	3
Select two of the following:		6
ASCI 404	Applications in Aviation/Aerospace Law	
ASCI 406	Airborne Law Enforcement	
SCTY 315	Studies in Intelligence I	
SCTY 323	Intelligence and Technology	
SCTY 415	Studies in Intelligence II	
SFTY 320	Human Factors in Aviation Safety	
SFTY 410	Design of Engineering Hazard Controls	
SFTY 440	System Safety Management	
Total Credits		18

Aviation Maintenance Technology Part 65

The Aviation Maintenance Technology Certificate provides broad knowledge of general aeronautics, airframe systems, and powerplant systems. The curriculum consist of six courses taken in-residence or online.

Courses taken in this Certificate of Completion 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 degree program. The cumulative GPA for the series of courses in the certificate program must be 2.8 or higher on a 4.0 scale.

Aviation Maintenance Technology Part 65

Certificate of Completion

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	Powerplant Theory and Applications	3
AMNT 281	Aircraft Propulsion Systems and Applications	3
Total Credits		18

College of Arts and Sciences

The mission of the College of Arts and Sciences is to promote in students the development of competency in inquiry and problem-solving skills, communication skills, and ethical interaction with the contemporary social world.

This mission is accomplished by striving, in every interaction and at every moment during the educational process, to achieve seven encompassing and mutually informative core outcomes: critical thinking, quantitative reasoning, information literacy, communication, scientific literacy, cultural literacy and lifelong personal growth.

For Faculty lists and other information, view the College of Arts and Sciences (http://worldwide.erau.edu/degrees-programs/colleges/arts-sciences) website.

B.S. in Communication

The Bachelor of Science in Communication requires students to integrate knowledge of science and technology with practice in communication. In this program, students learn how scientists think, how they frame research questions, and how they use various methodologies to pursue their goals. Communication students additionally practice gathering, analyzing, and disseminating scientific and technological information to a variety of audiences. A significant element of the program is the capstone course, completing a senior project or an internship.

As modern society is increasingly influenced by developments in science and technology, the demands for skilled communicators in these fields continues to grow. Aviation, aerospace, and technology industries, for example, require more internal communication specialists, as well as professionals in media and public relations, to relay information clearly and accurately. This program addresses that nationwide necessity.

News organizations rely on science communicators in various fields, including meteorology, environmentalism, medicine, and technology. Communication students work in traditional written media, such as newspapers, newsletters, magazines, and journals, as well as in cutting-edge information retrieval and delivery systems, including Web sites, networked blogs and social media.

This focused, yet flexible, course of study requires students to hone specialized communication skills and to assemble portfolios displaying those skills. These graduates, the next generation of communication specialists, are positioned to enter three specific career paths, including:

1. Communicating science information to specific and general audiences through a variety of mass media,
2. Representing companies and organizations through media relations, using written, oral, and visual media, and
3. Communicating news to general audiences through print and electronic media.

The Bachelor of Science degree in Communication requires successful completion of a minimum of 120 credit hours, of which 40 credit hours must be upper-level courses (300-400 level).

The Communication program requires coursework in General Education, the Communication Core, Communication Specified Electives, a Minor, and Open Electives.

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
Speech/English		6
Humanities*		
HUMN 330	Values and Ethics	3
Humanities elective		3
Social Sciences		
ECON 210	Microeconomics	3
or ECON 211	Macroeconomics	
Social Science elective (History/Government/Social Science/ Psychology/Economics)		3
Physical and Life Science Lower-Level electives		
Physics/Biology/Meteorology		6
Mathematics		
MATH 111 & MATH 112	College Mathematics for Aviation I and College Mathematics for Aviation II	6
or MATH 140 & MATH 142	College Algebra and Trigonometry	
Computer Science		
CSCI 109	Introduction to Computers and Applications	3
Total Credits		36

Core/Major

Communication Core		33
Aviation, Science, & Technology Foundation		9
COMD 225	Science and Technology Communication	3
COMD 260	Introduction to Media	3
COMD 265	Introduction to Newswriting and Reporting	3
COMD 320	Mass Communication Law and Ethics	3
COMD 322	Aviation and Aerospace Communication	3
COMD 335	Technology and Modern Civilization	3
COMD 350	Environmental Communication	3
COMD 360	Media Relations I	3
COMD 362	Communication and Organizational Culture	3
COMD 415	Nonverbal Communication	3
COMD 495	Senior Project	3
or COMD 495A	Internship	
Select three courses from the following options:		
ASCI 110	Introduction to Space Flight	3
ASCI 185	Introduction to Flight	3
ASCI 210	Space Transportation Systems	3
ASCI 215	Space Stations Systems and Operations	3
PHYS 142	Introduction to Environmental Science	3
SCTY 323	Intelligence and Technology	3
SFTY 215	Introduction to Health, Occupational, and Aviation Safety	3
SFTY 315	Environmental Compliance and Safety	3
TRAN 274	Transportation Science	3

WEAX 201	Meteorology I	3
Total Credits		**42**

Electives/Minor

Communication Specified Electives		**9**
Select three courses from the following options:		
COMD 230	Digital Photography	3
COMD 295	Rhetorical Strategies and Analysis	3
COMD 363	Communication and Society	3
COMD 364	Visual Design	3
COMD 420	Applied Cross Cultural Communication	3
COMD 460	Media Relations II	3

Minor	12-18
Select a minor, in consultation with your advisor, from the following options:	
Minor in Airport Management	15
Minor in Aviation Management	12
Minor in Aviation Safety	18
Minor in Emergency Services	18
Minor in Human Resources	12
Minor in International Relations	15
Minor in Logistics Management	12
Minor in Management	18
Minor in Management Information Systems	12
Minor in Marketing	12
Minor in Occupational Safety and Health	18
Minor in Project Management	12
Minor in Security and Intelligence	18
Minor in Technical Management	12
Minor in Transportation	18
Minor in Unmanned Aerial Systems	18

Open Electives	15-21
Open elective credits are dependent upon the selected minor.	

Total Degree Requirements	**120**

* Minnesota student residents refer to State of Minnesota Course Requirement (p. 69) statement for Humanities requirements.

B.S. in Emergency Services

The Emergency Services degree program provides students with the theoretical foundations for leadership and administration in fire and emergency services response organizations.

The curriculum includes the principles, theory, and practices associated with today's emergency response professionals. The program is regionally academically SACS accredited and FESHE recognized.

The B.S. in Emergency Services degree broadly encompasses all emergency services response disciplines in public and private sectors including: fire, emergency medical, investigation, engineering, aircraft rescue and firefighting, environmental, hazmat, inspection, dispatch, security, OSHA, instruction, public information, wildland firefighting, etc. 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, disaster planning and control, system design for life safety, occupational safety, and human program management.

The curriculum design for this degree is based on in the National Fire Academy's (http://www.usfa.fema.gov/nfa/higher_ed/feshe/ feshe_model.shtm) Fire and Emergency Services Higher Education (FESHE) Model Curriculum for a Bachelor's Degree. When students complete courses through Embry-Riddle Aeronautical University, they receive a National Fire Academy certificate just as if they completed the courses at the National Fire Academy. Beyond the six FESHE core courses, several additional ERAU-developed courses have been approved for students to receive NFA certificates—this is a unique advantage of taking classes at ERAU.

There are two specializations currently offered at the baccalaureate level: Aviation Emergency Management, and 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.

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
Speech/English		6
Humanities*		
HUMN 330	Values and Ethics	3
Humanities elective		3
Social Sciences		
ECON 210	Microeconomics	3
or ECON 211	Macroeconomics	
Social Science elective (History/Government/Social Science/ Psychology/Economics)		3
Physical and Life Science Lower-Level electives		
Physics/Biology/Meteorology		6
Mathematics		
MATH 111 & MATH 112	College Mathematics for Aviation I and College Mathematics for Aviation II	6
or MATH 140 & MATH 142	College Algebra and Trigonometry	
Computer Science		
CSCI 109	Introduction to Computers and Applications	3
Total Credits		36

Core/Major

Program Support		**9**
MATH 211	Statistics with Aviation Applications	3
or MATH 222	Business Statistics	
WEAX 201	Meteorology I	3
RSCH 202	Introduction to Research Methods	3

Program Specialization	**51**
Choose one Specialization	

Electives

Open Electives	**15**

Specified Electives		9
Choose 9 credits from ASCI/ SFTY/FIRE Courses		

Total Degree Requirements		**120**

*   Minnesota student residents refer to State of Minnesota Course Requirement (p. 69) statement for Humanities requirements.

Program Specializations:

Aviation Emergency Management Specialization

ASCI 254	Aviation Legislation	3
ASCI 401	Airport Development and Operations	3
ASCI 412	Corporate and Business Aviation	3
FIRE 301	Community Risk Reduction for the Fire and Emergency Services	3
FIRE 302	Fire Dynamics	3
FIRE 303	Fire Protection Structures and Systems	3
FIRE 305	Fire Prevention Organization and Management	3
FIRE 400	Analytical Approaches to Public Fire Protection	3
FIRE 401	Applications of Fire Research	3
FIRE 403	Disaster Planning and Control	3
FIRE 404	Managerial Issues in Hazardous Materials	3
FIRE 405	Personnel Management for Fire and Emergency Services	3
FIRE 480	Advanced Principles in Fire and Emergency Services Safety and Survival	3
SFTY 320	Human Factors in Aviation Safety	3
SFTY 330	Aircraft Accident Investigation	3
SFTY 350	Aircraft Crash and Emergency Management	3
SFTY 409	Aviation Safety	3
Total Credits		51

Fire and Emergency Services Specialization

FIRE 300	Fire-Related Human Behavior	3
FIRE 301	Community Risk Reduction for the Fire and Emergency Services	3
FIRE 302	Fire Dynamics	3
FIRE 303	Fire Protection Structures and Systems	3
FIRE 304	Fire Investigation and Analysis	3
FIRE 305	Fire Prevention Organization and Management	3
FIRE 400	Analytical Approaches to Public Fire Protection	3
FIRE 401	Applications of Fire Research	3
FIRE 402	Fire and Emergency Services Administration	3
FIRE 403	Disaster Planning and Control	3
FIRE 404	Managerial Issues in Hazardous Materials	3
FIRE 405	Personnel Management for Fire and Emergency Services	3
FIRE 406	Political and Legal Foundations of Fire Protection	3
FIRE 410	Terrorism: Roots and Responses	3
FIRE 480	Advanced Principles in Fire and Emergency Services Safety and Survival	3
SFTY 341	Occupational Safety and Health Program Management	3
SFTY 420	Systems Design for Fire & Life Safety	3
Total Credits		51

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.

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
ECON 312	Money and Banking	3
ECON 315	Managerial Economics	3
ECON 411	International Economics	3
ECON 420	Economics of Air Transportation	3
Total Hours		**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.

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 Emergency Services students. These courses may not be substituted with other FIRE courses.

Select six from the following list of FIRE courses:		18
FIRE 300	Fire-Related Human Behavior	
FIRE 301	Community Risk Reduction for the Fire and Emergency Services	
FIRE 302	Fire Dynamics	
FIRE 303	Fire Protection Structures and Systems	
FIRE 304	Fire Investigation and Analysis	
FIRE 305	Fire Prevention Organization and Management	
FIRE 400	Analytical Approaches to Public Fire Protection	
FIRE 401	Applications of Fire Research	
FIRE 402	Fire and Emergency Services Administration	
FIRE 403	Disaster Planning and Control	
FIRE 404	Managerial Issues in Hazardous Materials	
FIRE 405	Personnel Management for Fire and Emergency Services	
FIRE 406	Political and Legal Foundations of Fire Protection	
FIRE 410	Terrorism: Roots and Responses	
Total Credits		**18**

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.

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
HIST 130	History of Aviation in America	3
Select three of the following:		9
GOVT 325	International Studies	
GOVT 340	U.S. Foreign Policy	
GOVT 363	Inter-American Relations	
GOVT 402	Globalization and World Politics	
HUMN 210	World Culture	
MGMT 335	International Business	
Total Credits		15

College of Business

The College of Business strives to be the premier global educator of leaders and managers in aviation and aerospace. We support this mission by providing undergraduate and graduate programs in leadership and business management that are developed with a focus on the following core objectives:

- To add value to students' lives and careers
- To foster excellence in learning
- To nourish entrepreneurship and discovery in learning
- To remain connected to the aviation and aerospace industry
- To encourage diversity in all that we do

For Faculty lists and other information, view the College of Business (http://worldwide.erau.edu/degrees-programs/colleges/college-of-business) website.

Certificate of Completion

Information Assurance (NSA) (p. 67)

A.S. in Aviation Business Administration

In the high-powered aviation industry, the key staff, operational, and executive positions are awarded to professionals who display a thorough knowledge of aviation as well as an exceptional aptitude for business. If you have a passion for this exciting field and want to develop the business skills you need to reach the top, the Associate of Science in Aviation Business Administration from Embry-Riddle Aeronautical University — Worldwide can help you achieve your goals.

As a student of this degree program, you will gain a solid foundation of core business knowledge while developing the sharp business acumen demanded at the highest levels of any organization. The Associate of Science in Aviation Business Administration explores all facets of business administration and management, including:

- Economics
- Aeronautical Science
- Business Statistics & Accounting
- Business Marketing & Management
- International Business

Through this comprehensive program, you will learn how to think analytically, communicate clearly, and lead a team effectively. These valuable skills will prime you for professional success in any field.

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
Speech/English		6
Humanities		
HUMN 330	Values and Ethics	3
Humanities elective (lower or upper level)		3

Social Sciences		
ECON 210	Microeconomics	3
ECON 211	Macroeconomics	3
Physical and Life Science lower-level elective		
Physics/Biology/Meteorology		6
Mathematics		
MATH 111	College Mathematics for Aviation I	3
MATH 112	College Mathematics for Aviation II	3
or MATH 320	Decision Mathematics	
Computer Science		
CSCI 109	Introduction to Computers and Applications	3
Total Credits		36

Core/Major

BSAB Support		
MGMT 201	Principles of Management	3
MGMT 203	Management for Aeronautical Science	3
MGMT 210	Financial Accounting	3
MGMT 221	Introduction to Management Information Systems	3
Total Credits		12

Electives

Open Electives (Lower or Upper Level)	12
May be used for College of Business or non-College of Business Minors.	

Total Degree Requirements	60

A.S. in Technical Management

You're a skilled professional in a technical field, but you're ready to advance. You're looking for a move into the management ranks, seeking the personal satisfaction and financial rewards that go along with it. The Associate of Science in Technical Management program from Embry-Riddle Aeronautical University — Worldwide can take you there.

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 of 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 of 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.

One exciting benefit of this program is that students can receive credits toward their Technical Specialty (up to 12) for prior experience or training including: CLEP, DANTES or certain military or industrial education programs. This degree is designed to accommodate the transfer student who has either completed an appropriate associate degree at an accredited college or university (generally 60 credit hours) or 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. Prerequisites not previously met may be taken from open elective courses.

Students in the Technical Management degree program learn to apply management skills to their technical specialty and have the opportunity to focus in one of the three areas of specialization:

- Logistics
- Occupational Safety & Health
- Engineering Sciences

DEGREE REQUIRMENTS

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
Speech/English		6
Humanities		
HUMN 330	Values and Ethics	3
Humanities elective (lower or upper level)		3
Social Sciences		
ECON 210	Microeconomics	3
ECON 211	Macroeconomics	3
Physical and Life Science lower-level elective		
Physics/Biology/Meteorology		6
Mathematics *		
MATH 111	College Mathematics for Aviation I	3
MATH 112	College Mathematics for Aviation II	3
or MATH 320	Decision Mathematics	
Computer Science		
CSCI 109	Introduction to Computers and Applications	3
Total Credits		36

Core/Major

BSTM Core		
MGMT 201	Principles of Management	3
MGMT 203	Management for Aeronautical Science	3
MGMT 210	Financial Accounting	3
MGMT 221	Introduction to Management Information Systems	3
Total Credits		12

Electives/Minor/Specialty

Technical Specialty Transfer Credit or COB Minor or MGMT Electives	9
If technical transfer credit is not applicable, the 12 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 Aviation Business Administration program is designed for students seeking to lead and manage in the world of aviation.

Balancing key aviation concepts with advanced business strategy, the curriculum provides students with a solid foundation of industry expertise while developing the sharp business acumen demanded at the highest levels of an organization. The program explores all facets of business administration, including economics, aeronautical science, accounting, marketing, management, and global business strategies.

Upon graduation, students will be eligible and qualified candidates for desirable staff, operational, and executive positions within the military sector or civilian business community.

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
Speech/English		6
Humanities*		
HUMN 330	Values and Ethics	3
Humanities elective (lower or upper level)		3
Social Sciences		
ECON 210	Microeconomics	3
ECON 211	Macroeconomics	3
Physical and Life Science lower-level elective		
Physics/Biology/Meteorology		6
Mathematics		
MATH 111	College Mathematics for Aviation I	3
MATH 112	College Mathematics for Aviation II	3
or MATH 320	Decision Mathematics	
Computer Science		
CSCI 109	Introduction to Computers and Applications	3
Total Credits		36

Core/Major

Program Support		45
MATH 211	Statistics with Aviation Applications	3
or MATH 222	Business Statistics	
MGMT 314	Human Resource Management	3
MGMT 371	Leadership	3
MGMT 390	Business Law	3
MGMT 436	Strategic Management	3
MGMT 201	Principles of Management	3
MGMT 203	Management for Aeronautical Science	3
MGMT 210	Financial Accounting	3
MGMT 221	Introduction to Management Information Systems	3
MGMT 321	Aviation/Aerospace Systems Analysis Methods	3
or MGMT 422	Information Technology Management, Strategy, and Governance	
MGMT 324	Aviation Labor Relations	3

MGMT 408	Airport Management	3
MGMT 411	Logistics Management for Aviation/Aerospace	3
MGMT 424	Project Management in Aviation Operations	3
RSCH 202	Introduction to Research Methods	3

Aviation Management Core		**21**
BSAB 410	Management of Air Cargo	3
BSAB 412	Airport Planning and Design	3
BSAB 415	Airline Management	3
BSAB 418	Airport Administration & Finance	3
BSAB 425	Trends and Current Problems in Air Transportation	3
or BSAB 426	International Aviation Management	
BSAB 450	Airline/Airport Marketing	3
MGMT 394	Information Security Management	3
or MGMT 494	Aviation Information Systems	

Electives

Open Electives (Lower or Upper Level)	**18**
May be used for College of Business or non-College of Business Minors.	

Total Degree Requirements	**120**

* Minnesota student residents refer to State of Minnesota Course Requirement (p. 69) statement for Humanities requirements.

B.S. in Technical Management

The Technical Management degree is designed to prepare students for a variety of managerial/supervisory positions in today's business environment. The program will teach students how to think critically, and to employ applied research and problem-solving skills to evaluate, manage, and improve business processes.

Many working adults with a background in a technical specialty are looking for opportunities to move into management or supervisory positions 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 Technical Management degree combines courses in management, business information systems, project management, logistics, and supply chains into one degree.

The management courses help students develop their management, leadership, and organizational behavior skills. Additionally, the business information system courses teach students how to approach, understand, and resolve problems inherent with the implementation and control of a variety of such systems.

This degree opens career opportunities in a number of fields. Regardless of background, Technical Management students gain valuable skills, learning how to organize, plan, staff, and coordinate company resources toward the organization's goals and objectives.

This degree is designed to accommodate a 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.

Prerequisites not previously met may be taken from open elective courses.

The Bachelor of Science in Technical Management curriculum offers general education, plus eight majors and minors that take students deeper into their areas of interest, including: areas of Technical Management, *College of Business   06/30/14*

Project Management, Logistics, Management of Information Systems, Information Security, Occupational Safety and Health, Engineering Sciences, and Facilities and Construction Management.

Graduates may go on to managerial/supervisory careers in Aviation-related and Non-Aviation-related public and private fields.

Technical Management students who wish to continue on to a master's degree may enroll in the BSTM to MSM, MMIS, MSISA 4+1 program as outlined in this program.

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
Speech/English		6
Humanities**		
HUMN 330	Values and Ethics	3
Humanities elective (lower or upper level)		3
Social Sciences		
ECON 210	Microeconomics	3
ECON 211	Macroeconomics	3
Physical and Life Science lower-level elective		
Physics/Biology/Meteorology		6
Mathematics		
MATH 111	College Mathematics for Aviation I	3
MATH 112	College Mathematics for Aviation II	3
or MATH 320	Decision Mathematics	
Computer Science		
CSCI 109	Introduction to Computers and Applications	3
Total Credits		36

Core/Major

BSTM Core		**33**
MATH 211	Statistics with Aviation Applications	3
or MATH 222	Business Statistics	
RSCH 202	Introduction to Research Methods	3
MGMT 201	Principles of Management	3
MGMT 210	Financial Accounting	3
or MGMT 312	Managerial Accounting	
MGMT 221	Introduction to Management Information Systems	3
MGMT 311	Marketing	3
MGMT 314	Human Resource Management	3
or MGMT 317	Organizational Behavior	
MGMT 320	Business Information Systems	3
MGMT 325	Social Responsibility and Ethics in Management	3
or MGMT 335	International Business	
MGMT 390	Business Law	3
MGMT 436	Strategic Management	3

Choose Major:	**21**
Technical Management Major	
Project Management Major	

Logistics Major
Management of Information Systems Major
Information Security Major
Occupational Safety and Health Major
Engineering Sciences Major
Facilities and Construction Management Major

Electives

Transfer Credit -or- COB Minor-or- MGMT Electives	12

If technical transfer credit is not applicable, the 12 hours can ONLY be used toward College of Business (COB) minors. If no minor is chosen, then MGMT electives 200-300-400 level courses.

* Not applicable to Engineering Sciences Major

Open Electives (Lower or Upper Level) may be used for Minors in other departments.	18

* (15 credits of Open Electives, all upper level, are required for the Engineering Sciences Major).

Total Degree Requirements	120

** Minnesota student residents refer to State of Minnesota Course Requirement (p. 69) statement for Humanities requirements.

Technical Management Major

Technical Management Major		
MGMT 321	Aviation/Aerospace Systems Analysis Methods	3
MGMT 371	Leadership	3
MGMT 391	Introduction to Project Management	3
MGMT 394	Information Security Management	3
MGMT 420	Management of Production and Operations	3
MGMT 444	Principles of Supply Chain Management	3
MGMT 449	Strategic Marketing Mgmnt	3
Total Credits		21

Project Management Major

Project managers who can deliver desired results on time and on budget are a valuable business resource. Learners who choose this major are often interested in pursuing project manager, lead, or coordinator positions with aviation-related and non-aviation related organizations.

This major combines theory and techniques used by professional project management practitioners in a digital global environment to allow students to develop the skills to effectively lead and manage complex projects. The project management major teaches knowledge and skills to help participate in and lead the management of a variety of project types.

The degree includes instruction on a variety of project management-related topics, including the nine project management knowledge areas and the five processes designated by the Project Management Institute (PMI). The degree is also designed to foster critical thinking, analysis, and communication skills.

Project Management Major		
MGMT 321	Aviation/Aerospace Systems Analysis Methods	3
MGMT 391	Introduction to Project Management	3
MGMT 394	Information Security Management	3
MGMT 424	Project Management in Aviation Operations	3
MGMT 427	Management of the Multicultural Workforce	3
MGMT 461	Global Project Management	3
MGMT 462	Project Management Advanced Concepts	3
Total Credits		21

Logistics Major

As businesses become more complex and increasingly global, the need for logistics specialists increases as well. Embry-Riddle Aeronautical University's Logistics major is specifically designed to prepare students for a career in this burgeoning field.

In conjunction with the Technical Management degree curriculum, this program gives students a foundation for supervising or managing the procurement, maintenance, and transportation of material, personnel, equipment, and facilities. Graduates of this program find new opportunities in diverse fields such as public administration, aviation/aerospace, military logistic,s and public or private transportation.

Logistics Management Major		
MGMT 321	Aviation/Aerospace Systems Analysis Methods	3
MGMT 391	Introduction to Project Management	3
MGMT 331	Transportation Principles	3
MGMT 411	Logistics Management for Aviation/Aerospace	3
BSAB 410	Management of Air Cargo	3
MGMT 440	Advanced Professional Logistics	3
MGMT 444	Principles of Supply Chain Management	3
Total Credits		21

Management of Information Systems Major

As information systems become more advanced and increasingly global, the need for Information Systems specialists increases as well.

The Management of Information Systems (MIS) major focuses on the business processes of organizations and the information technology utilized in those organizations.

The program prepares students to learn to design, implement, and maintain effective information systems in organizations. The MIS major is designed to develop the skills and knowledge necessary for information systems development and support positions.

In conjunction with the Technical Management degree curriculum, this program gives students a foundation for supervising or managing different components of the organization's information systems.

Graduates of this program may find new opportunities in aviation and non-aviation related fields. MIS jobs, such as business analyst and chief technology officer, are reported to be among the most recession-proof jobs.

Management of Information Systems Major		
Select seven of the following:		
MGMT 321	Aviation/Aerospace Systems Analysis Methods	3
MGMT 385	Programming Concepts	3
MGMT 392	Database Management	3
MGMT 393	Computer Networks	3
MGMT 394	Information Security Management	3
MGMT 422	Information Technology Management, Strategy, and Governance	3
MGMT 428	Business Analytics and Data Intelligence	3
MGMT 492	Information Systems Project Management	3
MGMT 494	Aviation Information Systems	3
Total Hours		21

Information Security Major

The Information Security major is designed for students interested in pursuing careers in Information Systems. The curriculum focuses on addressing these information security needs in the marketplace.

Students completing this program can apply for a broad range of IT-related positions, such as security analyst, security auditor, security consultant, security risk assessor, security manager, information

technology manager, information security officer, security trainer, and security systems designer.

Similar to other BSTM majors, the requirements for this major will be 21 credit hours. This major will cover the following areas:

Information Security Major		
MGMT 386	Fundamentals of Information Systems Security	3
Select six of the following:		18
MGMT 387	Managing Risk in Information Systems	3
MGMT 388	System Forensics, Investigation, and Response	3
MGMT 389	Information Assurance and Information Quality	3
MGMT 401	Information Security Policies	3
MGMT 402	Legal Issues in Information Security	3
MGMT 403	IT Audit and Control	3
MGMT 404	Business Continuity & Disaster Recovery Planning	3
Total Hours		**21**

Occupational Safety and Health Major

Creating and maintaining a safe work environment and protecting workers from hazards have become a critical issue in nearly every industry.

The Occupational Safety and Health major was developed to prepare students for supervisory or management positions relating to occupational safety and health in environmental compliance, ergonomics, industrial hygiene and toxicology, construction, fire protection, and systems design.

This program is geared toward students who are seeking new opportunities in the public or private sector, such as service or manufacturing industries, local, state, or federal agencies, and the military.

Occupational Safety and Health Major		
SFTY 311	Fundamentals of Occupational Safety and Health	3
SFTY 315	Environmental Compliance and Safety	3
SFTY 321	Ergonomics	3
SFTY 355	Industrial Hygiene and Toxicology	3
SFTY 360	Construction Safety	3
SFTY 365	Fire Protection	3
SFTY 410	Design of Engineering Hazard Controls	3
or SFTY 420	Systems Design for Fire & Life Safety	
Total Credits		21

Engineering Sciences Major

(* See Transfer Credit and Open Electives requirements for Engineering Sciences Major)

The Engineering Sciences major is designed to help students develop a conceptual understanding of engineering, the engineering design process, technology, and technology-related concepts. This major is designed to give students a foundation for supervising or managing with an understanding of engineering tools and concepts.

The Engineering Sciences major requirements must be satisfied by completing courses from the following list as noted.

Engineering Sciences Major		
ESCI 105	Fundamentals of Engineering	3
ENGR 119	Graphical Communications	2
PHYS 250	Physics III for Engineers	3
MATH 253	Calculus and Analytic Geometry IV	3
MATH 345	Differential Equations and Matrix Methods	4
Select two of the following:		
CESC 220	Digital Circuit Design	
ESCI 201	Statics	

ESCI 202	Solid Mechanics	
ESCI 204	Dynamics	
ESCI 206	Fluid Mechanics	
Total Hours		**21**

Engineering Sciences Support		
PHYS 150	Physics I for Engineers	3
PHYS 160	Physics II for Engineers	3
MATH 250	Calculus and Analytic Geometry I	3
MATH 251	Calculus and Analytic Geometry II	3
MATH 252	Calculus and Analytic Geometry III	3
Total Credits		15

Facilities and Construction Management Major

The Facilities & Construction Management major will prepare students well for careers in the field because of the varied curriculum that addresses all facets of facilities and construction management. Completing this major qualifies graduates for work in a variety of roles at a construction jobsite.

Facilities and Construction Management Major		
MGMT 391	Introduction to Project Management	3
MGMT 452	Construction Estimating & Bidding	3
MGMT 453	Construction Scheduling & Control	3
MGMT 454	Facilities Mechanical and Electrical Systems	3
MGMT 459	Facilities & Construction Capstone	3
Electives: (Select 2 courses from the following):		
MGMT 455	Construction Systems	
MGMT 456	Economics for Facilities & Construction Managers	
MGMT 457	Facilities & Construction Safety Systems	
MGMT 458	Building Information Modeling (BIM)	
Total Hours		**21**

BSTM-MSM, MMIS, MSISA 4+1 Program, A Unique Opportunity

The BSTM-MSM,MMIS,MSISA 4+1 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 Technical Management and the Master of Science in Management, Master of Science in Management Information Systems (MMIS), or Master of Science in Information Security and Assurance (MSISA) degree programs in five academic years.

Students who are accepted in the 4 + 1 program, spend three academic years in undergraduate-level study and then, during their senior year, will take up to three graduate-level courses that will meet the undergraduate 400 level elective and graduate program core requirements (when a B grade or better is achieved). Upon completion of the BSTM requirements, students will be enrolled in graduate school 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 400 level elective credits, the student will be removed from the program and may continue to complete the BSTM degree only.

M.B.A. in Aviation

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.

Graduate level prerequisite courses taken with ERAU must be completed with a grade of B or better.

*Applicants for admission to the **Master of Business Administration in Aviation (MBAA)** program are required to meet prerequisite knowledge in the following areas:*

- *Management*
- *Accounting Methods*
- *Finance*
- *Quantitative Methods*
- *Marketing*
- *Economics*

Students should assume responsibility to see that prerequisites are satisfied. However, students who still lack prerequisite knowledge in one of the following areas may be required to register for one or all of the modules contained in MGMT 503 (A through F): management, quantitative methods, marketing, accounting, economics, and/or finance. 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, DANTES, PEP, etc. exam in each of the subject areas as required; -OR-*
4. *Completion of MGMT 500 satisfies the prerequisite requirements for management, economics, and quantitative knowledge.*
5. *Satisfactorily complete each of the six one-semester-hour business foundation courses MGMT 503 (A through F) and receive at least the minimum recommended in each of the subject areas as required.*

The Master of Business Administration in Aviation degree program is designed to emphasize the application of modern management concepts, methods, and tools to the challenges of aviation and business. The special intricacies of aviation are woven into a strong, traditional business foundation by combining a specific core of distinct business competencies with a strong aviation foundation.

The demand for skilled professionals continues to grow in response to the increasing need for leaders who can manage the efficient and effective use of scarce resources; operate in an atmosphere of heightened national and international competition; and respond to the call to preserve our world's fragile eco-system – and the MBAA curriculum is oriented toward the needs of aviation leaders and decision-makers who can operate in this environment.

Specific prerequisites for each graduate course in the MBAA are contained in the Graduate Courses section of this catalog. Students must assume responsibility to see that all prerequisites are satisfied. However, students who cannot demonstrate, through academic transcripts, prerequisite knowledge in one of the following areas, will be required to register for those modules contained in MGMT 503 (A through F): management, quantitative methods, marketing, accounting, economics, finance, for which they do not have the prerequisite knowledge. 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 the specific prerequisite knowledge required.

DEGREE REQUIREMENTS

Core/Major

Aviation Business Core

MGMT 524	Management Science	3
MBAA 514	Strategic Marketing Management in Aviation	3
MBAA 517	Managerial Accounting for Decision Making	3
MBAA 518	Managerial Finance	3
MBAA 522	Business Research Methods	3
MBAA 523	Advanced Aviation Economics	3
MBAA 604	International Business Administration	3
MBAA 635	Business Capstone Course	3
Total Credits		24

Electives/Specialization

Electives or Specialization Option	12

Electives Option: Complete a total of 12 credit hours from any College of Business, unduplicated courses. No specialization will be earned for this option. All MGMT 503 series prerequisites will apply for MBAA and MGMT elective courses.

Specialization Option: Choose any specialization. Students wishing to complete multiple specializations usually will be required to take an additional 12 semester hours for the second specialization. However, in some instances that may not be the case. For example, the MBAA Finance Specialization and the Marketing Specialization require one unduplicated elective from the College of Business. Students seeking both specializations would only have to take seven courses and not eight courses. The reason is that any of the marketing specialization courses could count toward the one unduplicated elective in the finance specialization, or vice versa. All MGMT 503 series prerequisites will apply for MBAA and MGMT prefixed specialization courses

Total Degree Requirements	36

Specialization in Accounting

MBAA 662	Intermediate Accounting I	3
MBAA 663	Intermediate Accounting II	3
MBAA 667	Federal Taxes	3
Elective (Any College of Business unduplicated course)		3
Total Hours		12

Specialization in Finance

MBAA 653	International Finance	3
MBAA 658	Money and Banking	3
EMGT 618	Introduction to Financial Engineering: Futures and Options	3
Elective - Any College of Business unduplicated course		3
Total Hours		12

Specialization in Information Technology

MBAA 521	Global Information and Technology Management	3
MBAA 621	Information Systems Project Management	3
MBAA 625	Computer System Design Analysis	3
MBAA 626	Enterprise System Architectures	3
Total Credits		12

Specialization in Marketing

MBAA 630	Customer Value	3
MBAA 632	Global Marketing	3

MBAA 633	Technology Marketing	3
Elective - Any College of Business unduplicated course		3
Total Hours		**12**

Specialization in International Business

MBAA 632	Global Marketing	3
MBAA 653	International Finance	3
MGMT 673	Global Economic Analysis	3
LGMT 685	Global Logistics and Supply Chain Management	3
Total Hours		**12**

Specialization in Public Administration

MBAA 641	Public Leadership	3
MBAA 644	Public Finance	3
MBAA 646	Public Human Resource Management	3
MBAA 648	Public Policy	3
Total Hours		**12**

MBAA Program Notes:

1. MBAA 700 is available to international programs or specialty developed programs by contract or articulation agreement. MBAA 700 is not available to Worldwide campuses.

2. This program is available at selected ERAU Worldwide campuses and/or through partnerships as determined by specific articulation or contract agreement.

3. Students enrolled through the Asia campus can take LGMT 685 in lieu of MBAA 604.

4. MGMT 500 will not count toward a core or elective course for the MBAA Program. If taken, it will only serve to fulfill prerequisite knowledge requirements for management, economic, and quantitative.

MS to MBAA

Students who have already completed the Master of Science in Management (MSM), Master of Science in Project Management (MSPM), or Master of Science in Technical Management (MSTM) may opt to complete the MBAA degree. The 36 hour degree requirement for the MBAA will be partially fulfilled using 15 hours of transfer credit from the MSM, MSPM, or MSTM programs plus an additional 21 hours of required additional core courses and electives. However, in many instances students seeking one or more MBAA specializations will be taking more than 21 additional hours due to the specialization requirements.

For MSM/MSPM/MSTM to MBAA

MSM/MSPM/MSTM students are currently enrolled under significantly different catalogs. As such there are multiple variations that can take place. The guidelines for determining the MSM/MSPM/MSTM transfer hours/additional core hours/specialization hours/elective hours, to the MBAA Program are as follows:

Transfer Students Not Selecting an MBAA Specialization

1. Transfer MBAA core courses or MBAA core equivalents first. The maximum number of hours that can be transferred is 15.

2. After it is determined the number of hours transferred for core courses, then transfer any (except MGMT 500) unduplicated COB courses taken in the MSM Program so that the sum of the total hours transferred for core and non-core courses is 15. For example, if 9 hours of core courses or equivalents are transferred then 6 hours of non-core courses could be transferred.

3. Next, determine the number of hours of MBAA core courses that still needs to be taken to complete the MBAA Program. For example,

there are 24 hours core course hours and if 12 core course hours are transferred in there still remains 12 core course hours that need to be taken.

4. Next, determine the number of hours of electives that need to be taken. An elective is any unduplicated COB course. The sum of the hours transferred, plus additional core hours, plus the elective hours must equal 36. For example, if 15 hours in (9 hours of core MBAA courses and 6 hours of non-MBAA core courses), the then 15 hours of core MBAA courses and 6 hours of electives.

Transfer Students Selecting an MBAA Specialization(s)

1. Transfer MBAA core courses or MBAA core equivalents first. The maximum number of hours that can be transferred is 15.

2. After it is determined the number of hours transferred for core courses, then transfer any (except MGMT 500) unduplicated COB courses taken in the MSM Program so that the sum of the total hours transferred for core and non-core courses is 15. For example, if 9 hours of core courses or equivalents are transferred then 6 hours of non-core courses could be transferred. However, courses that count toward MBAA Specializations should be transferred before electives.

3. Next, determine the number of hours of MBAA core courses that still needs to be taken to complete the MBAA Program. For example, there are 24 hours core course hours and if 9 core course hours are transferred in there still remains 15 core course hours that need to be taken.

4. Next, determine the number of hours for MBAA Specialization(s) that need to be taken.

5. Next, determine the number of hours of electives that need to be taken. An elective is any unduplicated COB course. A minimum of 36 hours is needed for courses transferred in, additional core courses, specialization courses required, and electives (if needed). However, in most instances the total hours will exceed 36 as a result of the specialization requirements.

M.S. in Aviation Finance

The Master of Science in Aviation Finance (MSAF) degree is for those students wishing to pursue a dedicated curriculum in the field of aviation finance. The courses in the program deliver the required knowledge of the business and operational aspects of the aviation / aerospace industry while presenting the needed classes in economics, accounting and financial practices and models used by firms not just in the aviation industry but business across the globe.

With the MSAF, Embry-Riddle addresses an increasingly important need of the global air transport industry. Among the trends in the industry indicating the importance of the MSAF are:

- the growth of the aircraft leasing industry
- the number and volume of global aircraft sales predicted into the future
- the entry of new financial firms at all levels of aircraft financing (corporate, general and commercial aviation)
- the role financial management of resources (for example, fuel hedging contracts) has on airline profitability
- the need to find the means of financing to build critical aviation infrastructure

Students possessing an undergraduate degree in business, accounting, finance or economics, or related transportation fields of study should meet the prerequisites for the MSAF. Students from other majors are accepted into the MSAF program but would need to demonstrate undergraduate classes in economics, accounting, finance and statistics.

For those not able to document past course work in the above areas, the appropriate ERAU undergraduate class(es) (ECON 210 - Microeconomics, ECON 420 – Economics of Air Transportation, MGMT 210 – Financial Accounting, MGMT 332 – Corporate Finance I, MATH 222 – Business Statistics) may be required as a condition of admission and

before graduate level course work in the subject area may commence. Furthermore, for entry into the program, besides needing to meet current ERAU graduate admission requirements, students would be required to take the GRE exam to complete entry requirements.

Program Specific Criteria

Applicants for admission to the MSAF program are required to take the Graduate Record Examination (GRE)(please see http://www.ets.org/gre for more information). Students who have not taken the GRE and/or achieved the minimum score will not be permitted to register for MSAF classes regardless of their status. Coordinators may waive the requirement if another master degree has been completed. The student should possess a strong academic record, generally evidenced by a CGPA of 3.00 or higher.

Structure of the MSAF degree is 14 classes/42 credit hours. To complete the MSAF degree, two program options are available to the student: either a research project in the financial area of study or an internship in the financial, banking, leasing sectors of the aviation/aerospace industry.

DEGREE REQUIREMENTS

Core/Major

Aviation Management Core		12
MBAA 514	Strategic Marketing Management in Aviation	3
MBAA 517	Managerial Accounting for Decision Making	3
MBAA 523	Advanced Aviation Economics	3
MGMT 642	Air Carrier, Passenger, and Cargo Management	3

Required Finance Courses		30
FIND 516	Financial Accounting	3
FIND 518	Managerial Finance	3
FIND 613	Financial Modeling	3
FIND 615	Investments	3
FIND 618	Advanced Corporate Finance	3
FIND 619	Economic Modeling	3
FIND 620	Air Transport Economic Modeling	3
FIND 621	International Aviation Finance	3
FIND 622	Aircraft and Airline Financing	3
FIND 699	Special Topic in Finance	3
or FIND 696	Graduate Internship in Finance	

Total Degree Requirements		42

Master of Science 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 pior 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 program combines a core curriculum with a selection of concentrations, allowing students to expand their knowledge in an area of interest. Concentrations include financial management; project management; systems engineering; leadership; management; logistics and supply chain management; and aviation/aerospace management.

These concentrations provide the student the opportunity to specialize in an area of their choice and interest, allowing the student to tailor his or her degree in a manner that best fulfills the student's career objectives.

DEGREE REQUIREMENTS

Core/Major

Master of Science in Management Core		
MGMT 665	Organizational Theory in a Technical Environment	3
EMGT 514	Professional Service Marketing	3
EMGT 523	Engineering Economic Analysis	3
PMGT 501	Fundamentals of Project Management	3
MGMT 524	Management Science	3
MGMT 533	Federal Regulations, Ethics and the Legal System	3
Total Credits		18

Electives

Technical Electives		
Select 3 courses, one of which must be a quality course (SYSE 625 or MGMT 532)		9
	SYSE 625	System Quality Assurance	
	MGMT 532	Philosophy, Principles, and Practices in Management of Quality	
	MBAA 522	Business Research Methods	
	LGMT 683	Supply Chain Management	
	TMGT 555	Applied Regression Analysis	
	ASCI 609	Aircraft Maintenance Management [1]	
Total Credits		9

[1] Students selecting the Aviation/Aerospace concentration must take ASCI 609. Students in other concentrations may not take ASCI 609.

Concentration		
Take one of seven concentrations		9
Total Credits		9

Total Degree Requirements		36

Concentrations:

Financial Management

MBAA 517	Managerial Accounting for Decision Making	3
MBAA 518	Managerial Finance	3
EMGT 618	Introduction to Financial Engineering: Futures and Options	3

Project Management

PMGT 502	Effective Communications for Managing Projects	3
PMGT 613	Assessing and Managing Project Risk	3
PMGT 614	Planning, Directing, and Controlling Projects	3

Systems Engineering

SYSE 530	System Requirements Analysis and Modeling	3
SYSE 560	Introduction to Systems Engineering Management	3
SYSE 610	System Architecture Design and Modeling	3

Leadership

MSLD 500	Leadership Foundations in Research	3
MSLD 511	Organizational Leadership	3
MSLD 521	Leadership Communication	3

Management

Select three of the following:		9
MGMT 653	Labor Issues in an Industrial Environment	
MGMT 671	Entrepreneurship and Leadership	
MGMT 672	Planning and Execution of Strategy	
MGMT 673	Global Economic Analysis	

Logistics and Supply Chain Management

Select three of the following:		9
LGMT 536	Purchasing for Logistics and Supply Chain Managers	
LGMT 636	Transportation Management	
LGMT 682	Integrated Logistics Management	
LGMT 685	Global Logistics and Supply Chain Management	

Aviation/Aerospace Management

Select three of the following:		9
ASCI 612	Aviation/Aerospace Industrial Safety Management	
ASCI 641	Production and Procurement Management in the Aviation/Aerospace Industry	
ASCI 642	International Aviation Policy	
ASCI 643	Management of Research and Development for the Aviation/Aerospace Industry	
ASCI 644	Integrated Logistics in Aviation Management	
ASCI 645	Airport Operations and Management	
ASCI 646	Airline Operations and Management	

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. 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:

- Inspire the best from those around you.
- Communicate powerfully and develop additional sources of influence.
- Understand your leadership capacities and minimize your blind spots.
- Coach and mentor others to achieve their potential.
- 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 grooming you for today's most challenging leadership positions, this degree will arm you with the skill and vision to become one of the architects of tomorrow.

DEGREE REQUIREMENTS
Core/Major

Leadership Core		
MSLD 500	Leadership Foundations in Research	3
MSLD 511	Organizational Leadership	3
MSLD 520	Management Skills for Leaders	3
MSLD 521	Leadership Communication	3
MSLD 630	Organizational Change and Development	3
MSLD 631	Leading High Performance Teams	3
MSLD 632	Decision Making for Leaders	3
MSLD 633	Strategic Leadership	3
MSLD 634	Leadership Ethics and Corporate Social Responsibility	3
MSLD 690	Graduate Leadership Capstone	3
Total Credits		30

Electives

Electives	6
Select any two graduate level classes of 3 credits from the College of Business	
Total Credits	6

Total Degree Requirements	36

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.

The Master of Science in Logistics and Supply Chain Management from Embry-Riddle Aeronautical University – Worldwide is designed to prepare individuals to reach the top ranks of their fields. The degree program offers two tracks, **General Track and Certification in Transportation and Logistics (CTL) Track.**

The CTL track is a blanket-waiver track approved by the American Society of Transportation and Logistics (AST&L (http://www.astl.org/i4a/pages/index.cfm?pageid=1)). This means that students graduating from the CTL track are eligible for CTL certification without having to sit for the six examinations, saving them approximately $1,200. We are one of 28 schools in the U.S. to receive this waiver.

The benefits of this program are as follows: (Source: http://www.astl.org/i4a/pages/index.cfm?pageid=3360)

- Potential employers will know you have gone that additional step, solidifying your commitment to the profession.
- Studies show a professional credential increases salaries by 10 to 20 percent.
- Membership in ASTL offers access to a global network of industry professionals through the members-only search engine, LinkedIn group, and Facebook page.
- Membership includes an electronic subscription to the Transportation Journal.

- Student members receive a dual student membership in the Association for Operations Management or APICS.

Students graduating from the CTL track can find the application at the following link: http://www.astl.org/files/Application_BlanketWaiver_CTL_2013.pdf.

Please note: *Students are eligible for CTL certification only after completion of CTL track requirements, and students need to apply for certification along with an application fee through AST&L.*

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 as a Certified Supply Chain Professional (CSCP) offered by the Association for Operations Management or APICS; Certified Professional Logistics (CPL) certification program offered by the International Society of Logistics (SOLE); and Certified Professional in Supply Management (CPSM) offered by the Institute for Supply Management (ISM). 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. According to 2013 salary survey by Institute for Supply Management (ISM), average salary of supply managers with a master's degree was $128,127 compared to $95,931 for those with bachelor's degree. Source: http://www.ism.ws/

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. Graduate level prerequisite courses taken with ERAU must be completed with a grade of B or better.

Applicants for admission to the **Master of Science in Logistics and Supply Chain Management** program are required to meet prerequisite knowledge in the following areas:

- Management
- Accounting Methods
- Finance
- Quantitative Methods
- Economics

Students should assume responsibility to see that prerequisites are satisfied. However, students who still lack prerequisite knowledge in one of the following areas may be required to register for one or all of the modules contained in MGMT 503A (http://catalog.erau.edu/worldwide/business/masters/engineering-management) through MGMT 503F (http://catalog.erau.edu/worldwide/business/masters/engineering-management): management, quantitative methods, accounting, economics, and/or finance. 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, DANTES, PEP, etc. exam in each of the subject areas as required; **-OR-**

4. Satisfactorily complete each of the six one-semester-hour business foundation courses (MGMT 503A (http://catalog.erau.edu/worldwide/business/masters/engineering-management) through MGMT 503F

(http://catalog.erau.edu/worldwide/business/masters/engineering-management)) and receive at least the minimum recommended in each of the subject areas as required.

5. Completed MGMT 500 which satisfies the requirement of three MGMT 503 series courses.

DEGREE REQUIREMENTS - General Track
Core/Major

General Track		
LGMT 536	Purchasing for Logistics and Supply Chain Managers	3
LGMT 636	Transportation Management	3
LGMT 682	Integrated Logistics Management	3
LGMT 683	Supply Chain Management	3
LGMT 685	Global Logistics and Supply Chain Management	3
LGMT 691	Logistics and Supply Chain Management Capstone	3
MGMT 524	Management Science	3
MGMT 651	Production and Procurement in the Aviation and Aerospace Industry	3
Total Credits		24

Electives

Electives:	12

Select 12 credit hours from the following list of courses:

MBAA 514, MBAA 517, MBAA 518, MBAA 521, MBAA 522, MBAA 523, MBAA 604, MBAA 696, MGMT 532, MGMT 533, MGMT 535, MGMT 642, MGMT 643, MGMT 652, MGMT 671, MGMT 672, MGMT 673, TMGT 555, MGMT 665

Total Degree Requirements	**36**

DEGREE REQUIREMENTS - CTL Track
Core/Major

CTL Track		
LGMT 536	Purchasing for Logistics and Supply Chain Managers	3
LGMT 636	Transportation Management	3
LGMT 682	Integrated Logistics Management	3
LGMT 683	Supply Chain Management	3
LGMT 685	Global Logistics and Supply Chain Management	3
LGMT 691	Logistics and Supply Chain Management Capstone	3
MGMT 524	Management Science	3
MGMT 651	Production and Procurement in the Aviation and Aerospace Industry	3
MGMT 673	Global Economic Analysis	3
MBAA 517	Managerial Accounting for Decision Making	3
MBAA 518	Managerial Finance	3
MBAA 523	Advanced Aviation Economics	3
MBAA 604	International Business Administration	3
Total Degree Requirements		**39**

M.S. in Management

If you're ready to take your career to greater heights, Embry-Riddle's Master of Science in Management (MSM) is designed to prepare you for success. Through this dynamic degree program, you'll gain practical skills, personal satisfaction, and career momentum. Whether you are interested

in becoming a manager or refining existing managerial skills, the MSM program is right for you.

Learn it in class today. Apply it at work tomorrow.

MSM graduates use leading-edge management skills and technical expertise to oversee day-to-day operations, manage employees, solve problems, and direct important projects. With a greater emphasis on management and operations than any other graduate degree, including a traditional MBA, the MSM from Embry-Riddle gives you the theoretical and practical knowledge that will help you move ahead of your peers.

As part of the course requirements for the MSM, candidates choose from general management open electives or one of four areas of specializations, tailored to your background and interests:

- Human Resources Management
- Global Management
- Technical Management
- Leadership

MSM degree candidates know that an advanced education will provide the tools necessary to succeed in today's fast-paced, technologically driven, and complex organizations.

All MSM students gain practical management skills, such as:

- Quantitative analytical skills – using numbers to make decisions
- Change management skills – the ability to adapt, control, and effect organizational change
- Knowledge of ethical and regulatory requirements
- An understanding of organizational structure and leadership
- Effective communication strategies
- Strategic planning, critical thinking, and decision-making skills
- Research and problem-solving skills

Note: 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 meet the stringent requirements set forth by the ACBSP.

Prerequisite Knowledge:

Subject knowledge for a specific graduate course must be satisfied before enrollment in that course is permitted. Students may enroll in a specific graduate-level course only if they meet prerequisite knowledge requirements. Graduate-level prerequisite courses taken with ERAU must be completed with a grade of B or better.

Students should assume responsibility to see that prerequisites are satisfied. Students who take elective courses from other College of Business programs may be required to register for certain Business Foundations courses that serve as prerequisites. The prerequisite subject knowledge for a specific graduate course must be satisfied before enrollment in that course is permitted. Students may enroll in other graduate-level courses as they meet the required prerequisite knowledge. Specific prerequisite requirements are contained in the Course Description section of this catalog.

MSM Program Notes:

1) MGMT 500 satisfies the prerequisite requirements for many other MGMT courses. It is therefore recommended that MGMT 500 be the first class a student takes in the MSM program.

2) MGMT 500 is equivalent to MGMT 503A, MGMT 503B, and MGMT 503D. A MSM student who takes an open-elective course from another program that requires MGMT 503A, MGMT 503B, or MGMT 503D will have met the prerequisite of that course by completing MGMT 500

3) Students in the Leadership Specialization must complete MGMT 500 before taking MSLD courses that require MSLD 500. MGMT 500 is equivalent to MSLD 500 for MSM students.

DEGREE REQUIREMENTS

Core/Major

MGMT 500	Business Foundations	3
MGMT 524	Management Science	3
MGMT 533	Federal Regulations, Ethics and the Legal System	3
MGMT 535	Theory and Application of Managerial Communications	3
MGMT 630	Organizational Change and Development	3
MGMT 661	Project Development Techniques	3
MGMT 672	Planning and Execution of Strategy	3
MGMT 691	Management Capstone Course	3
Total Credits		**24**

Note: Students should take MGMT 500 early # if not first # in their degree program to satisfy prerequisite requirements of other courses in the MSM core.

Specialization/Electives

Specialization or Elective Credits	**12**

Electives: Complete a total of 12 credit hours from any College of Business unduplicated courses. No specialization will be earned for this option.

Specializations: Choose any specialization. Students wishing to complete multiple specializations will usually be required to take an additional 12 semester hours for the second specialization.

Total Degree Requirements	**36**

Areas of Specialization:

Specialization 1 – Human Resources Management

MBAA 609	Human Resource Management	3
MGMT 678	Talent Acquisition and Workforce Planning	3
MGMT 679	Comprehensive Reward Systems	3
MBAA 607	Human Resource Development	3
Total Credits		**12**

Note: MGMT 500 is equivalent to MGMT 503A. Completing MGMT 500 with a grade of B or better satisfies the MBAA course prerequisites. See program notes.

Specialization 2 – Leadership

MSLD 631	Leading High Performance Teams	3
MSLD 511	Organizational Leadership	3
MSLD 520	Management Skills for Leaders	3
MSLD 633	Strategic Leadership	3
Total Credits		**12**

Note: MGMT 500 is equivalent to MSLD 500. Completing MGMT 500 with a grade of B or better satisfies the MSLD course prerequisite of MSLD 500. See program notes.

Specialization 3 – Global Management

MBAA 604	International Business Administration	3
MGMT 673	Global Economic Analysis	3
LGMT 685	Global Logistics and Supply Chain Management	3
MBAA 521	Global Information and Technology Management	3

Total Credits		12

Note: MGMT 500 is equivalent to MGMT 503A. Completing MGMT 500 with a grade of B or better satisfies the MBAA course prerequisites. See program notes.

Specialization 4 – Technical Management

MBAA 521	Global Information and Technology Management	3
MGMT 651	Production and Procurement in the Aviation and Aerospace Industry	3
MGMT 652	Concepts and Practices of Project Management	3
MGMT 665	Organizational Theory in a Technical Environment	3
Total Credits		**12**

M.S. in Information Security and Assurance

The Master of Science in Information Security and Assurance (MSISA) degree is designed for working professionals who need to combine strong business and organizational management skills with the information systems knowledge to help their organization protect its ability to generate competitive advantage and achieve its objectives. It is designed for students who possess prior degrees in information systems, information technology, computer science, or other scientific, technical, engineering and math related management field, and who wish to further develop their knowledge, skills and abilities to plan and conduct information risk management and business continuity planning projects. The degree is designed to assist students to move into progressively more challenging managerial roles by providing a strong foundation in information and knowledge management, quality management, and information systems and technologies.

Organizations have a need for managers who understand the technical work the organization performs and can simultaneously successfully perform in management roles within the organization. The program provides a well-rounded management education, extends the students technical skills, and applies those skills to managerial functions. Additionally, the curriculum will provide students the opportunity to pursue a concentration in the following areas: Protecting Business Intelligence, Incident Investigation and Response, Information Assurance and Information Technology Security, Governance for Information and Knowledge Assurance, and Information Assurance in a Global Context. The goal of the concentrations is to allow students to tailor their program in a manner that aligns with their career objectives.

DEGREE REQUIREMENTS

Core/Major

Information Security & Assurance Core		
MGMT 524	Management Science	3
MISA 501	Assured Business Systems: Managing and Protecting the Information Systems Enterprise	3
MISA 502	Risk Management and Business Continuity	3
MISA 503	Informatics: Security Implications of Cross-Disciplinary Computing	3
MISA 504	Enterprise Systems Architectures for Information Assurance	3
MISA 505	Incident Management and Information Forensics	3
MISA 506	Cyber Law, Cyber Compliance, and Information Assurance	3
MISA 507	Quality Management for Information Assurance	3
Total Core Credit Hours		**24**

Note: MGMT 524 should be taken within the first 18 hours of the degree program.

Electives/Concentration

Electives		9

Choose three courses from the list of concentrations.

Integrative Experience		
MISA 691	Applied Methods	3
Total Degree Requirements		**36**

Concentrations:

Protecting Business Intelligence Concentration		
MISA 521	Assuring Information Integrity in Data Warehousing/Mining	3
MISA 522	Social Media, Business and Web Analytics: Information Assurance Implications	3
MISA 523	Information Advantage -- Defensive: Countering Self-Deception and External Deceptions	3

Information Systems Security Concentration		
MISA 531	Secure Information Systems Design	3
MISA 532	Integrated Threat Warning and Attack Assessment for Enterprise Information Systems	3
MISA 533	Product and Systems Safety and Reliability: Issues for Information Assurance	3
MISA 534	Aviation / Aerospace Issues for Information Security	3

Information Assurance in a Global Context Concentration		
MISA 541	International Considerations for Information Assurance and Protection	3
MISA 542	Advanced Information Assurance Topics for Distributed Organizations and Systems	3
MISA 543	Assured Strategic Messaging: Keeping the Message Intact and Effective	3
MISA 544	The High-Reliability Enterprise Model	3

M.S. in Management Information Systems

The Master of Science in Management Information Systems (MSMIS) degree is designed for working professionals who possess prior degrees in information systems, information technology, computer science, or other scientific, technical, engineering and math related management field, who wish to further develop their knowledge, skills and abilities to manage a variety of information-intensive projects and systems. The degree is designed to assist students to move into progressively more challenging managerial roles by providing a strong foundation in information and knowledge management, quality management, and information systems and technologies.

Organizations have a need for managers who understand the technical work the organization performs and can simultaneously successfully perform in management roles within the organization. The program provides a well-rounded management education, extends the students technical skills, and applies those skills to managerial functions. Additionally, the curriculum will provide students the opportunity to pursue a concentration in the following areas: Business Intelligence, IS Project Management, Information Assurance, IS Governance, and Global IS. The goal of the concentrations is to allow students to tailor their program in a manner that aligns with their career objectives.

DEGREE REQUIREMENTS

Core/Major

Management Information Systems Core		
Total Core Credit Hours		**24**
MGMT 524	Management Science	3
MMIS 501	Business Systems: Managing the IS Enterprise	3
MMIS 502	Managing Mobile & Distributed Organizations and their Information Systems	3
MMIS 503	Informatics: Cross-Disciplinary Computing for Competitive Advantage	3
MMIS 504	Knowledge Management: Quality Management for the IS Enterprise	3
MMIS 505	Information Analytics and Visualization in Decision Making	3
MMIS 506	Systems Analysis and Design	3
MMIS 507	Information Systems Strategic Planning	3

NOTE: MGMT 524 should be taken within the first 18 hours of the degree program.

ELECTIVES

Electives		9
Choose 3 courses from the list of concentrations.		

Integrative Experience		
MMIS 691	Applied Methods	3
Total Degree Requirements		**36**

CONCENTRATIONS:

Business Intelligence

MMIS 521	Data Warehousing and Information Quality	3
MMIS 522	Business Analytics, Social Network and Web Analytics	3
MMIS 524	Applied Knowledge Management and Business Intelligence	3
MMIS 523	Data Mining, Machine Learning and Knowledge Discovery	3

IS Project Management

Information Systems Project Management Concentration		
MMIS 531	Information Systems Project Management	3
MMIS 532	Practicum on Project Management Tools	3
MMIS 533	Advanced Topics in Project Management	3

Information Assurance

Information Assurance Concentration		
MMIS 541	Information Risk Management	3
MMIS 542	Ethical and Legal Concerns for Information-Intensive Systems	3
MMIS 543	Business Continuity and Resilience through Information Systems	3

IS Governance

IS Governance Concentration		
MMIS 551	Translating Organizational Strategies into Enterprise Information Strategies	3
MMIS 552	Information Systems and Information Technology Governance	3
MMIS 553	Change Management and Configuration Control	3

Global IS

Global IS Concentration		
MMIS 561	Global Information and Technology Management	3
MMIS 562	Advanced Topics in Distributed Systems	3
MMIS 563	Strategic Communications Management	3

M.S. in Project Management

Program-Specific Criteria

Project management expertise applies to every industry, allowing you the flexibility to choose your destiny.

After earning a Master of Science in Project Management, 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'll build an e-Portfolio, a platform that demonstrates 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.

Embry-Riddle Aeronautical University is a Registered PMI Education Provider (R.E.P.). As a PMI Registered Education Provider, Embry-Riddle Aeronautical University has agreed to abide by PMI-established quality-assurance criteria.

The Embry-Riddle Worldwide College of Business Master of Science Degree in Project Management is accredited by the Project Management Institute 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.

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. Graduate-level prerequisite courses taken with ERAU must be completed with a grade of B or better.

Applicants for admission to the **Master of Science in Project Management (MSPM)** *program are required to meet prerequisite knowledge in the following areas:*

- *Written Communication*
- *Quantitative Methods*
- *Computer Skills**
- *Complete the MSPM student orientation*

Access provided by ERAU staff at the location of register or on the College of Business – ERAU Website

* 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.

DEGREE REQUIREMENTS
Core/Major

MGMT 524	Management Science	3
MGMT 532	Philosophy, Principles, and Practices in Management of Quality	3
MGMT 533	Federal Regulations, Ethics and the Legal System	3
MBAA 517	Managerial Accounting for Decision Making	3
MGMT 672	Planning and Execution of Strategy	3
PMGT 501	Fundamentals of Project Management	3
PMGT 502	Effective Communications for Managing Projects	3
PMGT 611	Anatomy of Project Organizations	3
PMGT 612	Leading Projects Across Cultural, Corporate, and International Boundaries	3
PMGT 613	Assessing and Managing Project Risk	3
PMGT 614	Planning, Directing, and Controlling Projects	3
PMGT 690	Project Management Capstone	3
Total Credits		36

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.

ASCI 254	Aviation Legislation	3
MGMT 408	Airport Management	3
BSAB 412	Airport Planning and Design	3
Select two of the following:		6
ASCI 320	Commuter Aviation	
SFTY 345	Aviation Safety Program Management	
SFTY 350	Aircraft Crash and Emergency Management	
SFTY 409	Aviation Safety	
ASCI 401	Airport Development and Operations	
ASCI 404	Applications in Aviation/Aerospace Law	
ASCI 412	Corporate and Business Aviation	
MGMT 324	Aviation Labor Relations	
MGMT 331	Transportation Principles	
MGMT 436	Strategic Management	
BSAB 410	Management of Air Cargo	
BSAB 418	Airport Administration & Finance	
BSAB 425	Trends and Current Problems in Air Transportation	
BSAB 426	International Aviation Management	
MGMT 499	Special Topics in Management	

SCTY 400	Airport Security	
SCTY 488	National Security Issues and Terrorism	
Total Hours		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.

O*nly available to Worldwide undergraduate students enrolled in degree programs other than BS in Aviation Business Administration*

BSAB 418	Airport Administration & Finance	3
BSAB 425	Trends and Current Problems in Air Transportation	3
BSAB 426	International Aviation Management	3
BSAB 450	Airline/Airport Marketing	3
Total Credits		12

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.

Open to BS in Technical Management students only

MGMT 314	Human Resource Management	3
MGMT 317	Organizational Behavior	3
MGMT 324	Aviation Labor Relations	3
MGMT 427	Management of the Multicultural Workforce	3
Total Credits		12

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 Technical Management – Logistics Major students

MGMT 331	Transportation Principles	3
BSAB 410	Management of Air Cargo	3
MGMT 411	Logistics Management for Aviation/Aerospace	3
MGMT 440	Advanced Professional Logistics	3
Total Credits		12

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 BS in Technical Management, BS in Aviation Maintenance or BS Aviation Business Administration students

ECON 210	Microeconomics	3
MGMT 201	Principles of Management	3
MGMT 210	Financial Accounting	3
MGMT 311	Marketing	3
Specified Electives in Management		6
	Choose any two upper-level MGMT courses.	
Total Credits		18

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.

MGMT 392	Database Management	3
MGMT 422	Information Technology Management, Strategy, and Governance	3
MGMT 492	Information Systems Project Management	3
MGMT 494	Aviation Information Systems	3
Total Credits		12

Minor in Marketing

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.

Open to BS in Technical Management students only

MGMT 311	Marketing	3
MGMT 405	General Aviation Marketing	3
MGMT 449	Strategic Marketing Mgmnt	3
BSAB 450	Airline/Airport Marketing	3
Total Credits		12

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.

MGMT 424	Project Management in Aviation Operations	3
MGMT 427	Management of the Multicultural Workforce	3
MGMT 461	Global Project Management	3
MGMT 462	Project Management Advanced Concepts	3
Total Credits		12

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

MGMT 321	Aviation/Aerospace Systems Analysis Methods	3
MGMT 394	Information Security Management	3
BSAB 418	Airport Administration & Finance	3
MGMT 420	Management of Production and Operations	3
Total Credits		12

Information Assurance (NSA)

Embry-Riddle Aeronautical University Worldwide's National Security Agency Certificate of Completion presents a curriculum of three required courses, which address the core tenets of the National Security Agency, Committee on National Security Systems' Information Systems Security (INFOSEC) Professionals, NSTISSI 4011 requirements. After the successful completion of the required courses, students will receive an Information Assurance Certificate, granted by Embry-Riddle on behalf of the National Security Agency, noting the NSTISSI 4011 designation.

This Certificate of Completion will be beneficial for information systems professionals looking to gain a better understanding of information assurance (IA), computer systems, information management, and systems security. Students who complete this program will be welcome to utilize the IA (4011) designation.

The University awards a Certificate of Completion in Information Assurance to those who have completed the following courses with a CGPA of at least 2.8. The Information Assurance Certificate must be taken in conjunction with a bachelor's degree program.

Information Assurance (National Security Agency)

Certificate of Completion

CSCI 109	Introduction to Computers and Applications	3
-Or- an equivalent 3-credit introductory computer systems course recognized by ERAU		
MGMT 221	Introduction to Management Information Systems	3
MGMT 320	Business Information Systems	3
Total Hours		9

Ph.D. in Aviation

The demand for aviation professionals with the skills to conduct research and solve problems continues to grow in response to the increasing complexity and evolution of the aviation field. The Ph.D. in Aviation program -- the first in the U.S. -- is designed to address that need by allowing students to pursue doctoral studies in aviation in a diverse, intellectually versatile and multi-disciplinary environment.

Courses are offered online for greater accessibility to the working professional. Participation in three six-day on-campus residency seminars is required during the program. This program format provides doctoral degree students an innovative way to achieve their personal, educational, and professional goals.

The Ph.D. in Aviation program is designed to enable students to achieve the following learning objectives:

- develop mastery of the central theories and concepts in the field of aviation, including foundations, safety management, economics, and regulatory procedures
- pose and solve theory-based and research-based problems designed to advance applications in the field of aviation;
- extend the aviation body of knowledge by conceiving, planning, producing, and communicating original research;
- develop and demonstrate expertise in instructional processes;
- demonstrate leadership, collaboration, and communication necessary for scholarly work in aviation

Courses are offered during three 12-week terms per year. The program requires completion of four aviation core courses, a four-course sequence in statistics and research methodology, and four specialization courses. A qualifying exam tests students' mastery of core and specialization subject matter and is conducted at the end of the course work. Completion and defense of a dissertation is the final phase of the program. The dissertation is a formal academic paper that constitutes the culmination of the doctoral program. The purpose of the dissertation is to prepare students to be professionals in a discipline, to develop the skills necessary to engage in independent research, and to advance the body of knowledge in aviation. The program requires completion of 60 credit hours beyond the master's degree, including course work, residency seminars, and dissertation courses.

Policies for the Doctor of Philosophy in Aviation program may differ from those in the catalog referencing. Students should consult the appropriate academic department for degree program specific information.

Specific information about the Ph.D. in Aviation program, including admission and course requirements, may be found at the program website: http://aviationphd.erau.edu.

General Education Requirements

Embry-Riddle Aeronautical University recognizes the importance of communications and quantitative skills in all areas of aviation. Successful pilots, airport managers, aviation maintenance technicians, and other aviation professionals must possess these skills to perform their jobs effectively.

Introduction

Recognizing its general and special missions in education, Embry-Riddle Aeronautical University embraces a general education program. This course of study ensures that students possess the attributes expected of all university graduates. Encouraging intellectual self-reliance and ability, the general education program enables students, regardless of their degree program, to understand the significance of acquiring a broad range of knowledge.

Throughout the general education program, students gain and enhance competence in written and oral communication. They practice reasoning and critical thinking skills and demonstrate computer proficiency. As students engage in this course of study, they familiarize themselves with and investigate ideas and methodologies from several disciplines. These include the arts and humanities, the social sciences, and the natural sciences and mathematics. The program also helps students recognize interrelationships between the disciplines.

Promoting the appreciation of varied perspectives, the general education program provides intellectual stimulation, ensuring that students are broadly educated. This course of study empowers students to make informed value judgments, to expand their knowledge and understanding of themselves, and to lead meaningful, responsible, and satisfying lives as individuals, professionals, and concerned members of their society and the world.

Requirements

Embry-Riddle Aeronautical University's general education program encourages effective learning and provides a coherent base for students to pursue their academic specializations. In specific support of the goals of general education, candidates for bachelor's degrees must complete course work in the following areas.

I. Communication Theory and Skills, 9 hours

In order to lead meaningful and responsible lives in complex societies, students produce, evaluate, articulate, and interpret information and meanings in oral and written communications.

II. Mathematics, 6 hours

In order to develop quantitative reasoning skills and to use and understand the language of science and technology, students must demonstrate mathematical proficiency. Three hours may be satisfied by placement, examination, or course completion. The other three credit hours must be completed by taking a course that has college algebra as a prerequisite.

III. Computer Science/Information Technology, 3 hours

In order to use computers and to understand and evaluate their significance in the solution of problems, students study the concepts, techniques, and tools of computing.

IV. Physical and Life Sciences, 6 hours

In order to appreciate current understandings of the natural world, students study the concepts and methods of the physical and life sciences, applying the techniques of scientific inquiry to problem solving.

V. Humanities, 3-6 hours at lower level, *3 hours at 300-400 level

In order to participate in the complexity of human experiences that arise in a framework of historical and social contexts, students are exposed to the Humanities. Areas of study may include cultural, aesthetic, philosophical, and spiritual dimensions of the human condition.

VI. Social Sciences and Economics, 3-6 hours at lower level, *3 hours at 300-400 level

In order to understand interrelationships between the individual and society and connections between historical memory and the future, students examine the social sciences, including history, government, economics, psychology, and sociology.

*In order to experience advanced studies in either the Humanities or Social Sciences, students must choose at least one upper-level elective in the Humanities or Social Sciences.

Associate Degree General Education Requirements

Candidates for associate degrees must complete a 36 General Education credit-hour requirement. 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.

University General Education Competencies

While taking General Education required courses, students develop a basic set of General Education skills (i.e., competencies, listed below) based on course learning outcomes. This skill set will be instrumental to student success in upper level courses within their degree program; in these courses students will practice application of this skill set, eventually demonstrating mastery before graduation. As a result, students will graduate with a set of General Education competencies that will provide the basis for success in life and on the job. The following skills are the competencies that all University students will develop, practice, and master in preparation for graduate school or the workplace.

Critical Thinking

The student will apply knowledge at the synthesis level to define and solve problems within professional and personal environments.

Quantitative Reasoning

The student will demonstrate the use of digitally enabled technology (including concepts, techniques, and tools of computing), mathematics proficiency and analysis techniques to interpret data for the purpose of drawing valid conclusions and solving associated problems.

Information Literacy

The student will conduct meaningful research, including gathering information from primary and secondary sources and incorporating and documenting source material in his or her writing.

Communication

The student will communicate concepts in written, digital, and oral forms to present technical and non-technical information.

Scientific Literacy

The student will be able to analyze scientific evidence as it relates to the physical world and its interrelationship with human values and interests.

Cultural Literacy

The student will be able to analyze historical events, cultural artifacts, and philosophical concepts.

Worldwide General Education Competencies

The following additional competency has been identified by the faculty as being relevant to students in the Worldwide Campus.

Lifelong Personal Growth

The student will be able to demonstrate the skills needed to enrich the quality of life through activities which enhance and promote lifetime learning.

State of Minnesota Course Requirement

Residents of the State of Minnesota are required to comply with Minnesota Degree Standards which require students to complete four (4) credits of Humanities. Since Embry-Riddle Aeronautical University – Worldwide baccalaureate degree programs require a minimum of three (3) credits in Humanities, an additional one (1) hour of Humanities credit is required. Students may choose to take an additional Humanities course as one of their elective courses. Students should seek the assistance of their Campus Director at their Worldwide Campus home location (http://worldwide.erau.edu/locations/index.html?address=) if there are questions. For Online students not associated with a Worldwide Campus location, their primary contact is their Online Academic Advisor at the Online Campus (https://ernie.erau.edu/portal/page/portal/campus_services/ww_services/worldwide_online/advisors).

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.

Undergraduate Courses

Courses numbered 1-99 are basic skills courses and do not apply toward degree requirements. Courses numbered 100-200 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 300-400 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.

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 185 Introduction to Flight 3 Credits (3,0)
This course examines the basics of aerodynamics, aircraft performance, VFR cross-country navigation techniques, weather reports and forecasts, Federal Aviation Regulations, elements of resource management, and safe flying practices.

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 210 Space Transportation Systems 3 Credits (3,0)
This course provides the student with a survey course of the Space Transportation System (STS) at the introductory physics level. Included are manned space flight operations, supporting systems and the space shuttle mission, both present and future. A review of space shuttle flight profiles, guidance and navigation control, proximity operations, and rendezvous and a brief review of hypersonic orbiter aerodynamics are included. Also covered are future STS applications to space station logistical operations, commercial applications, and Department of Defense operations.

ASCI 215 Space Stations Systems and Operations 3 Credits (3,0)
This course provides the student with a background in the major aspects of the International Space Station (ISS) and the Russian Mir spacecraft. Specific topics include commercial applications, logistical support, maintenance, servicing, and design concepts.

ASCI 220 Life Support Systems 3 Credits (3,0)
This course is a survey, at the elementary physics level, of the requirements and design considerations for life support systems in space and on other planets. Included are an introduction to basic human physiology, a description of the space environment and a survey of historical life support systems, and a presentation of spacecraft limitations and requirements.

ASCI 221 Introduction to Flight Physiology 3 Credits (3,0)
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 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 260 Unmanned Aerial Vehicles and Systems 3 Credits (3,0)
This course is a survey of Unmanned Aerial Vehicles (UAV) and systems, emphasizing the military and commercial history, growth and applications of UAVs. Course will include basic acquisition, use and operation of UAVs with an emphasis on operations.

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 300 Satellite and Spacecraft Systems 3 Credits (3,0)
Orbital satellites and spacecraft are discussed according to their application, design, and environment. The power, shielding and communication systems are reviewed along with their missions, space environment, and limitations.
Prerequisites: RSCH 202.

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 and PHYS 102 and RSCH 202.

ASCI 310 Aircraft Performance 3 Credits (3,0)
This course explores the performance of airplanes powered by reciprocating, turboprop, and/or jet turbine and turbofan engines. Topics studied include stability and control, weight and balance, and performance charts and graphs.
Prerequisites: MATH 112 and PHYS 102 and RSCH 202.

ASCI 315 Unmanned Aerial Systems and Operations 3 Credits (3,0)
This course chronicles the development of Unmanned Aerial Systems (UAS), Unmanned Aerial Vehicles (UAV), and their role in the aviation industry, as well as an increased awareness of the importance of UAS in modern commercial and military operations. This course chronicles the development of UAS, their operations and applications. An analysis of UAS is covered, including structural and mechanical factors, avionics, navigation, flight controls, remote sensing, guidance control, propulsion systems, and logistical support. Operations of UAS include an examination and analysis of their integration with commercial and military airspace, air traffic control and civilian/federal air and ground operations. The course will also look at past, current and future applications of UAS operations, with an emphasis on commercial applications.
Prerequisites: RSCH 202.

ASCI 316 Operational and Business Aspects of Unmanned Aerial Systems 3 Credits (3,0)
This course will prepare the student to differentiate the applicable needs of civil aviation for UAS. It will examine each of the particular needs and address how to implement the UASs to fill that need within the constraints of the current national airspace and federal aviation regulation restrictions. Particular attention will be given to skill sets and tools used to mitigate restrictions and to create a flight operation that can successfully employ UASs.
Prerequisites: RSCH 202.

ASCI 317 Rotorcraft 3 Credits (3,0)
This course traces the historical development of rotorcraft and introduces the many unique aspects of rotorcraft operations. Rotorcraft operations are examined from the operations, management, and maintenance perspectives. Included are rotorcraft operations and airworthiness regulations, airspace and facilities requirements, and environmental considerations. Uses of rotorcraft to include military and civilian applications are studied. Rotorcraft design, manufacturing, materials, systems, and the variations in rotor configuration are topics of study.
Prerequisites: RSCH 202.

ASCI 318 Unmanned Aerial Systems Robotics 3 Credits (3,0)
This course prepares students to integrate robotic technology into the hardware and software regimes of unmanned aviation. It will include examinations of control and system programming in the context of specific missions through guided discussions, simulation and the operation of actual unmanned aircraft robotic systems.
Prerequisites: RSCH 202.

ASCI 320 Commuter Aviation 3 Credits (3,0)
This course acquaints the student with the development, administrative policies, and operational factors peculiar to commuter aviation, especially since passage of the Airline Deregulation Act of 1978. The impact of mergers and acquisitions, profiles of passenger and cargo carrying commuters, and analysis of commuter successes and failures are discussed. Emphasis is placed on the establishment of a new commuter airline, which includes market and financial analysis, the company plan, aircraft selection and acquisition, route structure and timetable, marketing strategy and pertinent regulatory requirements. The course culminates in a formal proposal soliciting for venture capital to start a commuter airline.
Prerequisites: RSCH 202.

ASCI 322 Aircraft Inspection and Scheduled Maintenance Programs 3 Credits (3,0)
The curriculum within this course provides an in-depth study of aircraft inspection programs and scheduled maintenance processes. National and international regulations governing aircraft inspection and maintenance are evaluated. Inspection program requirements are examined including processes such as pre-flight, post-flight, hourly, calendar, cycles, annual, progressive, and phased inspections. Types and techniques involving non-destructive inspection are explored. Industry practices in managing scheduled maintenance requirements are studied including aircraft reliability, life cycle management, and trend analysis.

ASCI 327 Aviation Work Force Management in a Global Environment 3 Credits (3,0)
The curriculum within this course focuses on management of multicultural workforces in relationship to the aviation industry. Topics include the role of cultural diversity, organizational socialization, and aviation maintenance operations leadership. Also provided is an in-depth study of aviation labor relations, unions, grievance procedures, and conflict resolution. Principles of social responsibility and ethics in the management of a multi-cultural workforce are also presented.

ASCI 357 Flight Physiology 3 Credits (3,0)
This course explores aero-medical information. Topics include 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.
Prerequisites: RSCH 202.

ASCI 378 Helicopter Flight Environments 3 Credits (3,0)
During this course, the student obtains the foundation for helicopter operations in terrain flight and in varying environmental conditions. The student will be introduced to aspects particular to helicopter flight as it pertains to adverse weather and day and night environments specifically pertaining to take off, cruise and landing. Emphasis will be placed on understanding principles of flight close to the Earth and hazards both natural and man-made. Additional emphasis will be placed on helicopter flight in and around mountains, snow, desert and overwater operations. The student will be exposed to visual references and how to adjust perceptions to maintain safe, low-level flight in and around hazardous conditions present in commercial helicopter operations. By the end of the course, the student will have sufficient knowledge to understand the concepts necessary for employment in the commercial helicopter industry. Prerequisite: FAA/military helicopter pilot certificate or course listed.
Prerequisites: ASCI 317 and RSCH 202.

ASCI 388 Helicopter Flight Planning 3 Credits (3,0)
During this course, the student obtains the foundation for FARs as they relate to flight planning and navigation for various operations. The student will be able to use regulatory and operational considerations used in helicopter flight operations. Remote location operations and low level flight and navigation procedures will be studied closely. Cargo planning for internal and external operations nodes during near-ground operations will be discussed. By the end of the course, the student will have sufficient knowledge to understand the concepts necessary for effective flight planning and operation in the commercial helicopter industry. Prerequisite: FAA/military helicopter pilot certificate or course listed.
Prerequisites: ASCI 317 and RSCH 202.

ASCI 396 Co-op Ed Aeronautical Science 1-6 Credit (1-6,0)
The student will gain practical learning experience in full-time or part-time employment that is related to the students degree program and career goals. Course title and level are based on the work assignment.

ASCI 397 Co-op Ed Aeronautical Science 1-6 Credit (1-6,0)
The student will gain practical learning experience in full-time or part-time employment that is related to the students degree program and career goals. Course title and level are based on the work assignment.

ASCI 398 Co-op Ed Aeronautical Science 1-6 Credit (1-6,0)
The student will gain practical learning experience in full-time or part-time employment that is related to the students degree program and career goals. Course title and level are based on the work assignment.

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 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.
Prerequisites: RSCH 202.

ASCI 401 Airport Development and Operations 3 Credits (3,0)
Managerial problems of small- and medium-size airports and fixed base operations are examined, with emphasis on federal, state, and local obligations; leases; internal guidelines; and community relations.
Prerequisites: RSCH 202.

ASCI 404 Applications in Aviation/Aerospace Law 3 Credits (3,0)
Applications in Aviation/Aerospace Law explores the chronological development, federal and state regulatory functions, and rights and liabilities of pilots, maintenance personnel, aircraft manufacturers, and airport and aircraft operators. Students will examine case histories, liens and security interest in aircraft, as well as international conferences, bilateral and multilateral agreements, and criminal statutes. Students will also examine the legal aspects of unmanned aerial systems and operations, as well as space commercialization.
Prerequisites: RSCH 202.

ASCI 406 Airborne Law Enforcement 3 Credits (3,0)
Airborne Law Enforcement covers the historical and modern issues that shape present day airborne law enforcement organizations. Students will study how airborne law enforcement impacts the criminal justice system. Additionally, operational issues, including management of airborne law enforcement units will be studied. Aviation laws and civil/criminal laws that effect airborne law enforcement operations will also be covered. Students will review pilot and crew duties along with aircraft selection and emerging technologies that impact present day airborne law enforcement organizations. The role of airborne law enforcement in preventing and responding to terrorist threats is also reviewed. Safety issues, as they apply to airborne law enforcement, will also be studied.
Prerequisites: RSCH 202.

ASCI 410 Unmanned Sensing Systems 3 Credits (3,0)
This is the capstone course of the Unmanned Aerial Systems minor, aimed at giving the students direct experience with the planning and effective conduct of complex missions involving the proper use of complex sensing systems on unmanned aircraft. Through guided discussion and team effort, students will address complex mission assignments by determining the proper sensing system to use, assessing alternate courses of action, selecting and / or designing appropriate unmanned aircraft equipped with the sensing system appropriate to the mission and by performing other tasks as required to achieve mission success.
Prerequisites: RSCH 202.

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.
Prerequisites: RSCH 202.

ASCI 419 Aviation Maintenance Management: A Global Perspective 3 Credits (3,0)
The curriculum within this course provides a comprehensive examination of maintenance policies, procedures and practices employed in the management of aviation maintenance programs in a global, multiorganizational industry. Emphasis is placed on all aspects of maintenance management, including organizational management, planning, forecasting, cost control, reliability, flight scheduling, and safety.
Prerequisites: RSCH 202.

ASCI 424 Maintenance Repair and Overhaul in Aviation 3 Credits (3,0)
The curriculum within this course provides an in-depth analysis of the requirements, policies, and procedures necessary for the operation of a Maintenance Repair and Overhaul (MRO) organization Topics include; airline maintenance operations, engineering, and maintenance. Also included is the repair of structures, systems, and aircraft components. Furthermore, the curriculum explores MRO financing, domestic and off-shore operations, regulatory requirements, logistics, supply chain support, human resources and industry oversight.

ASCI 425 Selected Topics in Space and Aerospace 3 Credits (3,0)
This course introduces students to problems in space operations, space flight, or other space-related topics that can be critically addressed from a knowledge base of elementary calculus, elementary physics, and the subject matter of any two Space Studies courses. The specific topics will be selected by the course monitor and instructor and published in the course schedule.
Prerequisites: RSCH 202.

ASCI 428 Advanced Helicopter Systems and Functions 3 Credits (3,0)
During this course, the student will study 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: FAA/military helicopter pilot certification or courses listed.
Prerequisites: ASCI 317 and ASCI 388 and RSCH 202.

ASCI 429 Advanced Technologies in Design and Production of Aircraft Structures & Systems 3 Credits (3,0)
The curriculum within this course explores advanced technologies used during the design, production, and certification of aircraft structures and systems. Topics include an analysis of structural materials, including advanced composites and alloys, and an in-depth examination of the design and production of automated systems utilized throughout the aircraft. Examined are national and international aviation regulations and airworthiness standards governing the design, production, and certification of aircraft structures and systems.

ASCI 433 Aviation Logistics and Supply Chain Management 3 Credits (3,0)
The curriculum within this course focuses on concepts and application of logistics and supply chain management utilized within the aviation maintenance industry to increase efficiency in production and maintenance. The curriculum examines the logistics support from Maintenance Repair Operators (MRO) and Original Equipment Manufacturers (OEM) in aviation maintenance operations. Topics include; international collaboration and strategies to improve customer relationships and operational effectiveness within the dynamic aviation maintenance industry.

ASCI 438 Advanced Helicopter Operations 3 Credits
During this course, the student will obtain the foundation for advance and specialized commercial helicopter operations. The student will be introduced to specific areas of flight operations such as Long Line, EMS, Electronic News Gathering, Corporate, Off-Shore, and Federal and Municipal Law Enforcement. Emphasis will be placed on developing a safe and competent pilot who is adequately prepared for flight operations in these areas, and can assume the duties of any managerial position. The student will receive training in standard operating, safety and training procedures, aircraft selection, operating and capital budgets, aircraft purchasing and leasing agreements, and an understanding of maintenance requirements to include maintenance tracking, spare parts inventory, and record keeping. By the end of the course, the student will have sufficient knowledge to understand the concepts necessary for employment in the commercial helicopter industry.
Prerequisites: ASCI 317 and ASCI 388 and ASCI 378 and RSCH 202.

ASCI 490 Aeronautical Science Capstone Course 3 Credits (3,0)
The Aeronautical Science Capstone Course is the culminating effort of the student's entire learning experience. The student will complete a project that provides significant evidence of experience in aviation and aeronautical studies. Students will work with designated faculty members to formulate, develop, and complete the aviation/aeronautical project. The completion of the Capstone Course is designed to document significant evidence that program outcomes have been met, and provides the student evidence of experience to show to current and prospective employers. The Capstone Course will be taken at the end of the student's degree program.
Prerequisites: RSCH 202.

ASCI 496 Co-op Ed Aeronautical Science 1-6 Credit (1-6,0)
These courses offer 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 the work assignment. Continuation of ASCI 396, ASCI 397, ASCI 398.

ASCI 497 Co-op Ed Aeronautical Science 1-6 Credit (1-6,0)
These courses offer 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 the work assignment. Continuation of ASCI 396, ASCI 397, ASCI 398.

ASCI 498 Co-op Ed Aeronautical Science 1-6 Credit (1-6,0)
These courses offer 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 the work assignment. Continuation of ASCI 396, ASCI 397, ASCI 398.

ASCI 499 Special Topics in Aeronautical Science 1-3 Credit
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.

Air Force Aerospace Studies (USAF)

Courses

USAF 101 The Foundation of the United States Air Force 1 Credit (1,0)
A survey course designed to introduce students to the United States Air Force and provide an overview of the basic characteristics, missions and organization of the Air Force.
Corequisites: USAF 101L.

USAF 101L Leadership Laboratory 0 Credits (2,0)
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.
Corequisites: USAF 101.

USAF 102 The Foundation of the United States Air Force 1 Credit (1,0)
A survey course designed to introduce students to the United States Air Force and provide an overview of the basic characteristics, missions and organization of the Air Force.
Prerequisites: USAF 101 **Corequisites:** USAF 102L.

USAF 102L Leadership Laboratory 0 Credits (2,0)
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.
Corequisites: USAF 102.

USAF 201 The Evolution of USAF Air and Space Power 1 Credit (1,0)
Introduces topics on Air Force heritage and leaders, introduction to air and space power through examination of competencies, functions and continued application of communication skills.
Prerequisites: USAF 102 **Corequisites:** USAF 201L.

USAF 201L Leadership Laboratory 0 Credits (2,0)
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.

USAF 202 The Evolution of USAF Air and Space Power 1 Credit (1,0)
Introduces topics on Air Force heritage and leaders, introduction to air and space power through examination of competencies, functions and continued application of communication skills.
Prerequisites: USAF 201 **Corequisites:** USAF 202L.

USAF 202L Leadership Laboratory 0 Credits (2,0)
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.
Corequisites: USAF 202.

USAF 301 Air Force Leadership Studies 3 Credits (3,0)
Teaches cadets advanced skills and knowledge in management and leadership. Emphasis placed on enhancing leadership skills. Cadets have an opportunity to try out these leadership/management techniques in a supervised environment as juniors and seniors.
Prerequisites: USAF 202 **Corequisites:** USAF 301L.

USAF 301L Leadership Laboratory 0 Credits (2,0)
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.
Corequisites: USAF 301.

USAF 302 Air Force Leadership Studies 3 Credits (3,0)
Teaches cadets advanced skills and knowledge in management and leadership. Emphasis placed on enhancing leadership skills. Cadets have an opportunity to try out these leadership/management techniques in a supervised environment as juniors and seniors.
Prerequisites: USAF 301 **Corequisites:** USAF 302L.

USAF 302L Leadership Laboratory 0 Credits (2,0)
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.
Corequisites: USAF 302.

USAF 401 National Security Affairs Preparation for Active Duty 3 Credits (3,0)
A foundation for seniors to understand their role as military officers in American society. An overview of the complex social and political issues facing the military profession.
Prerequisites: USAF 302 **Corequisites:** USAF 401L.

USAF 401L Leadership Laboratory 0 Credits (2,0)
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.
Prerequisites: USAF 401.

USAF 402 National Security Affairs Preparation for Active Duty 3 Credits (3,0)
A foundation for seniors to understand their role as military officers in American society. An overview of the complex social and political issues facing the military profession.
Prerequisites: USAF 401 **Corequisites:** USAF 402L.

USAF 402L Leadership Laboratory 0 Credits (2,0)
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.
Corequisites: USAF 402.

USAF 403L Leadership Laboratory 0 Credits
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.

USAF 404L Leadership Laboratory 0 Credits
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)
This course is an introduction to general aeronautics. It includes the study of physical mathematics, weight and balance, FAA regulations, common and special tools and measuring devices, fluid lines, hardware, aircraft servicing, and documentation (Part 65).

AMNT 260 Aircraft Electrical Systems Theory 3 Credits (3,0)
Students are provided an introduction to aircraft electrical systems. Discussions include a study of the principles and concepts of basic DC and AC electrical theory, magnetism, batteries, generators, motors, voltage regulators, circuit protection, and electrical component installations (FAR Part 65).

AMNT 265 Aeronautical Electronics for Aviation Maintenance Technicians 3 Credits (3,0)
Aircraft radio communication and radar systems used on modern aircraft will be studied in this course. Students will become familiarized with radio laws and regulations, radio wave propagation, electrical and electronic principles, radio practice, circuit components, practical circuits, signals and emissions, radar systems and antennas, and power feeder lines. System knowledge will be applied to the activities of maintenance technicians required to possess the Federal Communications Commission's "General Radiotelephone Operator's License". This course should be limited to those with aviation maintenance/ avionics experience or permission of the instructor.

AMNT 270 Airframe Structures and Applications 3 Credits (3,0)
This course focuses on a study of aircraft wood, dope, fabric, sheet metal, welding theory, and methods of fabrication (FAR Part 65).

AMNT 271 Airframe Systems and Applications 3 Credits (3,0)
A study of airframe systems such as aircraft electrical systems, fuel systems, cabin atmosphere control systems, instrument systems, communication and navigation systems, ice and rain control systems, fire protection systems, and aircraft inspection (FAR Part 65).

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 systems, flight management computers, weather, radar, and communications systems. Students taking this course should have significant aviation maintenance experience or permission of the instructor.

AMNT 275 Aircraft Maintenance Practicum 8 Credits (8,0)
Enrolled students who have a minimum of 18 months on-the-job experience subsequent to technical training in an approved aircraft maintenance specialty may receive credit for this course after completion of all required Part 65 AMT coursework. (This course applies only to the Part 65 AMT Program.)

AMNT 280 Powerplant Theory and Applications 3 Credits (3,0)
The goal of this course is to provide an in-depth study of the reciprocating engine. Topics include theory, construction, fuel metering, lubrication, exhaust, engine installation and overhaul, and operational maintenance procedures (FAR Part 65).

AMNT 281 Aircraft Propulsion Systems and Applications 3 Credits (3,0)
Theory, principles of operation, and controls and systems for propellers and turbine engines are analyzed in this course (FAR Part 65).

AMNT 285 Advanced Aircraft Maintenance Practicum 4 Credits (4,0)
Enrolled students who are qualified for the award of AMNT 275 credit and have a minimum of 30 months on-the-job experience subsequent to technical training in an approved aircraft maintenance specialty may receive credit for this course after completion of all required Part 65 AMT coursework. (This course applies only to the Part 65 AMT Program.)

Business Administration (BSAB)

Courses

BSAB 410 Management of Air Cargo 3 Credits (3,0)
This course offers intensive study of the practices and problems of management with respect to air cargo. The importance of air cargo service to the economy, development of the industry, regulation, complexity of the market, carriers, freight forwarders and third party logistics, along with rate and tariff problems, aircraft, terminal facilities, and future prospects are all discussed.

BSAB 412 Airport Planning and Design 3 Credits (3,0)
The principles of airport planning and design are studied. This course covers essential elements of current U.S. and international airport planning and design trends, including 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, and capacity and delay effects. The course also focuses on environmental planning, such as hazardous wildlife attractants, airport noise, and compatible land use.

BSAB 415 Airline Management 3 Credits (3,0)
An introduction to the administrative aspects of airline operation and management is provided in this course. Topics include the 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.

BSAB 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.

BSAB 418 Airport Administration & Finance 3 Credits (3,0)
The student will be presented with an opportunity for advanced study of the organizational, political, and financial administration of public and private civil use airports. Areas of emphasis include public relations management, safety and security issues, employee organizational structures, financial and accounting strategies, revenue and expense sources, economic impacts of airport operations, airport performance measurement standards, aircraft rescue and firefighting, emergency management, airport dispatch and communications, and current trends and issues of direct concern to airport administrators.

BSAB 425 Trends and Current Problems in Air Transportation 3 Credits (3,0)
An analysis of selected contemporary issues, problems, and trends facing management in various segments of the aviation industry, including general aviation and the airlines, will be covered. Students apply previously learned concepts to practical problems to develop increased understanding and demonstrate knowledge of the subject.

BSAB 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.

BSAB 450 Airline/Airport Marketing 3 Credits (3,0)
Students will conduct an investigation of the role of marketing in the aviation/airport industries. Issues covered include consumer segmentation, database management, integrated marketing communications, public relations, vendor relations, and retailing.

Chemistry (CHEM)

Courses

CHEM 140 Chemistry for Engineers 4 Credits (4,0)
Chemical stoichiometry, states of matter, solutions, thermodynamics, rate of reaction, equilibrium, oxidation-reduction, corrosion, organic compounds, and polymers. Co-Requisite: CHEM 141.

CHEM 141 Chemistry for Engineers Laboratory 1 Credit (1,0)
One three hour laboratory session per week, with experiments paralleling the material in CHEM 140. Topics include chemical stoichiometry; states of matter; solutions; thermodynamics; rate of reaction; equilibrium; oxidation-reduction; corrosion; organic compounds and polymers. Co-Requisite: CHEM 140.

Communication (COMD)

Courses

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 221 or ENGL 222.

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)
COM 265 offers Communication majors theory and practice in fundamentals of various journalistic genres: news reporting, features, interviews, spot news, page layout, interpretive journalism, and more. This course introduces students to use of AP Stylebook, libel law, and ethical issues in journalism.
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 221 or ENGL 222.

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 221 or ENGL 222.

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)
This course centers on national and regional environmental issues, including planning, regulation, and crises. Topics include responses to climate change, endangered species, wetlands preservation, coastal development and hazardous materials regulation. Field trips and guest speakers will be included. Students learn how to research and write articles and stories for nature and environmental magazines as well as general-audience media.
Prerequisites: ENGL 221 or ENGL 222.

COMD 360 Media Relations I 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: SPCH 219.

COMD 362 Communication and Organizational Culture 3 Credits (3,0)
This course is a study of theory, survey and application of research methods for analysis of communication. Instructors may choose to apply methods in a variety of contexts, such as in house publications, internal communication, speeches and interview communication.

COMD 363 Communication and Society 3 Credits (3,0)
An examination of human communication in a variety of cultural settings. Topics vary from semester to semester. Communication behavior is viewed expansively to include verbal discourse, symbolic imagery, nonverbal communication, literature, music and other art forms. Focus is on understanding communication behavior as symbolic action, as constructive of social reality, and as a means for entry into cultural and subcultural group experience.
Prerequisites: SPCH 219.

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 or ENGL 222 and COMD 265.

COMD 415 Nonverbal Communication 3 Credits (3,0)
Nonverbal Communication entails the study of communication behaviors and processes, not involving the expression of written or spoken words, which contribute information to a message. Special attention is directed to the study of voice qualities; facial expression and body language; space, personal distance, and touch; the use of time and objects; and personal appearance. Study also involves nonverbal communication in applied settings, as well as research strategies for observing, measuring, and understanding nonverbal phenomena.
Prerequisites: SPCH 219 and ENGL 221 or ENGL 222.

COMD 420 Applied Cross Cultural Communication 3 Credits (3,0)
An examination of the challenges to communicating across the variety of subcultures present in work environments. Ethnicity, nationality, gender, physical impairment and sexuality are among the areas of difference often present in business and professional environments which may influence the establishment of cooperative working relationships. Means for analyzing and developing strategies to transcend and make positive use of sub-cultural differences will be considered.
Prerequisites: SPCH 219 and ENGL 221 or ENGL 222.

COMD 460 Media Relations II 3 Credits (3,0)
Mastery of writing and speaking genres in media relations with an emphasis on crisis communication.
Prerequisites: COMD 265 and COMD 360.

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. Prerequisite: Senior status.

COMD 495A Internship 3 Credits (300,0)
One option for the capstone experience for the communication program. Provides students experience in the communication field. Requires students to apply for and complete an appropriate internship, in consultation with the instructor, offering them practical experience that reinforces theoretical concepts learned in the classroom and aids in bridging the gap between student life and the world of work. Prerequisite: Senior status.

Computer Engineering (CESC)

Courses

CESC 220 Digital Circuit Design 3 Credits (3,0)
Introduction to logic design and interfacing digital circuits. Boolean algebra, combinatorial logic circuits, digital multiplexers, circuit minimization techniques, flip-flop storage elements, shift registers, counting devices, and sequential logic circuits.

CESC 222 Digital Circuit Design Laboratory 1 Credit (1,0)
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.

Computer Science (CSCI)

Courses

CSCI 109 Introduction to Computers and Applications 3 Credits (3,0)
Students are required to already have an understanding of traditional computer-based applications before beginning CSCI 109. These applications include word processing, basic spreadsheet use, basic database use, basic presentation software use, electronic mail, and accessing web resources via the Internet. The purpose of this course is to build on students' existing knowledge of using computer systems and pertinent applications. Students will increase their skills with the most popular computer applications such as word processing, spreadsheet, electronic mail, presentation software, and Internet. Computer literacy is presented through lectures, discussions, and readings on the computer process, the impact of computers on society, emerging technologies, and hardware and software purchasing decisions.

CSCI 299 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 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.

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 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 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.
Prerequisites: ECON 210 and RSCH 202.

ECON 312 Money and Banking 3 Credits
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 ECON 211 RSCH 202.

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. Prerequisite: Junior Standing.
Prerequisites: ECON 210 and MATH 211 or MATH 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. Prerequisite: Consent of instructor and approval of the department chair.

ECON 411 International Economics 3 Credits
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 ECON 211 RSCH 202.

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 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. Prerequisite: Consent of instructor and approval of the department chair.

Engineering (ENGR)

Courses

ENGR 101 Introduction to Engineering 3 Credits (3,0)
This course is an introduction to the interdisciplinary aspects of the engineering of aerospace systems. It is a project-based course, demonstrating how the engineering profession is a multi-disciplinary field. Students are involved in an array of conceptual exercises, simple design activities, and projects dealing with engineering in aerospace-related areas.

ENGR 115 Introduction to Computing for Engineers 3 Credits (3,0)
This is an introductory course in programming and computing for scientists and engineers. The course introduces students to the following aspects of software engineering: specification, requirements, design, code, and test. This course uses a problem-solving approach for developing algorithms. The following topics will be included: data types and related operations, looping, decision, input/output, functions, arrays, files, and plotting.

ENGR 119 Graphical Communications 2 Credits (2,0)
Free-hand pencil sketching and CAD as tools for graphical communication of engineering designs. Standard forms for design graphics and view layout, orthographic projection, section and auxiliary views, dimensioning, tolerancing, introduction to shop processes. Prerequisite: Enrollment in an engineering program.

ENGR 120 Graphical Communications 3 Credits (3,0)
Students will use free-hand pencil sketching and CAD as tools for graphical communication of engineering designs. Standard form for design graphics and view layout, orthographic projection, section and auxiliary views, dimensioning, tolerancing, introduction to shop processes.

ENGR 200 Computer Aided Conceptual Design of Aerospace Systems 3 Credits (3,0)
This course is a study of the application and use of a high end computer aided design (CAD) tool for graphical communication of conceptual engineering designs. Topics include definition of standards and conventions for generating part and assembly drawings as well as introductory methods for creating and documenting conceptual aerospace systems design, application of rapid prototyping methods for constructing and integrating aerospace models.

Engineering Science (ESCI)

Courses

ESCI 105 Fundamentals of Engineering 3 Credits (3,0)
This course explores the topic of engineering and is appropriate for both those intending to major or specialize in engineering (or engineering sciences) and those with an interest in learning about the design process and other aspects of the engineering profession. Students will learn how to formulate, articulate, and solve problems, how to work on a conceptual design team, and how to present the results of engineering work in oral and written form. Students will also learn about the different disciplines of engineering and the multidisciplinary nature of modern engineering design.
Corequisites: MATH 251.

ESCI 201 Statics 3 Credits (3,0)
The purpose of this course is to provide the engineering student with the ability to analyze static equilibrium problems in a logical manner. It is designed to provide assistance to the student for preparation in all solid mechanics courses. Emphasis is placed on an understanding of principles employed in the solution of problems rather than reliance on a rote process of substitution in numerous formulas.
Prerequisites: PHYS 150.

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. Prerequisite: ESCI 201.

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.

Engineering Technology (ETEC)

Courses

ETEC 310 Engineering Materials 3 Credits (3,0)
This course includes an introduction to materials science and engineering. Emphasis is given on the "processing, structure, properties, performance" relationships that lead to the development of materials for society's needs. Examples are drawn from the major materials classes.

ETEC 315 Circuit Analysis 3 Credits (3,0)
This course provides a comprehensive review of the Kirchhoff's laws, resistive circuits and equivalent circuit study of electric circuits and networks. The course also includes first-order transients, sinusoidal steady-state analysis, and frequency response. Emphasis is given on basic principles and their application to circuit analysis using linear algebra and calculus.

ETEC 410 Thermodynamics 3 Credits (3,0)
This course is designed to provide a comprehensive review of the heat, work, and kinetic theory of gases, equation of state, thermodynamics system, control volume, first and second laws of thermodynamics, reversible and irreversible processes, and introduction to basic thermodynamic cycles.

ETEC 415 Control Systems 3 Credits (3,0)
This course is designed to provide a comprehensive review of the analyses of closed loop systems using frequency response, root locus, and state variable techniques. System design is performed based on analytic and computer methods. This is an introductory control systems course. It presents a broad overview of control techniques for continuous and discrete linear systems, and focuses on fundamentals such as modeling and identification of systems in frequency and state-space domains, stability analysis, graphical and analytical controller design methods.

ETEC 420 Applications of Engineering Technology 3 Credits (3,0)
This course is designed to provide a comprehensive review of various engineering disciplines. The engineering disciplines include mechanical, electrical, aerospace, civil, systems and computer Engineering.

ETEC 485 Professional Seminar 1 Credit (1,0)
As part of this course, professional seminars by internal and external speakers will be offered throughout the semester. These seminars will cover topics of current interest or provide in-depth coverage of selected topics from the core courses.

ETEC 490 Engineering Technology Capstone 3 Credits (3,0)
This course is designed for students to conduct a senior design project. The project includes project statement, in-depth survey, conceptual and structural design, analysis, statistical and cost analyses, ethical, societal and environmental impact, evaluation and revision of design for the global arena with multi-cultural and multi-national perspective, prototype construction, and final presentation.

English (ENGL)

(Communication Theory & Skills)

Review the ERAU Worldwide English placement policy under the Placement Examinations (p. 24) *section of the Worldwide Catalog.*

Courses

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. Prerequisite: Qualifying score on the ERAU English Placement Examination or course listed.
Prerequisites: GNED 104.

ENGL 123 English Composition 3 Credits (3,0)

This course focuses on the principles of using writing for thinking, as well as a tool for expressing ideas. It addresses the composing process, research and documentation, and rhetorical strategies for various audiences and purposes. Students develop their communicative, evaluative, critical thinking, and research writing abilities. Prerequisite: Qualifying score on the ERAU English Placement Examination or course listed.
Prerequisites: ENGL 106.

ENGL 143 Studies in Rhetorical Theory 3 Credits (3,0)

This course is a broad survey of speculation concerning the nature and techniques of persuasion, this course is a continuation of ENGL 123. This writing-intensive course will focus on enduring issues in the study of rhetoric: the value of such a study, the nature of audiences, the most effective techniques, and the continual re-framing of these issues to meet changing circumstances.

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.

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.

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.

Fire Science (FIRE)

Courses

FIRE 299 Current Topics in Fire Science 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 FIRE Courses.

FIRE 300 Fire-Related Human Behavior 3 Credits (3,0)

This course presents a study of human behavior in fire and other emergency situations. Students will examine current and past research on human behavior, systems models, life safety education and building design to determine interactions of these areas in emergency situations. Students will develop an understanding of a best practice building life safety system as one that combines knowledge in the areas of psychology and sociology joined with engineering and education to produce the best possible outcomes in terms of human survivability in an emergency.

FIRE 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.

FIRE 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.

FIRE 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.

FIRE 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.

FIRE 305 Fire Prevention Organization and Management 3 Credits (3,0)

This course examines the factors that shape fire risk and the tools for fire prevention, including risk reduction education, codes and standards, inspection and plans review, fire investigation, research, master planning, various types of influences, and strategies.

FIRE 399 Current Topics in Fire Science 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 FIRE Courses.

FIRE 400 Analytical Approaches to Public Fire Protection 3 Credits (3,0)

This course examines the tools and techniques of rational decisionmaking in fire and emergency services agencies, including data collection, statistics, probability, decision analysis, utility modeling, resource allocation, and cost-benefit analysis.
Prerequisites: RSCH 202.

FIRE 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.

FIRE 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.
Prerequisites: RSCH 202.

FIRE 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.

FIRE 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.
Prerequisites: RSCH 202.

FIRE 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.
Prerequisites: RSCH 202.

FIRE 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.
Prerequisites: RSCH 202.

FIRE 410 Terrorism: Roots and Responses 3 Credits (3,0)
This course examines the development and evolution of terrorism, including historical and contemporary contexts within domestic and international settings. The course provides a framework for understanding terrorist organizations, their motivations, intended impacts, financing, and the role of media in proliferation of terrorist activity. Counterterrorism measures, response, and emergency management roles and responsibilities are examined within the pre and post-9/11 construct. Chemical, biological, nuclear, cyber terrorism, low-intensity warfare, super terrorism, explosives, suicide killers are explored, with the future of terrorism and society?s ability to prevent, respond, and recover studied.
Prerequisites: RSCH 202.

FIRE 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.
Prerequisites: RSCH 202.

FIRE 499 Current Topics in Fire Science 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 FIRE Courses.
Prerequisites: RSCH 202.

General Education (GNED)

Courses

GNED 103 Basic Mathematics 1 Credit (1,0)
The purpose of this course is to enable the student who did not take algebra in high school or who took it several years ago to succeed in an intermediate algebra course or in courses that require a very basic knowledge of the fundamentals of algebra. Topics included in the course are properties of the rational numbers to include review of operations with fractions, simple linear equations and inequalities in one variable, ratio, proportion, percent, basic operations with simple polynomials and applications to problem solving integrated throughout the course. This course cannot be used to satisfy credit for General Education requirements.

GNED 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.

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.
Prerequisites: RSCH 202.

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.
Prerequisites: RSCH 202.

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.
Prerequisites: RSCH 202.

GOVT 401 American Constitutional Law 3 Credits (3,0)
This course is a study of the basics of the United States Constitution and the rights of the individual. Included is the study of the First Amendment freedoms of speech, press, assembly, association, and religion; the right to privacy; and Fourteenth Amendment equal protection. Constitutional law pertaining to the rights of the criminally accused and the duties and responsibilities of the officer to protect and respect such rights is also studied.

GOVT 402 Globalization and World Politics 3 Credits (3,0)
This course is a study of the contemporary debate on globalization and new world order. 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.
Prerequisites: RSCH 202.

History (HIST)

(Social Sciences)

Courses

HIST 110 World History 3 Credits (3,0)
The course is designed primarily as a survey of the development and evolution of Western Civilization from 1500 to the present. Emphasis is placed on the effects of Western influence on the world.

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 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. (Also offered as PHYS 302. Students receive either social science elective credit or physical science elective credit, but not both.)

HIST 305 American Military History 3 Credits (3,0)
Students are provided an overview of military history in the United States. Emphasis will be on military policy, organization, and technology as they relate to political, economic, and social developments from 1775 to the present.

Humanities (HUMN)

Courses

HUMN 140 Western Humanities I: Antiquity and the Middle Ages 3 Credits (3,0)
This course traces the evolution of the Western Humanistic tradition from antiquity to the middle ages using examples from art, architecture, music, philosophy and literature with an emphasis on writing, reading and appreciation skills.

HUMN 141 Western Humanities II: Renaissance to Postmodern 3 Credits (3,0)
This course traces the evolution of the Western Humanistic tradition from the Renaissance to Postmodernism using examples from art, architecture, music, philosophy, literature and film with an emphasis on writing, reading and appreciation skills.

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.

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.

HUMN 299 Special Topics in Humanities 1-6 Credit (1-6,0)
These courses are individual independent or directed studies of selected topics in the humanities. Prerequisite: Consent of instructor and approval of the department chair.

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.

HUMN 310 American Literature 3 Credits (3,0)
This course is a survey of intellectual backgrounds, major works and literary trends in American literature. Course content varies by instructor and is listed in the Schedule of Courses.

HUMN 325 Exploring Film 3 Credits (3,0)
This course presents a survey of the art of film and explores the history of the cinema. Topics may include: basic elements, photography, continuity and rhythm, movement, imaging, music and sound, script writing, directing, editing, acting, great film artists/directors, cinematographers, actors, etc.

HUMN 330 Values and Ethics 3 Credits (3,0)
This course focuses on the process of practical ethics as a way of resolving moral conflict and of understanding professional responsibility in a multi-culturally diverse society without devaluating specific viewpoints of ethical or metaphysical theory, ideology, or religion. Students will use proposals, value judgments, observation statements, assumptions, and alternate-world assumptions in arguing contemporary issues of moral importance. With this basic moral logic, students will resolve issues in terms of rights, responsibilities, and the community of rational beings; in terms of consequences and contingencies; and in terms of habituated virtues and character. Free and unrestricted discourse will be encouraged so as to let students find common ground in diversity.
Prerequisites: RSCH 202.

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. Prerequisite: 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.

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. Prerequisite: Consent of instructor and approval of the department chair.

Life Science (BIOL)

Courses

BIOL 107 Elements of Biological Science 3 Credits (3,0)
This is a physical science course with emphasis on anatomy and physiology of man, including chemical and cellular basis of life, biology of organisms, and ecology. Topics discussed include biology and biochemistry, viruses bacteria and protista; aerobic respiration and photosynthesis, mitosis and meiosis; genetics and inheritance, hereditary disorders in humans, human tissues, organs and organ systems and infectious disease and immunity.

Management (MGMT)

Courses

MGMT 201 Principles of Management 3 Credits (3,0)
A comprehensive overview of relevant management principles and practices as applied in contemporary organizations, this course focuses on management theories, philosophies, and functions.

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.

MGMT 210 Financial Accounting 3 Credits (3,0)
This course introduces the student to accounting information systems and financial reports. Included are accounting concepts and analysis and interpretation of financial reports, with an emphasis on the operating activities of aviation-related businesses.

MGMT 221 Introduction to Management Information Systems 3 Credits (3,0)
The course integrates topics of management and organization theory, information and communication theory, information security, and systems theory. Special attention is given to computer hardware and software, telecommunications, database concepts, and e-commerce and Internet based business models.

MGMT 299 Special Topics in Management 1-4 Credit (1-4,0)
These are individual independent or directed studies of selected topics in management. Prerequisite: Consent of instructor and approval of the department chair.

MGMT 308 Public Administration 3 Credits (3,0)
The characteristics of organization and management in government will be discussed in this course. The course will center on the impact of political processes and public pressures on administration action, the role of regulatory agencies, governmental personnel, and budgetary procedures, and the unique qualifications of the public administrator.

MGMT 311 Marketing 3 Credits (3,0)
This course centers on marketing theory, marketing management, sales management, and market research. In addition, public and customer relations, advertising, and distribution will be explored.

MGMT 312 Managerial Accounting 3 Credits (3,0)
The course emphasizes management's use of cost information in internal decision making. Decision-making processes include cost analysis, control, allocation, and planning. A variety of accounting techniques applicable to aviation/aerospace companies are presented.

MGMT 314 Human Resource Management 3 Credits (40,0)
The focus of this course is on the functions to be accomplished in effectively managing human resources. An in-depth study of the interrelationship of managers, organizational staff, and/or specialists, will assist the student in understanding and applying management theories to real-world human resource planning. Areas of concentration include human resource planning; recruitment and selection; training and development; compensation and benefits; safety and health; and employee and labor relations.

MGMT 317 Organizational Behavior 3 Credits (3,0)
This course provides an overview and analysis of various behavioral concepts affecting human behavior in business organizations, with emphasis on research, theory, and practice.

MGMT 320 Business Information Systems 3 Credits (3,0)
A management approach to understanding business information systems is introduced in this course. The general characteristics, potential, and limitations of business systems are covered. Major emphasis is on understanding the inputs, processing, and outputs of a variety of business systems; the ways in which business systems are interrelated; and the inherent management problems involved in the implementation and control of such systems.

MGMT 321 Aviation/Aerospace Systems Analysis Methods 3 Credits (3,0)
An overview of the system development life cycle is provided in this course. Emphasis is on current system documentation through the use of both classical and structured tools/techniques for describing process flows, data flows, data structures, file designs, input and output designs, and program specifications.
Prerequisites: MGMT 221.

MGMT 322 Aviation Insurance 3 Credits (3,0)
An introduction to the basic principles of insurance and risk with special application to the aviation industry will be presented. The course offers an in-depth review of the aviation insurance industry in the United States, including the market and types of aviation insurers.

MGMT 324 Aviation Labor Relations 3 Credits (3,0)
This course focuses on an investigation of labor-management relations in the aviation industry. Examined are the history of unionism, structure of unions, legal environment, and the Railway Labor Act, collective bargaining, public sector relationships, grievance procedures, and conflict resolution.

MGMT 325 Social Responsibility and Ethics in Management 3 Credits (3,0)
The course provides a comprehensive inquiry into the major components of social responsibility and a study of moral and ethical issues that relate to problems in business. Focus will be on the economic, legal, political, ethical, and societal issues involving the interaction of business, government, and society.

MGMT 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.

MGMT 332 Corporate Finance I 3 Credits (3,0)
Students will learn about the finance function as used by management, including financial analysis and control; financial planning; short, intermediate, and long-term financing; and the theory of cost of capital and leverage in planning financial strategies. Aviation-related businesses are emphasized.

MGMT 333 Personal Financial Planning 3 Credits (3,0)
The nature of the personal financial planning process is examined. Areas of concentration include taxes, investments, purchase of housing/auto, insurance needs and analysis, use of credit, and retirement and estate planning. Students will develop a personal financial plan and will invest in a $500,000 portfolio of securities.

MGMT 335 International Business 3 Credits (3,0)
This course presents an analysis of economic development and international trade in modern times, with an examination of current U.S. relations with other nations. Attention will be focused on the impact of foreign trade on the aviation industry and the industry's contribution to economic development.
Prerequisites: MGMT 201.

MGMT 371 Leadership 3 Credits (3,0)
The focus of this course is about leadership in organizations. In the increasingly competitive global economy, leaders must develop the necessary skills to lead organizational development, change, and create a motivating workplace. This course focuses on analyzing the leadership skills that enhance organizational success. Topics discussed are the approaches and models of leadership, organization change, and organization development.
Prerequisites: MGMT 201.

MGMT 385 Programming Concepts 3 Credits (3,0)
This course presents a language-independent introduction to programming concepts in design and implementation. Topics covered include data types, control structures, arrays, files, functions, top-down modules design, and data validation. The course discusses the design issues of the various languages construct, examining the design choices for these constructs in some of the most common programming languages, and critically comparing design alternatives.
Prerequisites: MGMT 221.

MGMT 386 Fundamentals of Information Systems Security 3 Credits (3,0)
This course focuses on new risks, threats, and vulnerabilities in a digital world. The integration of the Internet and broadband communications into our everyday lives has created a need for information system security. Furthermore, compliance laws require organizations to protect and secure privacy data and reduce liability.
Prerequisites: MGMT 221.

MGMT 387 Managing Risk in Information Systems 3 Credits (3,0)
Managing Risk in Information Systems provides a unique, in-depth look at how to manage and reduce IT associated risks. This course provides a comprehensive explanation of the Risk, Response, and Recovery Domain in addition to providing a thorough overview of risk management and its implications on IT infrastructures and compliance.
Prerequisites: MGMT 386.

MGMT 388 System Forensics, Investigation, and Response 3 Credits (3,0)
Computer crimes call for forensics specialists, people who know how to find and follow the evidence. System Forensics, Investigation, and Response begin by examining the fundamentals of system forensics; such as what forensics is, the role of computer forensics specialists, computer forensic evidence, and application of forensic analysis skills. It also gives an overview of computer crimes, forensic methods, and laboratories. It then addresses the tools, techniques, and methods used to perform computer forensics and investigation. Finally, it explores emerging technologies as well as future directions of this interesting and cutting-edge field.
Prerequisites: MGMT 386.

MGMT 389 Information Assurance and Information Quality 3 Credits (3,0)
This course provides an overarching model for information assurance for businesses, government agencies, and other enterprises needing to establish a comprehensive plan. All the components of security and how they relate are featured. Topics include asset identification, human factors, compliance with regulations, personnel security, risk assessment and ethical considerations, as well as computer and network security tools and methods.
Prerequisites: MGMT 386.

MGMT 390 Business Law 3 Credits (3,0)
A survey of the legal aspects of business transactions is provided. Areas covered include contracts, agency, bailment, negotiable instruments, partnerships, corporations, consumer credit, and the government's influence on business law.

MGMT 391 Introduction to Project Management 3 Credits (3,0)
This course is designed to provide a general yet concise introduction to Project Management. The course offers up-to- date information (based on the PMBOK Guide) on how good project, program, and portfolio management can help achieve organizational success. Learners are introduced to a chronological approach to project management, with detailed explanations and examples for initiating, planning, executing, monitoring and controlling, and closing projects.

MGMT 392 Database Management 3 Credits (3,0)
Database systems are powerful, complex facilities for managing data. The advent of database management systems for personal computers in the 1980s moved database management into the hands of everyday users from all segments of the population. This course presents the fundamental concepts of database management. It covers key topics related to any database management system, including database models, database design and implementation, database management systems functions, and database management approaches.
Prerequisites: MGMT 221.

MGMT 393 Computer Networks 3 Credits (3,0)
Computer networks is a rapidly evolving field. This course presents an introduction to fundamental concepts in the design and implementation of computer communication networks, their protocols, and applications. Topics to be covered include: network architecture, fundamentals of data transmission, LAN technology and data link protocols, and network security.
Prerequisites: MGMT 221.

MGMT 394 Information Security Management 3 Credits (3,0)
This course presents the concepts of information security in an enterprise approach to provide managers with tools and understanding needed to allocate scarce security resources. Introduction to security attributes and policies, developing effective and appropriate enterprise security plans, threats, vulnerabilities, and risk management concepts. Study of the architecture of an enterprise security system is developed to include a need analysis, levels of protection, detection strategies and correction/recovery with crisis management, risk analysis, and business continuity plans.
Prerequisites: MGMT 221.

MGMT 396 Cooperative Education Management 1-6 Credit (1-6,0)
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 the work assignment.

MGMT 397 Cooperative Education Management 1-6 Credit (1-6,0)
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 the work assignment.

MGMT 398 Cooperative Education Management 1-6 Credit (1-6,0)
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 the work assignment.

MGMT 399 Special Topics in Management 1-4 Credit (1-4,0)
These are individual independent or directed studies of selected topics in management. Prerequisite: Consent of instructor and approval of the department chair.

MGMT 401 Information Security Policies 3 Credits (3,0)
This course provides students with an introduction to information security policies. The course is designed to provide students with the foundation for developing and implementing policies. It also assists students with the effective evaluation of policies. Several examples from different information security domains are incorporated to assist the students learn in context of real life situations.
Prerequisites: MGMT 386.

MGMT 402 Legal Issues in Information Security 3 Credits (3,0)
This course addresses the area where law and information security concerns intersect. Information systems security and legal compliance are now required to protect critical governmental and corporate infrastructure, intellectual property created by individuals and organizations alike, and information that individuals believe should be protected from unreasonable intrusion. Organizations must build numerous information security and privacy responses into their daily operations to protect the business itself, fully meet legal requirements, and to meet the expectations of employees and customers.
Prerequisites: MGMT 386.

MGMT 403 IT Audit and Control 3 Credits (3,0)
The course is designed to provide a foundation for the study of information technology (IT) auditing and the IT audit process. The course introduces the fundamentals of IT auditing, main reasons why IT auditing is a specialized area of auditing, and the principle objectives of IT auditing. The course emphasizes business management issues regarding the security and control of IT and the achievement of value through managed IT processes. Students will also be introduced to control evaluation techniques and a number of the primary references used by IT professionals and IT auditors regarding IT management and control.
Prerequisites: MGMT 386.

MGMT 404 Business Continuity & Disaster Recovery Planning 3 Credits (3,0)
Every year, nearly one in five businesses, non-profit and government activities suffer major disruptions to their ongoing operations because of catastrophic failures in their critical information systems. And although information systems and their technologies can provide some measure of "fail-safe" capabilities, without management attention to business continuity planning, the organization is putting its institutional life at risk! This course addresses the strategic, tactical and day-to-day operational planning and implementation of an integrated set of plans that assure the long-term survivability of the organization's ability to keep doing business in the face of major malware threats, natural disasters, or man-made hazards that could cripple or destroy the information flow that business decision making depends upon. In doing so, the course places contingency planning and response into a solid information risk management and information security framework. By focusing on critical information flow - and how people use information systems and technologies to make and carry out decisions before, during and after disaster strikes - the course sheds light on critical decisions that organizations must make, both technology issues and technology-independent considerations.
Prerequisites: MGMT 386.

MGMT 405 General Aviation Marketing 3 Credits (3,0)
Marketing and management concepts applicable to FBOs and other general aviation enterprises are studied. Travel analysis is performed to determine the need for a business aircraft.

MGMT 408 Airport Management 3 Credits (3,0)
The focus of this course will be an examination of the management of airports. Emphasis is on the facilities that comprise an airport system, including airspace, airfield, terminal, and ground access operations.

MGMT 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.

MGMT 419 Aviation Maintenance Management 3 Credits (3,0)
Students will perform a comprehensive examination of organizational maintenance policies, programs, and procedures. Emphasis is on maintenance planning, forecasting and cost control, reliability, safety, and flight schedule performance.

MGMT 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.

MGMT 421 Small Business Management 3 Credits (3,0)
The student will undertake an analysis of the theoretical and practical knowledge necessary to be successful in conceiving, initiating, organizing, and operating a small business. Special focus will be placed on small businesses in the aviation field.

MGMT 422 Information Technology Management, Strategy, and Governance 3 Credits (3,0)
The course examines how firms use IT to architect a foundation for executing their business strategies and competing on information products and services. Information Technology departments are required to increase system performance and improve availability while simultaneously reduce costs and improve quality. The use of best practices methods and metrics must be used.
Prerequisites: MGMT 221.

MGMT 424 Project Management in Aviation Operations 3 Credits (3,0)
This course introduces the student to the concept of project management in aviation operations. It addresses the three-dimensional goals of every project: the accomplishment of work in accordance with budget, schedule, and performance requirements. The procedures for planning, managing, and developing projects in an aeronautical environment are covered, as well as the aspects of controlling project configuration from inception to completion. Automated tools used to determine cost, schedule, staffing, and resource allocation are covered, as well as the process of determining the effectiveness and technical validity of aviation-related projects.
Prerequisites: MGMT 391.

MGMT 427 Management of the Multicultural Workforce 3 Credits (3,0)
Students are provided with an opportunity to explore management of the multicultural workforce. The elements of cultural anthropology and international business, communicating across cultures, contrasting cultural values, and managing and maintaining organizational culture are addressed in the context of international aviation management.

MGMT 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: MGMT 221.

MGMT 436 Strategic Management 3 Credits (3,0)
Strategic management principles involving strategy, formulation, implementation, evaluation, and organization analysis are studied in this management capstone course. Case analysis and the use of strategic management principles are used to examine and solve organizational problems.
Prerequisites: MGMT 201.

MGMT 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: listed courses or the equivalent of each of these courses.
Prerequisites: MGMT 411.

MGMT 441 Introduction to Management Science 3 Credits (3,0)
The study of management science encompasses the logical approach to solving optimal decision-making managerial problems by developing mathematical models. The course explores concise examples of how to solve these models as they apply in the industry. Topics to be covered include linear programming, sensitivity analysis, transportation and assignment models, inventory models, critical path method, program review and evaluation technique analysis, decision and queuing theory.

MGMT 442 Introduction to Operations Management 3 Credits (3,0)
Operations Management is a study of activities that create value in the form of goods and services by transforming inputs into outputs. The course will cover the principles of management to the planning, control, design, operation, and updating of operational systems both in the manufacturing and service sectors. Topics such as forecasting, total quality management, process control techniques, capacity management, location strategies, layout strategies, inventory management, material requirements planning, aggregate planning, and supply chain management, will be covered.

MGMT 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.

MGMT 449 Strategic Marketing Mgmnt 3 Credits (3,0)
This is a capstone marketing course that focuses on strategic analysis and planning by aviation marketing managers. Emphasis will be given to corporate and marketing strategy, market analysis, and targeting, strategic marketing programming, and market control.

MGMT 452 Construction Estimating & Bidding 3 Credits (3,0)
This course will develop the student's ability to perform material, labor, subcontract and equipment take-off quantities from construction drawings and specifications. Students are required to perform quantity takeoffs of materials, labor, equipment and subcontracts using a standard set of plans and specifications. Both manual and electronic take-off procedures are covered, beginning with a residential structure.

MGMT 453 Construction Scheduling & Control 3 Credits (3,0)
This course provides students with a thorough understanding of project planning and scheduling principles utilized in facilities and construction management. It introduces various planning and control techniques in an integrated planning and control system. It helps students develop an understanding of time, cost, and resource management principles as well as ethics issues involved. The course also provides an overview of advanced project planning concepts.

MGMT 454 Facilities Mechanical and Electrical Systems 3 Credits (3,0)
This course is an introduction to the basics of Mechanical, Electrical, Plumbing and Fire Protection systems (MEP). This includes the installation of these systems in buildings, resources for estimating and basic plan reading of the components of MEP systems in construction documents.

MGMT 455 Construction Systems 3 Credits (3,0)
This course provides an introductory overview of the various materials used in construction. After receiving an introduction into fundamental principles of structural, physical and long-term performance, students learn about material and product manufacturing techniques and how they relate to mechanical and non-mechanical properties of the various materials. Common construction methods are introduced and building details are explored.

MGMT 456 Economics for Facilities & Construction Managers 3 Credits (3,0)
This course is a study of economics as applied to construction and facilities management decision making emphasizing evaluation of the costs and benefits associated with technical projects. The time value of money and methods of discounted cash flow are studied to facilitate financial decisions regarding cash as capital.

MGMT 457 Facilities & Construction Safety Systems 3 Credits (3,0)
This course is an introduction to the Occupational Safety and Health Administration (OSHA) regulations pertinent to general industry and construction.

MGMT 458 Building Information Modeling (BIM) 3 Credits (3,0)
This course is a study of REVIT Architecture and is designed to quickly engage the student with hands-on exercises. This instructional material assumes some architectural and building understanding; a working knowledge of Microsoft Windows 7, Microsoft Windows Vista, Microsoft Windows XP, or Microsoft Windows 2000; and a basic knowledge and ability to load REVIT Architecture on a computer with at least 3 gig of RAM.

MGMT 459 Facilities & Construction Capstone 3 Credits (3,0)
Students will demonstrate knowledge learned throughout the concentration of Facilities or Construction Management coursework. The theories learned will be applied to real work and project issues. Students will develop cost, time, safety and quality plans for a project.

MGMT 461 Global Project Management 3 Credits (3,0)
This course is designed to assist learners gain an understanding of the increasingly challenging task of working within global corporations and with distant and diverse work teams. The course describes how project managers can help organization and your projects adapt to thrive in this Global Project Management environment. The learner is introduced to collaborative tools, best practices on cross-cultural team management and global communication, and recommended organizational changes and project structures for the global environment.
Prerequisites: MGMT 391.

MGMT 462 Project Management Advanced Concepts 3 Credits (3,0)
This course is designed to assist learners gain an understanding of a wide range of topics that relate to project management. Knowledge of these topics is essential to successful project management. Some of these topics include human factors, technical factors, and organizational factors.
Prerequisites: MGMT 391.

MGMT 492 Information Systems Project Management 3 Credits (3,0)
Although project management has been an established field for many years, managing information technology requires ideas and information that go beyond standard project management. By weaving together theory and practice, this course presents an understandable, integrated view of the many concepts skills, tools, and techniques involved in project management. Because the project management field and the technology industry change rapidly, this text provides up-to-date information on how good project management and effective use of software can help you manage projects, especially information technology projects. In this course, students apply all nine project management knowledge areas: project integration, scope, time, cost, quality, human resource, communications, risk, and procurement management; all five process groups: initiating, planning, executing, monitoring and controlling; and closing to information technology projects.
Prerequisites: MGMT 391.

MGMT 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: MGMT 221.

MGMT 496 Cooperative Education Management 1-6 Credit (1-6,0)
The student receives 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 the work assignment. Continuation of MGMT 396, MGMT 397, MGMT 398.

MGMT 497 Cooperative Education Management 1-6 Credit (1-6,0)
The student receives 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 the work assignment. Continuation of MGMT 396, MGMT 397, MGMT 398.

MGMT 498 Cooperative Education Management 1-6 Credit (1-6,0)
The student receives 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 the work assignment. Continuation of MGMT 396, MGMT 397, MGMT 398.

MGMT 499 Special Topics in Management 1-4 Credit (1-4,0)
These are individual independent or directed studies of selected topics in management. Prerequisite: Consent of instructor and approval of the department chair.

Mathematics (MATH)

Review the ERAU Worldwide Mathematics placement policy under the Placement Examinations (http://catalog.erau.edu/worldwide/admissions/placement-examinations) *section of the Worldwide Catalog.*

Courses

MATH 106 Basic Algebra & Trigonometry 3 Credits (3,0)
The course includes a 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. The elements of trigonometry will also be reviewed. Prerequisite: Qualifying score on the ERAU Mathematics Placement Examination or course listed.
Prerequisites: GNED 103.

MATH 111 College Mathematics for Aviation I 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. Prerequisite: Qualifying score on the ERAU Mathematics Placement Examination or course listed.
Prerequisites: MATH 106.

MATH 112 College Mathematics for Aviation II 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.

MATH 140 College Algebra 3 Credits (3,0)
This course focuses on fundamentals of exponents, radicals, linear and quadratic equations, inequalities, functions, graphing techniques, and complex numbers. It includes an 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. Prerequisite: Qualifying score on the ERAU Mathematics Placement Examination or course listed.
Prerequisites: MATH 106.

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 140.

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 students in the Engineering Feeder Initiative.Prerequisite: Qualifying score on the ERAU Mathematics Placement Examination or course listed, or the equivalent.
Prerequisites: MATH 106.

MATH 211 Statistics with Aviation Applications 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.

MATH 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.

MATH 241 Calculus and Analytic Geometry I 4 Credits (4,0)
This course is a study of graphs and functions; limits and continuity; differentiation and integration of algebraic and elementary trigonometric functions; applications of first and second derivatives. NOTE:This course is open only to students in the Engineering Feeder Initiative.Prerequisite: Course listed or the equivalent.
Prerequisites: MATH 143.

MATH 242 Calculus and Analytic Geometry II 4 Credits (4,0)
This course is a study of differentiation and integration of transcendental functions; special integration techniques; polar coordinates; applications of the definite integral; numerical methods. NOTE: This course is open only to students in the Engineering Feeder Initiative.
Prerequisites: MATH 241.

MATH 243 Calculus and Analytic Geometry III 4 Credits (4,0)
This course is a study of solid analytic geometry; vector functions in three dimensions; elements of infinite series; partial differentiation; directional derivative and gradient; multiple integrals. NOTE: This course is open only to students in the Engineering Feeder Initiative.
Prerequisites: MATH 242.

MATH 250 Calculus and Analytic Geometry I 3 Credits (3,0)
Introduction to graphs and functions; limits and continuity; differentiation of algebraic and elementary trigonometric functions; parametric equations; differentials and their applications; applications of first and second derivatives.
Prerequisites: MATH 140 **Corequisites:** MATH 142.

MATH 251 Calculus and Analytic Geometry II 3 Credits (3,0)
Integration of algebraic and elementary trigonometric functions; application of integrals to the calculation of area, volume and curve length and to selected physical problems; differentiation and integration of transcendental functions and inverse functions.
Prerequisites: MATH 250.

MATH 252 Calculus and Analytic Geometry III 3 Credits (3,0)
Techniques of integration; polar coordinates; applications of the definite integral; indeterminate forms and improper integrals; numerical methods of integration; parametric equations; vectors and calculus of vector valued functions.
Prerequisites: MATH 251.

MATH 253 Calculus and Analytic Geometry IV 3 Credits (3,0)
Solid analytical geometry; vector functions in three dimensions; elements of infinite series; partial differentiation; directional derivative and gradient; multiple integrals; geometric and Taylor series.
Prerequisites: MATH 252.

MATH 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: MATH 211 or MATH 222.

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 principle 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 253.

MATH 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 252.

Meteorology (WEAX)

Courses

WEAX 201 Meteorology I 3 Credits (3,0)
This is a survey course in atmospheric science that includes applications to flight. Included is a systematic development of the following: thermal patterns, atmospheric moisture, horizontal and vertical pressure patterns, clouds, atmospheric circulation, local winds, stability, air masses, fronts, fog, icing, thunderstorms, jet streams and turbulence. Students will study and make use of surface weather observations, surface maps, and constant pressure maps.

WEAX 352 Meteorology II 3 Credits (3,0)
An expansion of Meteorology I, this course includes the following theoretical concepts: hydrostatic instability, baroclinic instability, thermal wind, and kinematic fields. These will be integrated into real-time weather analysis of synoptic patterns involving mid-latitude cyclones, frontal systems, and jet streams. The anatomy of severe thunderstorms, particularly as applied to aviation hazards, will be treated in detail through analysis of recent synoptic data. Practical application will be achieved in current weather discussions, which will be given by teams of students. In addition, study of weather radar, solar aspects, and satellite meteorology will be accomplished.
Prerequisites: WEAX 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. (Cannot be used for credit in physics toward degrees in Aerospace or Electrical Engineering, Space Physics, Aircraft Engineering Technology, Aeronautical Science, or Avionics Technology.).
Prerequisites: MATH 106 or MATH 111 or MATH 140.

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 112.

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 **Corequisites:** MATH 252.

PHYS 199 Special Topics in Physical Sci 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. Prerequisite: Consent of instructor and approval of the department chair.

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'slaw, 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 and MATH 252.

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. Prerequisite: Consent of instructor and approval of the department chair.

PHYS 301 Astronomy 3 Credits (3,0)
This descriptive course deals 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 are optional.

PHYS 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. Students will receive either social science elective credit or physical science elective credit, but not both.

PHYS 304 Environmental Science 3 Credits (3,0)
Problems arising from human use and abuse of the environment will be the focus of this survey course. Ecological, economic, sociologic, and technologic principles will be applied to the management control of pollution of the atmosphere and water sources of the earth.

PHYS 399 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. Prerequisite: Consent of instructor and 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. Prerequisite: Consent of instructor and approval of the department chair.

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 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 MATH 211 or MATH 222.

Safety (SFTY)

Courses

SFTY 215 Introduction to Health, Occupational, and Aviation Safety 3 Credits (3,0)
This course introduces the student to the field of safety and covers basic health, safety, and regulatory issues that apply to aviation business in the United States. Included is a comprehensive health and safety overview of legislative development and enactment of appropriate statutes, regulations, and laws. This course also provides an introduction to hazard recognition, reporting, analysis, and control used in risk management and accident prevention. Additional topics include accident investigation, safety data statistics, ergonomics, security and emergency preparedness, safety culture, aircraft systems, air traffic control, and workers' compensation. This course reviews theories, applications, and practices of the field of safety.

SFTY 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. Prerequisites: Consent of instructor, approval of department and program chairs, and 12 hours of SFTY courses.

SFTY 311 Fundamentals of Occupational Safety and Health 3 Credits (3,0)
The student will be provided an introduction and overview of the Occupational Safety and Health (OSH) Act and how provisions of the Act are implemented in the workplace. The course is designed for the beginning safety student and is a prerequisite for most of the higher-level safety courses. Material presented covers the rights and responsibilities under the OSH Act, the appeals process, recordkeeping, and voluntary protection programs. The course also includes an introduction to OSHA's general industry standards and an overview of the requirements of the more frequently referenced standards.
Prerequisites: RSCH 202.

SFTY 315 Environmental Compliance and Safety 3 Credits (3,0)
This course examines matters associated with health and safety relating to the environment including air, water quality and sanitation. Areas of concentration include hazardous materials, their storage, handling, and transportation. Additional study includes waste management and cleanup as well as a detailed study of environmental laws, regulations, and protection of workers involved in activities associated with hazardous material activities.
Prerequisites: RSCH 202.

SFTY 320 Human Factors in Aviation Safety 3 Credits (3,0)
This course focuses on the major causative agent in aircraft accidents: the human being. Emphasis is placed on psychological and physiological factors that enhance the accident probability. Included is a detailed analysis of ergonomics (human engineering) and its influence in aviation design.
Prerequisites: RSCH 202.

SFTY 321 Ergonomics 3 Credits (3,0)
The concepts and physiological aspects of ergonomics will be examined in this course. Material presented covers 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.
Prerequisites: RSCH 202.

SFTY 330 Aircraft Accident Investigation 3 Credits (3,0)
This course is a detailed evaluation of methods and procedures involved in aircraft accident investigation. The organization, duties, and procedures of the Aircraft Accident Board are analyzed. The student explores procedures for determining accident causes through analysis of such elements as the function and techniques employed by the trained accident investigator and the role of the specialized laboratory. Analysis is also made of reporting procedures and the all-important follow-up work designed to avoid similar or related aircraft accidents.
Prerequisites: RSCH 202.

SFTY 335 Mechanical and Structural Factors in Aviation Safety 3 Credits (3,0)
This course examines the influence that design, manufacturing, metallurgy, and maintenance have on aircraft accidents. A detailed analysis of the failure process will be conducted. Additional topics of discussion include: stress and design loading, fatigue, corrosion, and the envelope of operation.
Prerequisites: RSCH 202.

SFTY 341 Occupational Safety and Health Program Management 3 Credits (3,0)
Students will learn about 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. Examined will be the management techniques, governmental regulations, and safety and health programs developed for industry. The course will focus on 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.
Prerequisites: RSCH 202.

SFTY 345 Aviation Safety Program Management 3 Credits (3,0)
This course is a study of the principles of the development and management of an effective safety program. The philosophy and historical development of major concepts are examined with particular emphasis on areas of special concern in organizational accident prevention. Students analyze the influence of morale, education and training, the role of the supervisor, and other substantial program elements of value to the safety manager.
Prerequisites: RSCH 202.

SFTY 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. This course is designed as a "real world" introduction to the field of emergency response at the CFR agency level, the airport response and administration levels and the related and associated entities involved in aircraft mishaps.
Prerequisites: RSCH 202.

SFTY 355 Industrial Hygiene and Toxicology 3 Credits (3,0)
This course focuses on the evaluation of principles associated with industrial hygiene. Topics include recognition, evaluation and control of hazards related to noise, vibration, ionizing and non-ionizing radiation, thermal conditions, pressure, chemicals, airborne contaminants, and biological substances. These subjects will be discussed in relation to all regulatory requirements, using both engineering and non-engineering controls for reducing or eliminating health hazards in the workplace.
Prerequisites: PHYS 102 and SFTY 311 and RSCH 202.

SFTY 360 Construction Safety 3 Credits (3,0)
The student is provided with an opportunity for an in-depth study of construction safety and the importance of safety and health in the construction industry. The Code of Federal Regulations (29 CFR 1926) governing the construction industry will be examined. The focus is the management and application of the regulations in the workplace, typically through safety inspections, job safety planning, organizing and conducting health and safety training, investigating and maintaining records of construction accidents, incidents, and injuries and illnesses.
Prerequisites: RSCH 202.

SFTY 365 Fire Protection 3 Credits (3,0)
This course introduces the basics of fire and fire protection. Students will study the physics, chemistry, characteristics and behavior of fire, fire hazards of material, fire suppression systems, extinguishing agents, and detection and alarm systems. Primary emphasis will be on transportation related fire hazards and the regulatory requirements associated with air, rail, marine, and highway modes of transportation.
Prerequisites: PHYS 102 and SFTY 311 and RSCH 202.

SFTY 375 Propulsion Plant Investigation 3 Credits (3,0)
A technical course in aircraft reciprocating and turbine engine fundamentals and relevant accident investigative procedures. Areas of study include basic construction and design with emphasis on major sections, components, and their mechanical relationships. Power plant systems and system mishap investigation is also covered and includes fuel, lubrication, ignition, and start systems. A study of propeller basics and investigative techniques is also included. On site field investigation as well as engine teardown/disassembly procedures are presented.
Prerequisites: RSCH 202.

SFTY 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. Prerequisites: Consent of instructor, approval of department and program chairs, and 12 hours of SFTY courses.

SFTY 409 Aviation Safety 3 Credits (3,0)
This course covers all facets for an aviation safety program including both flying safety and safety of ground operations. Major problem areas in aviation safety, safety program evaluation, and impact of accidents on industry are covered. Focus is on human factors, basic accident prevention programs, and the roles of various government and industry organizations have in preventing accidents.
Prerequisites: RSCH 202.

SFTY 410 Design of Engineering Hazard Controls 3 Credits (3,0)
This course addresses the application of scientific and engineering principles as well as methods to achieve optimum safety and health through the analysis and design of processes, equipment, products, facilities, operations and environments. Subjects will include; product design, plant layout, construction maintenance, pressure vessels and transportation vehicles and systems. These subjects will be discussed in relation to all regulatory requirements.
Prerequisites: PHYS 102 and SFTY 311 and RSCH 202.

SFTY 420 Systems Design for Fire & Life Safety 3 Credits (3,0)
This course centers on design principles involved in building construction standards and building codes to ensure maximum life and property safety from fires, explosions, and natural disaster. Egress design specifications, occupancy and construction classifications, and fire protection requirements for buildings will be covered.
Prerequisites: PHYS 102 and SFTY 311 and RSCH 202.

SFTY 435 Aircraft Crash Survival Analysis and Design 3 Credits (3,0)
This course provides an in-depth analysis of the accident environment, with particular emphasis on the protection of the occupants. The injury mechanisms and causes will be analyzed, as will the physics and kinematics of the impact sequence. The intent of the course is to familiarize the student with what can be done to minimize the effects of an accident.
Prerequisites: MATH 106 and RSCH 202.

SFTY 440 System Safety Management 3 Credits (3,0)
This course reviews the development and implementation of the system safety discipline in technical industries, including aviation. "System Safety" entails specialized integration of skills and resources in all phases of the life cycle of a given system in furtherance of accident prevention. Its heritage is systems engineering and management theory but amplified to include modern safety practices derived from numerous disciplines. Students will acquire an understanding of how accident prevention is designed into equipment, processes, and facilities under development, evaluated and enhanced during testing, and assured or otherwise controlled during operational use.
Prerequisites: MATH 106 and RSCH 202.

SFTY 450 Loss Control & Insurance 3 Credits (3,0)
The principles of loss control, insurance, and financial risk management, as they apply to the SHE professional, are studied in this course. The 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 will be examined. Primary emphasis is placed on consumer considerations, coverage of personal risk management, and financial planning.
Prerequisites: SFTY 341 and RSCH 202.

SFTY 462 Health, Safety and Aviation Law 3 Credits (3,0)
This course introduces the student to the legal issues and concerns confronting the health and safety industry. Included is an overview of the historical legal precedence established for the aviation industry as well as a comprehensive examination of the laws, regulations and legislation that governs the actions and authority of the health and safety professional. This course also provides an introduction to the governing bodies and associations tasked with setting the legal standards by which the industry must operate, including the scope and level of their authority.
Prerequisites: RSCH 202.

SFTY 470 Advanced Occupational Safety and Health Technology 3 Credits (3,0)
This course is the culminating experience that derives from previous work in the occupational safety and health technology field. In this course, a heavy emphasis is placed on the analysis of previously learned occupational safety and health 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 practicing Occupational Safety and Health Technologist. Students will draw on previous occupational safety and health studies, and develop and defend an in-depth analysis of an occupational safety and health issue in a program or business of their choice.
Prerequisites: SFTY 311 and SFTY 341 and SFTY 355 and RSCH 202.

SFTY 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. Prerequisites: Consent of instructor, approval of department and program chairs, and 12 hours of SFTY courses.

Security Science (SCTY)

Courses

SCTY 310 Introduction to Security 3 Credits (3,0)
This course provides an overview of the historical development of the security profession and the role of security today as part of the criminal justice system, business and society. The current security disciplines, such as contract security, private investigations, industrial security, aviation security, cultural property security, physical security and information security will be explored. Legal and ethical aspects of the security profession are explored along with a review of the development of an effective professional proprietary security program.
Prerequisites: RSCH 202.

SCTY 312 Global Crime and Criminal Justice Systems 3 Credits (3,0)
In this course, students will be presented the current status and predicted trends in global crime and criminal justice systems. They will be given descriptions of the three types of terrorism: domestic (U.S.), international (group-directed), and state-sponsored. Concepts and theories will be applied in discussions on how to best combat the threat.
Prerequisites: RSCH 202.

SCTY 315 Studies in Intelligence I 3 Credits (3,0)
In this course, the student will be provided descriptions of 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 will be among the issues examined and discussed. Prerequisites: one psychology course and one government/ history course, or permission of the instructor.
Prerequisites: RSCH 202.

SCTY 323 Intelligence and Technology 3 Credits (3,0)
This course will examine the whole arena of intelligence and technology, beginning with the World War II period, when science and technology came to play a critical role in intelligence. The course will cover technical intelligence collection methodologies and systems, the use of aircraft and space-based vehicles as collection platforms for photo-optical and digital imagery, radar imaging, infrared and multi-spectral imagery, signals intelligence, etc. The course will provide a technical understanding of these methodologies, as well as an analysis of their place in all-source collection. The course will also examine the current development and implications of intelligence technologies, such as the emergent UAV systems.
Prerequisites: RSCH 202.

SCTY 324 Cybersecurity and Information Assurance 3 Credits (3,0)
This course examines the range of vulnerabilities and threats that affect corporate and government computer networks. Cybercrimes, such as credit card fraud, intellectual property theft, pedophilia, terrorism, hacking, etc. will be covered as well as industry and government best practices to defeat such crimes. Additionally, the course will cover ways to maintain and protect information on the computer, the key issues that impact the management of cybersecurity resources, and the role risk plays in allocating cybersecurity resources.
Prerequisites: RSCH 202.

SCTY 385 Intelligence Collection and Analysis 3 Credits (3,0)
In this course, the student will be given the opportunity to gain practical experience in the intelligence functions of analysis, writing, and briefing. The student will be expected to 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.
Prerequisites: RSCH 202.

SCTY 400 Airport Security 3 Credits (3,0)
This course will cover specific facets of aviation-related security to include 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. The course will also discuss the current threat, counter-terrorism measures, new technologies in the field and the importance to the aviation industry, both passenger and cargo to the global economy.
Prerequisites: RSCH 202.

SCTY 410 Physical Security 3 Credits (3,0)
This course is designed to provide a comprehensive review of the methods utilized to conduct an effective physical security risk analysis. Building on the results of the risk analysis, the five lines of defense, property line, areas security, outer shell of structures, and interior of structures, and applications to the aviation industry are explored. The deployment of intrusion detection systems, fire protections systems, access control, barriers, security lighting and use of security cameras are discussed.
Prerequisites: RSCH 202.

SCTY 415 Studies in Intelligence II 3 Credits (3,0)
The course is a simulation of intelligence officers' activities. The student will function as an intelligence desk officer for either a government, global corporation, terrorist group, global criminal organization, or multilateral political organization. Using the simulation, the student will study and practice many components of tactical and strategic intelligence. Some components included will be intelligence collection, evaluation, analysis, production, and dissemination; intelligence oversight; covert and clandestine operations; intelligence bureaucracies; espionage; ethical and moral issues in intelligence; and counterintelligence. The course emphasizes functional interactions.
Prerequisites: RSCH 202.

SCTY 420 General Aviation Security 3 Credits (3,0)
The focus of this course is to define general aviation and explore the security and terrorism threats specific to the general aviation community. Methods of protection of general aviation airports, aircraft, fixed-base operations, hangers, corporate aviation departments, non-commercial UAS launch facilities and flight schools will be addressed. The establishment of the Aircraft Owners and Pilots Association Airport Watch is examined. The use of physical security measures and the establishment of a security force operations will be addressed.
Prerequisites: RSCH 202.

SCTY 430 Counterterrorism for Aviation 3 Credits (3,0)
This course will focus on the specific threat to the commercial aviation community from terrorism. A historical overview of aviation terrorism is explored along with terrorist groups, targets, and tactics. Specific methods of protection to the aviation profession is investigated to include the use of the Transportation Security Administration, airport security coordinators, airport law enforcement, personnel screening, access control and physical at airports and on commercial aircraft.
Prerequisites: RSCH 202.

SCTY 485 Corporate Security 3 Credits (3,0)
The student will be exposed to 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. Beginning with a discussion of the differences between public and private police, students will analyze security needs of business and private establishments, in detail, and the threats that might emanate from tapped phones, bugged offices, stolen papers, covert recording, undercover employees, phony repair people, fax intercepts, etc. The substance of the course will include practical and theoretical elements affecting the field.
Prerequisites: RSCH 202.

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 (U.S.), international or group-directed, and state-sponsored.
Prerequisites: RSCH 202.

SCTY 490 Aviation Security Capstone Course 3 Credits (3,0)
The Aviation Security Capstone Course is the culminating effort of the student?s entire learning experience. The student will complete a project that provides significant evidence of experience in aviation and aeronautical studies. Students will work with designated faculty members to formulate, develop, and complete the aviation/aerospace aviation project. The completion of the Capstone Course is designed to document significant evidence that Program Outcomes have been met, and provides the student evidence of experience to show to current and prospective employers. The Capstone Course will be taken at the end of the student?s degree program.
Prerequisites: RSCH 202.

Social Sciences (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 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 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 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?

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. Prerequisite: 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. Prerequisite: 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. Prerequisite: Consent of instructor and approval of the department chair.

Speech (SPCH)

Courses

SPCH 219 Speech 3 Credits (3,0)
This course is a continuation of the study of communication and communication theory, with an emphasis on overcoming communication apprehension, developing listening skills, mastering oral performance and writing about communication. Individual sections may focus on public speaking, group discussion, oral interpretation or interpersonal communication.

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. Prerequisite: SPCH 219.

Transportation (TRAN)

Courses

TRAN 274 Transportation Science 3 Credits (3,0)
The principles and analytical research tools applicable to the various modes of transportation, including highway, railroad, marine, urban transportation, pipeline, and aviation, are studied. The focus is on public policy, the economy, operations, and management of modal and intermodal transportation. Major subjects of analysis include carrier strategies, intermodal transportation, the shipping process, and globalization issues related to transportation.

TRAN 301 Transportation Legislation 3 Credits (3,0)
A study of the evolution and development of federal transportation legislation including highway, railroad, marine, urban transportation, pipeline, and aviation; students will examine both past and present problems resulting in the regulation of transportation as well as the funding process. A review of applicable international treaties and conventions is included.
Prerequisites: RSCH 202.

TRAN 321 Air Transportation Systems 3 Credits (3,0)
This course examines operations and management of air transportation as part of a global transportation system. The course reviews the evolution of the technological, social, environmental, and political aspects of this system since its inception. The effects of U.S. economic deregulation, energy shortages, federal regulations, national and international issues, including security concerns, are discussed. Passenger, cargo and general aviation transportation modes are studied in relation to ever-changing transportation requirements.
Prerequisites: RSCH 202.

TRAN 331 Road & Highway Transportation 3 Credits (3,0)
This course applies transport characteristics and regulations to the study of the movement of people and goods on the road and highway system. The focus is on economics, policy, regulations, vehicle characteristics, and the value of time to the cost of transporting goods and people. The multiple factors influencing rate development and rate structure are part of the course.
Prerequisites: RSCH 202.

TRAN 341 Railroad Operations 3 Credits (3,0)
This course examines the characteristics of rail transport for the movement of passengers and materials. The topics of rail operations and management, including economic issues, regulatory issues, and labor issues are studied. Factors influencing the transport costs of passengers and materials that move on the railroad system, as well as the development of rail rate structures, are examined.
Prerequisites: RSCH 202.

TRAN 351 Urban Transportation and City Planning 3 Credits (3,0)
The various modes of urban transportation, as well as their advantages and disadvantages, are discussed. The importance of incorporating both practicality and efficiency into transportation systems, including non-motorized systems such as bicycles and bikeways, is explored. Methods of implementing an urban transportation system, meeting the expectations of users, effectively utilizing land and energy resources, and satisfying environmental and zoning regulations to design safe and effective urban transportation systems are discussed.
Prerequisites: RSCH 202.

TRAN 361 Marine Transportation 3 Credits (3,0)
The focus of this course is on the physical, economic, and domestic and international regulatory characteristics of marine transportation, which includes the movement of passengers and goods on the oceans as well as on inland waterways. A review of economics, regulation, policy, and labor as it pertains to the domestic and international maritime industries is included.
Prerequisites: RSCH 202.

TRAN 371 Pipelines, Land Use, and the Environment 3 Credits (3,0)
This course examines the economics, regulatory environment, policy issues, management, and operations of domestic and international pipeline systems for the movement of gases, liquids, and slurries. Special emphasis is placed on environmental and land use issues as they relate to the construction and operation of pipelines.
Prerequisites: RSCH 202.

TRAN 401 Transportation and the Environment 3 Credits (3,0)
This course examines environmental considerations relevant to the principal transportation systems. Transportation systems provide incalculable economic, political, and social benefits, but these benefits come at a price. The challenge is to provide an effective and efficient transportation system while mitigating environmental impacts. Included is an examination of the economic, regulatory, legal, and political issues as they relate to the environment in which transportation systems operate.
Prerequisites: RSCH 202.

TRAN 411 Strategic Intermodal Alliances 3 Credits (3,0)
In this course the student is introduced to complex issues of the physical, economic, and regulatory aspects of intermodal transportation alliances. Partnerships in highway, railroad, marine, urban transportation, pipeline, and aviation transportation systems are explored, including the Intelligent Transportation Systems and Information and Communication Systems that integrate the intermodal transportation of goods and products. Containerized shipping is also examined, including container design, load factors, product design and the standard transportation packaging regulations used in domestic and international shipping. Simulation models will be used to develop an intermodal transportation flow chart for international and domestic shipping of standard and non-standard containerized products.
Prerequisites: RSCH 202.

TRAN 421 Transportation Safety and Security 3 Credits (3,0)
This course provides an analysis of the procedures and management decisions required to maintain safety in transportation networks, vehicles, and facilities. Security and protection of vehicles, cargo, facilities, and personnel is examined. Construction and design of operational and managerial criteria for defense of property are discussed.
Prerequisites: RSCH 202.

TRAN 490 Transportation Science Capstone Course 3 Credits (3,0)
The Transportation Science Capstone Course is the culminating effort of the student's entire learning experience. The student will complete a project that provides significant evidence of experience in transportation studies. Students will work with designated faculty members to formulate, develop, and complete the transportation project. The completion of the Capstone Course is designed to document significant evidence that Program Outcomes have been met, and provides the student's evidence of experience to show to current and prospective employers. The Capstone Course will be taken at the end of the student's degree program.
Prerequisites: RSCH 202.

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 (3,0)
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 (3,0)
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 (3,0)
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 (3,0)
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. Prerequisite: 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 (3,0)
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 (3,0)
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 (3,0)
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 (3,0)
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.

Embry-Riddle Aeronautical University – Worldwide courses are not necessarily offered every term, nor are they necessarily offered at all locations.

Aeronautical Science (ASCI)

Courses

ASCI 509 Advanced Aerodynamics 3 Credits (3,0)
In this course, students will examine current flight applications and problems. Specifically, this includes transonic, supersonic, and hypersonic aerodynamics, principles of aircraft stability and control, and operational strength considerations. Emphasis is placed on the applications of the rapidly changing technological innovations in aerodynamics and the solutions to the problems created by these advances.

ASCI 510 Advanced Aircraft Performance 3 Credits (3,0)
In this course the student explores performance characteristics for transonic, supersonic, and near space air vehicles powered by jet or rocket engines. Problems related to high speed and high altitude flight such as aero elastic effects, compressibility drag, Reynolds Number effects, ram pressure rise, and aerodynamic heating are explored. Discussions will center on current developments and problems associated with these advancements.

ASCI 511 Earth Observation and Remote Sensing 3 Credits (3,0)
U.S. and International solar system exploration programs are reviewed and related to the current and proposed Earth-research projects. Examination of these research programs will be structured towards defining problems related to environmental changes and resource exploration. Formatted research data from Earth-resource satellites and EOS sources will be used for demonstrating specific research techniques, exploration methods, and economic and social elements of exploration.

ASCI 512 Space Mission and Launch Operations 3 Credits (3,0)
This course introduces the student to launch, mission operations, and facilities for manned and unmanned 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. Computer-based simulation instruction provides mission and site specific operation detail.

ASCI 513 Space Habitation and Life Support Systems 3 Credits (3,0)
This course addresses the problems related to space-flight induced changes in the major body systems that need to be solved in this decade, to develop countermeasures for maintaining the health of crewmembers on long duration space operations. Physiological elements of zero gravity environment, radiation hazards, and protection measures are explored, along with physical and chemical closed-loop life support systems for long duration space missions. More elaborate life support systems for larger manned missions and colonies are outlined for further student development.

ASCI 514 Computer-Based Instruction 3 Credits (3,0)
This course addresses the design, development, and evaluation of instructional software as it applies to the aviation/aerospace industry. Students are offered practice in the systematic design of computer-based instruction, with emphasis in tutorials, drill and practice, and simulation. CBI lessons are developed using available authoring systems.

ASCI 515 Aviation/Aerospace Simulation Systems 3 Credits (3,0)
The course focus is on a comprehensive examination of simulation in modern aviation/aerospace that includes history, state-of-the-art, and current research and development. Discussions focus on the extent and impact of simulator application throughout the industry and the effects on training costs and safety. Topics range from basic design principles to flight crew training for initial qualification, continuation and currency purposes. The course emphasizes implementation of training that is transferable from simulated to real world environments. Systems simulators to the simulation models used in management, flight operations, scheduling, or air traffic control, are examined in detail.

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 517 Advanced Meteorology 3 Credits (3,0)
A graduate-level treatment of major topics in meteorology. Topics include, but are not limited to: atmospheric circulation, the derivation and application of the equations of motion, the hydrostatic equation, atmospheric kinematics, derivation of the equation of continuity, the equation of state, basic concepts of thermodynamics, the mid-latitude cyclone; and mesoscale phenomena such as deep moist convection and locally forced circulations, development of thermal wind, and fundamental concepts in weather analysis and forecasting. The student will produce basic atmospheric analyses using conventional, satellite, and radar information. An overview of aviation weather hazards will be covered, and students will be introduced to the use of numerical weather prediction model products in weather forecasting applications.

ASCI 518 Aviation/Aerospace Operations Research 3 Credits (3,0)
An in-depth study in the use of mathematical and scientific tools and techniques in managerial decision-making. Operations research seeks to determine how best to design and operate a system, usually under conditions requiring the allocation of scarce resources. Emphasis will be on the applications of these methods in aviation/aerospace industries. Topics include: linear programming, probabilistic dynamic programming, game theory, forecasting, regression analysis, transportation models and decision making under uncertainty.

ASCI 521 Aviation/Aerospace Information Management 3 Credits (3,0)
This course aims to develop knowledgeable and effective users of information technology in aviation/ aerospace management occupations. A combination of technical and managerial material is presented. The material presented is necessary to achieve an understanding of the operations and strategic uses of management information systems in the aviation/aerospace industry. Emphasis is placed on the use of computers as an information processor, decision tool, and as a means of linking management more closely to the organization. Topics relating to the identification and management of information resources are presented.

ASCI 530 Unmanned Systems 3 Credits (3,0)
This course offers a conceptual approach to overall system design of unmanned aircraft and spacecraft systems, including remotely operated and autonomous unmanned aerial systems (UAS) and unmanned space systems. Course will include the concepts of communication systems, payload systems, control stations and related systems, vehicle specific systems, and support systems. The requirements for system architecture development and conceptual level assessment of major system elements will be examined as they relate to use in industry. The major system elements will be evaluated from a systems engineering perspective to include consideration for cost and weight estimation, basic aircraft performance, safety and reliability, lifecycle topics, vehicle subsystems, and system integration.

ASCI 531 Robotics and Control 3 Credits (3,0)
The purpose of this course is to analyze the concepts of modeling, design, planning, and control of robotic systems. The student will evaluate robotics and control design decisions specific to unmanned systems, including remotely operated and autonomous unmanned aerial systems (UAS) and unmanned space systems. Course topics include robotics foundations in kinematics, dynamics, control, motion planning, trajectory generation, programming, telemetry, sensor integration, remote operation, and design. Course applications include task and motion planning for utilization within unmanned system technology.

ASCI 550 Aviation Education Foundations 3 Credits (3,0)
This course assists in developing contexts and concepts in which educational problems and issues may be understood, particularly the role of aviation in education. Emphasis is placed on aviation education and its historical and philosophical foundations.

ASCI 560 Advanced Rotorcraft Operations 3 Credits (3,0)
The course introduces the complexities of rotary wing flight systems and the advancements made to overcome them. The unique problems facing an organization involved in rotorcraft operations are studied, from the initial inception of a program to the government rules and regulations, environmental and noise considerations, special landing and take-off facilities, flight and maintenance ratings, and techniques of control. Special consideration is given to the unique problems and issues facing such rotorcraft operations as police, medical evacuation, forestry service, and corporate aviation.

ASCI 590 Graduate Seminar 1-3 Credit (1-3,0)
This course consists of completing a study of the most current advancements in a particular field as determined by the instructor of the course. This course has a different topic each term depending on the varied interests of the student, the graduate faculty, or the research requirements of the Aeronautical Science department.

ASCI 601 Applications in Space: Commerce, Defense, and Exploration 3 Credits (3,0)
The scientific, military, and commercial interests in international and domestic space programs are examined throughout the history of space flight. The needs of commercial space endeavors and methods of expanding space technology into manufacturing are contrasted to the importance of scientific exploration, and the requirements of military space operations. The justification, development, and costs of scientific exploration programs, defense-related projects, and commercial endeavors are used to study the evolution of space missions and the development of future programs.

ASCI 602 The Air Transportation System 3 Credits (3,0)
A study of air transportation as part of a global, multimodal transportation system, the course reviews the evolution of the technological, social, environmental, and political aspects of this system since its inception at the beginning of the previous century. The long-term and short-term effects of U.S. economic deregulation, energy shortages, governmental restraints, national and international issues, and international terrorism are examined. Passenger and cargo transportation, as well as military and private aircraft modes, is studied in relation to ever-changing transportation requirements.

ASCI 603 Aircraft and Spacecraft Development 3 Credits (3,0)
This course is an overview of aircraft and spacecraft development. Included are vehicle mission, the requirements directed by economics, the military and defense considerations, and the research and developmental processes needed to meet the vehicle requirements. Aviation and aerospace manufacturing organizations and techniques are addressed to include planning, scheduling, production, procurement, supply and distribution systems. The course studies aviation and aerospace maintenance systems, from the built-in test equipment to the latest product support activities.

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 605 Methods and Procedures for Aviation/Aerospace Research 3 Credits (3,0)
This course encompasses an explanation of methodology and data analysis procedures associated with aviation/ aerospace research. Included in the course is the study of current aviation and industry related research and problem solving methods, including techniques of problem identification, hypothesis formulation, design and use of data-gathering instruments, data collection, and methods of data analysis and presentation. Research and technical reports appearing in professional publications and archives are examined as exemplars of the use of statistical terminology, computations and reporting methods. A formal capstone project proposal, designed to address a problem in the students area of study will be developed and presented by each student as a basic course requirement. Prerequisites: Demonstrated knowledge of college-level mathematics including introductory statistics, and basic computer operations and completion of at least 3 graduate ASCI credit hours.

ASCI 606 Air Traffic Control and the National Airspace System 3 Credits (3,0)
This course provides a detailed analysis of current and future developments and trends in Air Traffic Control (ATC), Federal Aviation Administration (FAA), and the National Airspace System (NAS). NAS topics addressed include the evolution of current national policies, plans, and objectives that will ensure the safe and efficient transformation to the Next Generation Air Transportation System (NextGen). The most recent planned improvements for each major component of ATC systems are examined individually and as part of the system as a whole.

ASCI 607 Advanced Aircraft/Spacecraft Systems 3 Credits (3,0)
State-of-the-art aircraft/spacecraft systems and projections of research trends for future air vehicle requirements and applications are examined. Topics include the development, capabilities, and limitations of current aircraft/spacecraft propulsion, electrical, environmental, control, hydraulic systems, and sub-systems. The total aircraft design and the interdependence of aircraft system design constraints are emphasized, as well as current problems and solutions.

ASCI 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.

ASCI 610 Instructional System Design 3 Credits (3,0)
This course addresses the analysis, design, development, implementation, and evaluation of instructional programs and materials in aviation/aerospace industry settings. The major components of instructional design models, along with their respective functions, will be presented. The course is an applications course, which provides both introductory information and practice in the application of skills and techniques necessary to produce sound instructional products.

ASCI 611 Aviation/Aerospace System Safety 3 Credits (3,0)
This course emphasizes the specialized integration of safety skills and resources into all phases of a systems life cycle. Accident prevention, beginning with systems engineering together with sound management, are combined in this course to enable students to fully comprehend their vital roles in preventing accidents. The total program, from basic design concepts through testing, maintenance/systems management, and operational employment, is fully examined and evaluated.

ASCI 612 Aviation/Aerospace Industrial Safety Management 3 Credits (3,0)
The course focus is on the modern work setting from an aviation and aerospace safety and health point of view. An analysis of the history of industrial safety leads the student to an understanding of why and how aviation/aerospace industrial safety management evolved into an advanced discipline. The roles of and interactions between government, corporation, safety management and the worker, in the dynamic, economy-driven environments of aviation and aerospace, are central themes.

ASCI 614 Advanced Aviation/Aerospace Curriculum Development 3 Credits (3,0)
This course will investigate the traditional manner of curriculum development and then proceeds to prepare an instructional framework for a variety of aviation and aerospace instructional programs. The course focuses on instructional strategies and delivery modalities, as well as the impact of social forces, in aviation/aerospace educational environments. Systematic approaches to planning, designing, implementing and evaluating curriculum development will also be explored.

ASCI 615 Aviation/Aerospace Accident Investigation and Analysis 3 Credits (3,0)
This course covers all aspects of the aircraft accident investigation process starting with preparation for investigation through report writing. Particular emphasis is placed on the study of human factors connected with flight and support crews activities in aviation operations. The course provides students with knowledge of the process of investigating accidents and incidents in an aviation organization. A critical analysis of selected aircraft accidents and an evaluation of casual factors are covered.

ASCI 616 Transportation Security 3 Credits (3,0)
This course will focus on Transportation Security Administration regulations covering aviation, railroad, highway, marine, and pipeline transportation. Requirements for all modes of transportation will be covered, with emphasis on aviation security. Personnel and the technology needed to provide a safe and secure environment for airports and airlines will be discussed. Advanced security technology and its use to significantly increase the level of security in transportation will be covered.

ASCI 617 Airport Safety and Certification 3 Credits (3,0)
This course provides a review and analysis of all Federal regulations applicable to safe conduct of airport operations. The requirements for airport certification are covered as well as airport environmental protection and occupational safety compliance. Day-to-day safe operations are emphasized.

ASCI 618 Aviation/Aerospace Safety Program Management 3 Credits (3,0)
This course covers the essential skills and methodology needed to plan and manage an effective aviation safety program. Emphasis is placed on understanding the principles of risk management, and the principles, tools, and techniques used in a Safety Management System. Methods to achieve enhanced safety, moving beyond mere compliance with regulatory requirements are studied.

ASCI 620 Air Carrier Operations 3 Credits (3,0)
This course is an overview of air carrier operations from the viewpoints of the cockpit flight crew, cabin crew, operational specialists, managers, and dispatchers. Topics include airline history, organization, crewmember requirements, training programs, duty time, aircraft airworthiness, dispatch, flight operations, and maintenance. Air carrier operational problems, both domestic and internationally since deregulation and 9/11, will be explored.

ASCI 622 Corporate Aviation Operations 3 Credits (3,0)
The establishment and operation of a corporate flight department is examined along with the procedures and techniques generally accepted as standards by professional corporate flight operations. Included is a practical view of the corporate aviation mission of management mobility and use of the resources available to accomplish it.

ASCI 623 Aircraft Design and Development 3 Credits (3,0)
This course is an overview of aircraft design and development. Included are vehicle mission, the requirements directed by economics, commercial operator requirements and requests, military and defense considerations, and research and developmental processes needed to meet vehicle requirements. Aviation and aerospace manufacturing organizations and techniques are addressed to include planning, scheduling, production, procurement, supply, and distribution systems. Aviation and aerospace maintenance systems from the built-in test equipment to the latest product support activities are explored.

ASCI 634 Aviation/Aerospace Psychology 3 Credits (3,0)
This course is a study of the complexities of human factors research in aviation, which draws 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 and attempts to design an occupant "friendly" flight deck module.

ASCI 636 Advanced Aviation/Aerospace Planning Systems 3 Credits (3,0)
Planning and decision-making techniques and strategies used in the aviation industry are emphasized. The types and sources of data needed for decisions about route development and expansion, fleet modernization, and new markets are examined. The methods of collecting, analyzing and applying the data through computer applications, modeling, heuristics, value theory, and payoff tables are studied. The limitations and problems associated with strategic planning principles and economics are explored.

ASCI 637 Unmanned Systems Operations and Payloads 3 Credits (3,0)
This course focuses on the operational and payload capabilities of unmanned systems, including remotely operated and autonomous unmanned aerial systems (UAS) and unmanned space systems, under a variety of mission standards. Operational course content includes typical software and hardware installations, launch and recovery procedures, normal and emergency procedures, and the appropriate selection of payload based upon mission requirements. Students will research current and future payloads and sensor systems utilized in unmanned aircraft and space systems. An exploration of multi-mission payload applications and requirements, including state-of-the art, secure uplink and downlink telecommunications, signals intelligence, precision geo-location, airborne cellular network, and software-defined communications relay will be conducted.

ASCI 638 Human Factors in Unmanned Systems 3 Credits (3,0)
This course is designed to present an overview of the importance of major human factors issues associated with unmanned systems, including remotely operated and autonomous unmanned aerial systems (UAS) and unmanned space systems operations across a variety of platforms employed in both commercial and military operations. Emphasis will be placed on the differences and commonalities between occupied and unoccupied systems, with a focus on the human factor issues encountered by individual unmanned operators (pilots and sensor operators) as well as UAS teams. Students will become familiar with human factor issues surrounding unmanned 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 as it relates to safe and effective operation of unmanned aircraft and space systems in a variety of commercial and military operations will be included.

ASCI 641 Production and Procurement Management in the Aviation/ Aerospace Industry 3 Credits (3,0)
The systems life cycle approach is examined as it relates to production and procurement of general aviation aircraft, business and commercial aircraft, and/or air carrier aircraft. The efficient and effective production and procurement of the resources required to support an aircraft throughout its life cycle from (a) conceptual design; (b) preliminary system design; (c) detail design and development; (d) production and/or construction; (e) utilization and maintenance support; and (f) retirement and disposal are addressed. The role of the Federal Aviation Administration pertaining to the aircraft certification process, including maintenance support, is also considered.

ASCI 642 International Aviation Policy 3 Credits (3,0)
This course addresses international management and aviation policy through the examination of major trends and issues challenging the aviation manager. Cross-cultural situations are evaluated from the perspective of interpersonal relationships in a diverse domestic and foreign environment, and in the context of evolving global trends. Strategic planning and negotiation are examined by defining the major tasks involved in organizing for international aviation, such as designing the organization and staffing. Managing workforce diversity is examined from culture-based and comparative perspectives, along with the function of control through the examination of effective control systems for overseas operations that ensure environmental interdependence through social responsibility and ethical behavior.

ASCI 643 Management of Research and Development for the Aviation/Aerospace Industry 3 Credits (3,0)
The types and sources of aviation/aerospace research and development are analyzed, with a focus on the structure and interrelationship of the industry, educational institutions, and other organizations. Sources and methods of funding, specification determination, the relationship of research and development to procurement and production, and the regulatory factors affecting progress from the initial development to production of the aircraft and components are examined. Concepts of motivation and management as applied to research scientists and engineers will be studied as well as procedures for promoting optimum creativity concurrently with efficient operations.

ASCI 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.

ASCI 645 Airport Operations and Management 3 Credits (3,0)
This course focuses on management and operation of public use airports. Topics covered include traffic forecasting, sources of revenues and expenses, management of passenger and cargo terminal buildings, ground handling of passengers and baggage, ground access systems, and the U.S. Federal Aviation Administration Regulations dealing with airport operations. Current problems with environmental impact, land-use planning and control, airport capacity and delay, public relations, airport finance, airport privatization, liability, and economic impact are discussed.

ASCI 646 Airline Operations and Management 3 Credits (3,0)
This course is an integrated study of airline operations and functions. Domestic and international regulation of air carriers and the industry?s changing structure due to alliances and globalization are addressed. Airline economics, airline marketing and pricing, computer reservation and revenue management systems, fleet planning and scheduling, aircraft maintenance, aircraft finance, labor relations, organizational structure, and strategic planning are studied.

ASCI 652 Continuing Education's Role in Aviation 3 Credits (3,0)
This course is designed to assess community needs relative to developing programs in continuing education for the adult learner. Topics include evaluation of existing programs and the processes used in developing curricula for an adult continuing education program related to aviation.

ASCI 654 Adult Teaching and Learning Techniques 3 Credits (3,0)
The major instructional strategies used in education with particular emphasis on higher education and adult learning are the core of this course. Multiple approaches as they relate to academic disciplines and grade levels are studied. The unique "cockpit classroom" environment will be discussed and evaluated.

ASCI 660 Sensation and Perception 3 Credits (3,0)
This course examines how the human senses transform stimulus patterns of physical energy into the neural codes that become our perceptions of the world. This class will address advanced issues in human information processing with specific regard to the physical and psychological variables associated with sensory and perceptual phenomena. Topics include vision, audition, smell, taste, touch, balance, and phenomena common to all sensory modalities, such as feature enhancement, inhibition, adaptation, and stages of neural coding. While all the senses will be covered, special attention will be paid to the visual and tactile senses.

ASCI 661 Human-Computer Interaction 3 Credits (3,0)
This course stresses the importance of good interfaces, and the relationships of user interface design to human-computer interaction (HCI) are emphasized. Topics include interface quality and methods of evaluation; interface design examples; dimensions of interface variability; dialogue genre; dialogue tools and techniques; user-centered design and task analysis; prototyping and the interactive design cycle; user interface implementation; prototyping tools and environments; I/O devices; basic computer graphics, color, and sound.

ASCI 663 Memory and Cognition 3 Credits (3,0)
In this course, students examine recent advances in memory and cognition research to obtain an understanding of how these theoretical and empirical advances have been, or might be, applied to problems of human/machine interactions and system design. Topics include the total range of memory and cognitive processes and their potential application to systems design--sensation perception, pattern recognition, attention, language, memory, concept formation, thinking, decision making, problem solving, time sharing, reaction time, action, manual control, and the impact of automation.

ASCI 691 Graduate Capstone Course 3 Credits (3,0)
The Masters of Aeronautical Science Capstone Course is the culminating effort of the student's entire learning experience. The student will complete a project or comprehensive exam that provides significant evidence of experience in aviation and aeronautical studies. Students will work with designated faculty to formulate, develop, and complete the aviation/ aerospace project or exam. The completion of the 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. The Capstone Course will be taken at the end of the student's degree program.

ASCI 696 Graduate Internship in Aeronautical Science 1-3 Credit (1-3,0)
Temporary professional or industrial work appointments are 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 common to the work place. They are academic/professional activities coordinated by the University between offering organizations and a graduate student.

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.

ASCI 700 Thesis 1-6 Credit (1-6,0)
A written document on an aviation/aerospace topic, supervised throughout its preparation by the student's Thesis Committee, will be submitted. The document should demonstrate the student's mastery of the topic and be of satisfactory quality for publication.
Prerequisites: RSCH 665 and RSCH 670.

Aviation Finance (FIND)

Courses

FIND 516 Financial Accounting 3 Credits (3,0)
This course is a study of financial accounting concepts, standards, and financial reports used for external reporting by an enterprise. The course will examine accounting concepts, the accounting model, measurement and disclosure of economic transactions, preparation of financial statements, financial statement analysis, the accounting cycle, property, plant, and equipment, depreciation methods, inventory, short- and long-term liabilities, stockholders' equity transactions, inter-corporate investments, and off-balancing financing with an emphasis on aviation and aerospace related businesses. Prerequisite: A Financial Accounting course completed, or prerequisite knowledge met with approval of Program Coordinator and Instructor.

FIND 518 Managerial Finance 3 Credits (3,0)
A study of the theoretical and practical approaches to effective financial management. Planning, analyzing, and controlling investment, and short- and long-term financing are examined for decision-making purposes. Emphasis is placed on the application of these methods in the aviation and aviation-related industries. Topics include capital budgeting, risk and diversification, asset liability management, airport financing, aircraft financing, financial derivatives, financial engineering, swaps, options, financial future, and international finance.

FIND 613 Financial Modeling 3 Credits (3,0)
Financial modeling is an integral part of any finance and investment decision. In order to analyze the financial and economic viability of a project, financial analysts frequently use computer based financial models. This course will enable students to construct and work with financial models. Students will be introduced to simulation and optimization models as well as variousforecasting techniques. The focus would be to develop general principles that can be applied to the construction of financial models in aviation and aerospace industry.Prerequisites FIND 615 and FIND 618.

FIND 615 Investments 3 Credits
This course provides a 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 an institutional investors, the concept of efficient markets, equity and bond portfolio management, and portfolio performance evaluation. The course is taught from the viewpoint of both an individual and institutional investor. The course uses case studies from the airline and aerospace industries, Web-based investment simulation, and current economic and capital market information to provide practical application of the course materials.
Prerequisites: FIND 518.

FIND 618 Advanced Corporate Finance 3 Credits (3,0)
Airlines, airports, and manufacturers are complex, capital-intensive enterprises operating volatile, international markets. Consequently, participants in the industry rely on a variety of financial instruments to raise necessary capital and to manage financial risk arising from uncertain demand and supply markets. While building on the finance concepts developed in Managerial Finance, this course examines the complicated financial structures and advanced financial tools employed in the aviation industry. Concepts covered include project finance, financial derivatives (real options, interest rate swaps and hedges, forward contracts and futures), financial modeling using simulation and optimization techniques, and international financial management (foreign exchange exposure management, foreign investment and capital allocation, multinational cash and tax management). The course relies on current articles and cases to explore the application of advanced financial concepts to the aviation industry.
Prerequisites: FIND 518.

FIND 619 Economic Modeling 3 Credits (3,0)
This course introduces students to several important advanced mathematical and statistical techniques that are used to build and test econometric models, and provide solutions addressed by the institution. Emphasis will be placed on developing an understanding of the essentials underlying various methods and the ability to relate the methods to important issues faced by ananalyst carrying out econometric analysis on airline economic and/or financial data. Students will use statistical software such as SPSS/ EVIEWS/ LIMDEP/ R to do computational studies with economic data. In this course students are expected to utilize a systematic and careful reasoning to solve managerial problems. Prerequisite: MBAA 523.

FIND 620 Air Transport Economic Modeling 3 Credits (3,0)
This course introduces students to several important advanced mathematical and statistical techniques that are used to build and test econometric models, and provide solutions addressed by the institution. Emphasis will be placed on developing an understanding of the essentials underlying various methods and the ability to relate the methods to important issues faced by an analyst carrying out econometric analysis on airline economic and/or financial data. That is, how to choose the right method and how to make the right decision. Students will learn how to conduct time series analysis using EVIEWS, cross-sectional analysis using SPSS, and panel data analysis using LIMDEP. In this course students are expected to utilize a systematic and careful reasoning to solve managerial problems.
Prerequisites: MBAA 523.

FIND 621 International Aviation Finance 3 Credits (3,0)
Airlines, airports, and aircraft manufacturing are complex, capital-intensive enterprises operating in volatile, international markets. Consequently, participants within the industry rely on a variety of financial instruments to raise necessary capital and to manage financial risk arising from uncertain demand and supply markets. While building upon the finance concepts developed in Managerial Finance, this course examines the complicated financial structures and advanced financial tools and financial modeling employed within the aviation industry in an international context. Concepts covered include leasing, cross border mergers, financial distress, foreign exchange exposure management, foreign investment and capital allocation, multi-national cash and tax management. The course relies upon current articles and cases to explore the application of advanced financial concepts to the aviation industry in an international setting.
Prerequisites: FIND 518.

FIND 622 Aircraft and Airline Financing 3 Credits (3,0)
The financial issues facing airlines and the markets available to them are different than those for any other industry. Being in a highly capital intensive and cyclical industry with volatile cash flows, airlines have very special financing requirements. Access to capital is a key concern faced by many airlines. The course provides an in depth review of the airline financing market and tools. Specific topics include: airline credit risk assessment; fleet financing tools (commercial loans, operating and financial leases, tax leases, export credit, securitization, etc.); aircraft valuation, the asset risk, and residual value guaranties; state of the financing market and availability of financing tools; leasing companies (market dynamics, size and depth of market); banking market (major players in aircraft financing, market evolution); legal environment and tax considerations (repossession, bankruptcy law, and jurisdictional tax impact); structure of a lease document; structure of a loan facility document; and risk management and insurance in airlines (what risks are covered, insurance markets, and jurisdictional considerations).
Prerequisites: FIND 518.

FIND 696 Graduate Internship in Finance 1-3 Credit
Temporary professional or industrial work appointments 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 common to the workplace. They are academic/professional activities coordinated by the University between offering organizations and the graduate student. Prior approval of the graduate program coordinator is required.

FIND 699 Special Topic in Finance 1-3 Credit
The election 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.

Business Administration (MBAA)

Courses

MBAA 514 Strategic Marketing Management in Aviation 3 Credits (3,0)
The traditional role of marketing management is enlarged to include the development, implementation, and control of marketing strategies in the dynamic aviation/aerospace organization. Emphasis is on the application of the strategic marketing process in the turbulent global aviation business environment. Strategic marketing decisions, analysis, and issues are integrated with the goal of achieving customer satisfaction to gain a sustainable competitive advantage within the aviation industry. Prerequisites: Satisfactory completion of Business Foundation Course MGMT 503C or permission of the Graduate Program Chair.

MBAA 517 Managerial Accounting for Decision Making 3 Credits (3,0)
Financial control procedures for a systems approach to program management are presented. Cost elements in manufacturing, research and development, logistic and support services are explored. Included will be the introduction of fixed and variable costs; computing and using overhead; process and job order costing methods; preparation of income statements in the contribution format; ratio analysis; profit planning and its relationship to cost; budget and overhead analysis; pricing, capital budgeting and investment decisions. Prerequisites: Satisfactory completion of Business Foundation Course MGMT 503E or permission of the Graduate Program Chair.

MBAA 518 Managerial Finance 3 Credits (3,0)
This course focuses on the theoretical and practical approaches to effective financial management. Planning, analyzing and controlling investment and short and long term financing are examined for decision making purposes. Emphasis is placed on the application of these methods in business settings. Topics include capital budgeting, risk and diversification, asset and liability management, financial derivatives and financial engineering, swaps, options and financial futures, and international finance. Prerequisites: Satisfactory completion of Business Foundation Course MGMT 503F or permission of the Graduate Program Chair.

MBAA 520 Organizational Behavior, Theory, and Applications in Aviation 3 Credits (3,0)
This course focuses on current theoretical and practical organizational issues which have a direct impact on management in the aviation industry. The emphasis is on human development and the development of effective work elements, as well as the personnel concerns which must be resolved for successful leadership. Topics provide insights to behavior, structure, authority, motivation, leadership, organizational development, and social responsibility. Prerequisites: Satisfactory completion of Business Foundation Course MGMT 503A or permission of the Graduate Program Chair.

MBAA 521 Global Information and Technology Management 3 Credits (3,0)
This course aims to develop knowledgeable and effective users of information technology in aviation and aerospace management occupations. A combination of technical and managerial material is presented. The material presented is necessary to achieve an understanding of the operations and strategic uses of management information systems within the aviation industry. Emphasis is placed on the use of computers as an information processor, decision tool, and as a means of linking management more closely to the organization. In addition, topics relating to the management of information resources are presented.

MBAA 522 Business Research Methods 3 Credits (3,0)
Students are introduced to the art and science of solving business research problems and becoming better users of research. Topics include research design, the scientific method and other research methodologies, problem formulation, operational definition, measurement and its impact on error and design, classification and modeling. An introduction of a style manual for the preparation of a research proposal is covered. Students will analyze data and interpret results using a variety of statistical tools. Prerequisite: Satisfactory completion of Business Foundation Course MGMT 503D or permission of the Graduate Program Chair.

MBAA 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. Prerequisites: Satisfactory completion of Business Foundation Course MGMT 503B or permission of the Graduate Program Chair.

MBAA 604 International Business Administration 3 Credits (3,0)
This course addresses international business through the examination of major issues challenging those managers operating in the international business environment. Ways to enter foreign markets and the forces work for and against that entry are examined. Financial issues, to include foreign currency exchange, hedging techniques, and the International Monetary Fund are examined. Structuring organizations within the economy are analyzed. Human resources issues are also examined, to include culture, the labor force, communications, effective teamwork, and ethics. Strategic planning is reviewed in terms of the various components that contribute to the successful conduct international business. Trade theory, tariffs, the theory of absolute and comparative advantage, and trade barriers, are also discussed and examined in terms of global operations. Prerequisites: Satisfactory completion of the Business Foundation Course MGMT 503A or permission of the Graduate Program Chair.

MBAA 607 Human Resource Development 3 Credits (3,0)
This course emphasizes the integration of the individual into the organization by studying the current and fundamental issues in organization theory and organizational behavior as they relate to the individual. The effectiveness of the individual in the organization is examined in terms of personal traits such as communicative abilities, leadership style and potential, and beliefs about organizational ethics and social responsibility. Prerequisites: Satisfactory completion of Business Foundation Course MGMT 503A or permission of the Graduate Program Chair.

MBAA 609 Human Resource Management 3 Credits (3,0)
The focus of this course is on the functions to be accomplished in effectively managing human resources. An in-depth study of the interrelationship of managers, organizational staff, and/or specialists, will assist the student in understanding and applying management theories to real-world human resource management. Areas of concentration include human resource planning; recruitment and selection; training and development; compensation and benefits; safety and health; and employee relations. Prerequisites: Satisfactory completion of Business Foundation Course MGMT 503A or permission of the Graduate Program Chair.

MBAA 621 Information Systems Project Management 3 Credits (3,0)
This course will prepare students to understand how aerospace industries manage their Information System (IS) projects. It provides information on how these projects are managed from when they begin through completion. Students are provided knowledge about critical Life-cycle models/paradigms as well as life-cycle phases, project planning and risk analysis. Elements of financial analysis and project schedules are utilized. Many important aspects of software quality assurance and software productivity are discussed and evaluated. Finally, students will understand what is required for a successful enterprise computer system management. Case studies are utilized throughout the course to enhance student's critical thinking and problem solving.

MBAA 625 Computer System Design Analysis 3 Credits (3,0)
This course provides students with basic knowledge focused on the understanding of computer system analysis and relevant requirements needed for a successful development within aerospace management information systems. This course helps identify the customer?s management information system requirements or issues through successful documentation, problem analysis, decomposition, and final requirements document. It provides knowledge about techniques, tools used for system process analysis, modeling and simulation, and prototyping. A structured object-oriented analysis approach to computer systems design is taught. The role of the computer systems analyst within the organization is discussed. Evaluating user commitment and fulfilling user needs takes place. Various concepts, tools, and techniques for systems design are discussed. There is a review of design methods such as agile modeling and object-oriented approaches. Approaches to designing effective system input and output and human-computer interaction are provided. There is a comparison of analysis and design techniques including quality elements. Finally, students will understand what is required for computer system development, deployment and operation. Case studies are utilized throughout the course to enhance student's critical thinking and problem solving.

MBAA 626 Enterprise System Architectures 3 Credits (3,0)
This course provides the student an understanding of computer hardware and software and as it relates to the aerospace industry. There is an evaluation of computer architecture dimensions, such as quality, availability, interoperability, modifiability, performance, security, testability and usability. Emphasis is placed on the users-machine interface, input/output devices including operating systems. The communication interface with stakeholder end-users for centralized and networked computing systems; single-user and multi-user operating systems are evaluated. The Modeling of Architectures to Enable Quality Attribute Analysis is reviewed. The efficient system architecture development following agile guidelines is evaluated.

MBAA 630 Customer Value 3 Credits (3,0)
This course examines ways that high performing companies consistently meet and exceed customer desires. Emphasis is on understanding and identifying customers wants and needs, customer orientation, product or service differentiation and value-creating processes to attract, maintain, and retain customers through relationship management. Topics covered will provide managers with a blueprint for responding effectively to customer demands while creating value attributes to sustain an organization in service and product excellence. Customer value themes will address how companies respond to change, customer loyalty, and more. The course explores the use of best practices in various manufacturing and service related industries that model effective customer value behavior, customer satisfaction, e-services, integrated marketing communications, and information-based organizations.
Prerequisites: MBAA 514.

MBAA 632 Global Marketing 3 Credits (3,0)
This course builds upon the concepts in marketing from a more global perspective with a hands-on understanding of current issues and events found in the international market. Students will apply the 4Ps to global marketing with an emphasis on understanding the legal, regulatory, political, language, and other cultural factors that influence products and services in other markets.
Prerequisites: MBAA 514.

MBAA 633 Technology Marketing 3 Credits (3,0)
This course explores the digital marketing technology that has changed the way customers, retailers, manufacturers, and marketers utilize information in the marketing domain. Topics discussed are the use of technology that influences the way customers shop, how products and services are marketed, and how customer information can improve the marketing mix. Students will learn the various aspects of technology marketing with an emphasis on analytical data collection with social media, impact with mobility devices, beacon technology used for mapping store layout or used for security, and other adoption of new technology that impact business.
Prerequisites: MBAA 514.

MBAA 635 Business Capstone Course 3 Credits (3,0)
This is a capstone course in the MBAA program that expands on the skills, knowledge, and abilities the students have achieved in their core courses. Students examine applications of long-term planning and management tools in aviation related industries, and formulate the strategic vision and policies to achieve such a perspective. Emphasis is on research and analysis in the field of Strategic Management. Applications of the concepts are applied to the domestic and international activities of airlines, airports, manufacturing, service, merchandising and government organizations to sustain a competitive advantage. Prerequisite: Completion of all MBAA core courses: MBAA 514, MBAA 517, MBAA 518, MBAA 522, MBAA 523, and MBAA 604.

MBAA 641 Public Leadership 3 Credits (3,0)
This course examines the elements found in public leadership. Reviews the different leadership theories associated with the public leader including early theories, change in theories, and ideal theories. Evaluates leadership in the public and non-profit sectors. Assesses the culture, society, and diversity as they relate to making leadership decisions. Compares the qualities of successful and poor performing leaders. Examines the ethical framework for public leadership. Explores new leadership modules and theories for the future. Prerequisites: Satisfactory completion of Business Foundation Course MGMT 503A or permission of the Graduate Program Chair.

MBAA 644 Public Finance 3 Credits (3,0)
This course examines the U.S. Federal Government fiscal finance structure and explores taxation, public debt, government public policy, and finance at the state and local levels of government. Reviews the basis for taxation, economics as it relates to government activities, public policies such as Social Security, government subsidies, and health care. Provides insight on how the federal, state, and local governments allocate and compete for resources. Interprets various economic principles as they relate to government spending. Prerequisites: Satisfactory completion of Business Foundation Course MGMT 503A or permission of the Graduate Program Chair.

MBAA 646 Public Human Resource Management 3 Credits (3,0)
This course focuses of the functions to be accomplished in effectively managing human resources in the public and nonprofit sectors. Reviews labor law and regulatory constraints. Areas of concentration include planning, recruitment and selection, training and development, compensation, safety and health, outsourcing, privatization, collective bargaining, and the Civil Service Commission. Prerequisites: Satisfactory completion of Business Foundation Course MGMT 503A or permission of the Graduate Program Chair.

MBAA 648 Public Policy 3 Credits (3,0)
This course evaluates the elements associated with the public policy process. Describes the historical challenges in public policy. Focuses on current methods to address public issues. Outlines the role of each level government in the policy making process. Interprets the changing relationship between government and business. Reviews economic issues such as taxing, spending, and budgeting. Justifies public policy in the areas of energy and the environment, crime and criminal justice, poverty and social welfare, health care, education, legal and social equity, immigration, and foreign policy and defense. Compares private ethics and morals to society and the Constitution.Prerequisites: Satisfactory completion of Business Foundation Course MGMT 503A or permission of the Graduate Program Chair.

MBAA 653 International Finance 3 Credits (3,0)
This course introduces the student to the role of international financial considerations in the development of corporate financial policy. The course studies and analyzes the international financial market, exchange rate behavior, exchange rate risk management, long-term asset and liability management, and short-term asset and liability management. Specific topics, such as, financing international trade, forecasting exchange rates, hedging techniques, international financial markets, long-term debt financing, country risk analysis, and multinational budgeting will be addressed
Prerequisites: MBAA 518.

MBAA 658 Money and Banking 3 Credits (3,0)
This course introduces the student to the role of money and banking as they relate to business. The course studies and analyzes the financial system, money and payments, the fundamentals of banking, macroeconomics, and monetary policy. Specific topics, such as, the federal reserve system, monetary policy, fiscal policy, the government's role in banking, interest rates, economic growth and business cycles, stocks, demand and supply, and economic interdependence will be addressed.

MBAA 662 Intermediate Accounting I 3 Credits (3,0)
This course provides an in depth examination of accounting theory as it applies in a business setting. To help insure business success a firm needs to properly account for its financial resources. This course addresses many financial areas where the proper application of financial accounting and accounting standards would benefit the business firm. These areas include financial reporting, cash and receivables, intangible assets, acquiring and disposing of property, plant, and equipment, financial statements, depreciation, depletion, and the time value of money. **Prerequisites:** MBAA 517.

MBAA 663 Intermediate Accounting II 3 Credits (3,0)
This course is a continuation of MBAA 662. The business accounting topics addressed in this course include; revenue recognition, stockholders equity, pensions, leases, the statement of cash flows, full disclosure and financial reporting, investments, current and long-term liabilities, dilutive securities and earnings per share, and error analysis. **Prerequisites:** MBAA 662.

MBAA 667 Federal Taxes 3 Credits (3,0)
This course examines the application of federal taxes as they apply to individuals, partnerships, and corporation. The understanding of federal tax laws allows the firm (sole proprietorship, partnership, or corporation) to make spending and investment decisions that ultimately will help realize the financial and other goals of the firm. This course will address such topics as; tax authorities, tax planning and strategies, individual incomes taxes, corporation income taxes, and partnership income taxes. **Prerequisites:** MBAA 517.

MBAA 691 Graduate Aviation Research Proposal 3 Credits (3,0)
This course serves as a foundation for the preparation of the mandatory Graduate Aviation Research Study (GARS). The course provides an opportunity to apply the various research tools and techniques learned in MBAA 522 for the completion of the GARS. The course enables students to identify an aviation/aerospace business problem and to apply the most appropriate analytical tools and statistical methods. The purpose of the course is to have students complete a Graduate Aviation Research Proposal. This proposal will be assessed and approved by the Graduate Aviation Research instructor.
Prerequisites: MBAA 522.

MBAA 692 Graduate Aviation Research Study 3 Credits (3,0)
In this course students must complete their Graduate Aviation Research Study (GARS). The purpose of the GARS is to present answers to questions that are pertinent and useful to some area within the aviation/aerospace industry management topic. This course builds upon MBAA 691, by completing the GARS and providing a solution to the problem identified in MBAA 691.
Prerequisites: MBAA 691.

MBAA 696 Graduate Internship in Aviation Business Administration 1-3 Credit (1-3,0)
Temporary professional or industrial work appointments 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 common to the work place. They are academic/ professional activities coordinated by the University between offering organizations and graduate student. Prior approval of the graduate program chair is required.

MBAA 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. Prerequisite: Permission of the Graduate Program Chair.

MBAA 700 Thesis Research 3-9 Credit (3-9,0)
A written document on an aviation/aerospace management topic supervised throughout its preparation by the student's Thesis Committee, which demonstrates the student's mastery of the topic and is of satisfactory quality for publication. This course is available by articulation agreement as an International Program Option and is not available to Worldwide Campuses. MBAA 522 may be incorporated by articulation agreement.

Engineering Management (EMGT)

Courses

EMGT 514 Professional Service Marketing 3 Credits (3,0)
This course will introduce students to marketing in a service and customer driven context. The course will examine the differences between marketing tangible goods and services. Marketing issues related to these differences will be identified and solutions/alterations necessary to market services will be explored. The Gap model of service quality will provide the framework for exploring the topics of the class.

EMGT 523 Engineering Economic Analysis 3 Credits (3,0)
Optimizing financial performance is a key responsibility of the engineering manager. This course will present students the major concepts and techniques of engineering economic analysis needed in the decision making process. Concepts covered will include time value of money, discounted cash flows, break-even analysis, tax implications and analysis of single and multiple investments.
Prerequisites: MGMT 503D.

EMGT 618 Introduction to Financial Engineering: Futures and Options 3 Credits (3,0)
This course examines the use of forwards, futures, SWAPS and other financial derivatives for hedging, arbitrage and speculative purposes in the global environment. The course focuses on how firms use these instruments to manage risks such as exchange rate risk, interest rate risk and commodity price risk. The emphasis is on understanding the mechanics, valuation and management techniques behind financial engineering using these derivatives.
Prerequisites: MBAA 518 or EMGT 523.

Information Security and Assurance (MISA)

Courses

MISA 501 Assured Business Systems: Managing and Protecting the Information Systems Enterprise 3 Credits (3,0)
This course provides the two major foundation elements for the MSISA program. It first reviews the many ways in which computation, communications and information systems are used to identify and solve problems, recognize opportunities and generate competitive advantage. It then focuses attention on the importance of assuring that those systems achieve the reliable decision support that organizations require. It does this by looking first at the risks to those systems - risks incurred by their builders and designers through poor design or undisciplined use that can present hackers, criminals and one?s own employees the opportunity to cause harm. It then uses the concepts of the "enterprise perspective" to demonstrate the various information systems used to lead, manage and operate a variety of organizations, while exploring the need for organizations large or small, public or private, to sustain their own existence through continuity planning and risk management.

MISA 502 Risk Management and Business Continuity 3 Credits (3,0)
Business continuity is the study and practice of making smart risk management decisions that protect and enhance the organization's ability to survive and flourish despite the hazards of the real world. This view of resilience focuses on getting the organization's mission accomplished in part because the organization is flexible enough, responsive enough to meet changing circumstances. Risk management, therefore, is about identifying potential events that could impede the accomplishment of those objectives, and then making cost-effective choices as to whether to absorb, ignore, transfer or mitigate that potential impact. This planning and decision making is an ongoing task that management must perform - well in advance of the occurrence of a hazard, during the event itself, and after the repairs and remediation are complete. While there are many schools of thought about risk, and therefore many categorization schemes about risk, this course takes the perspective that risk is about decision making, and therefore information risk is the fundamental risk that must be managed. The course assesses the different perspectives on information risk -- asset-based, threat-based, process-based, or outcomes-based -- and then looks to the different strategies that can be used to deal with such risks and their potential costs and impacts. Students will then examine the central role that information risk management plays in organizational continuity, and how this dictates the need for effective continuity planning.

MISA 503 Informatics: Security Implications of Cross-Disciplinary Computing 3 Credits (3,0)
Informatics is about structure, behavior and interactions. It?s about natural and engineered information and knowledge systems and the way people and organizations use these systems to leverage what they know as they solve problems and create opportunities across a wide variety of activities. Informatics embraces the study and use of both natural and engineered computation and information systems, and how they interact. Countering the threats and hazards that face a modern information-based organization requires the same kind of interdisciplinary approach. Many who live and work in the "threat actor space" use an informatics frame of mind to consider, plan and conduct their attacks; this course challenges the information systems security and decision support assurance professionals to understand the informatics paradigm and apply it across a variety of organizational processes and behaviors, from risk mitigation and management to strategic, tactical and operational planning. Prerequisites: MISA 501 and MISA 502, or the approval of the Program Chair.

MISA 504 Enterprise Systems Architectures for Information Assurance 3 Credits (3,0)
Protection of information in systems architectures is a complex, multidisciplinary challenge. Maintaining the confidentiality, integrity, and availability of critical information in interconnected, dynamic architectures presents multiple dimensions of risk to the systems architect. It also challenges the architecture team that typically consists of product managers, designers, developers, project, program management as well as sales and marketing to clearly understand the technology, processes and tools needed for the architecture when delivering the architecture design to customers and suppliers. This course examines information assurance challenges in the context of complex systems with interconnected processes, complex product and technology design and enterprise domains. Topics to be covered include systems architectures, information assurance objectives, and systemic risk. Prequisites: MISA 501 and MISA 502.

MISA 505 Incident Management and Information Forensics 3 Credits (3,0)
The compromise, theft, or sabotage of information systems vital to the organization's activities and objectives can have a profound effect on an enterprise. Investigating such incidents requires a special form of problem-solving that combines technical, legal and organizational skills and insights to solve the right problem without creating more in its wake. This calls for information systems forensics specialists, people who know how to find and follow the evidence, and managers who know why, when and how to put the forensics process to work in defense of the organization.This course explores system forensics processes and tools, and the implications this has both for the information security professional as well as the organization. The first part of the course includes a study of foundational concepts of the nature of security incidents, forensics techniques, and the evidentiary process. It considers the various roles that forensic specialists play in preparing the organization to deal with incidents including controlling, conducting and reporting on the investigation and resolution of information systems incidents. The second part of the course provides an opportunity for students to apply foundation concepts against sample and potential incidents, drawing from case studies and media reports. Students will consider various types of information systems forensic evidence and apply various tools and forensic analysis skills for incident investigation. Additional topics include communicating investigations and findings to organizational leadership as well as emerging technical frontiers of computer forensics. Prequisites: MISA 501 and MISA 502.

MISA 506 Cyber Law, Cyber Compliance, and Information Assurance 3 Credits (3,0)
Virtually every aspect of the way in which organizations collect, generate, use, modify and dispose of information as a part of their daily operations is quite likely the subject of laws, regulations, government policies, or other aspects of modern society. As governments continuously reset the balance between protecting the rights and needs of the individual citizen, vs. the need for business and government to get things done in cost-effective ways, these laws and regulations place dynamic, evolving functional requirements demands on the information systems that organizations must use. This course examines the many different regulatory regimes levied upon organizations by the marketplaces they operate in -- and guides the student in identifying key management considerations that should drive information systems design and operational use. One key fundamental concept emerges: information assurance, in assuring management that all of these compliance issues are effectively dealt with, is in and of itself a risk management decision. Prerequisites: MISA 501 and MISA 502.

MISA 507 Quality Management for Information Assurance 3 Credits (3,0)
Quality management provides a systems engineering approach that focuses on process design to achieve objectives, without having to rely upon exhaustive testing or inspection of outputs to achieve desired outcomes. This course applies this concept across the life cycle of information in organizations, and the information systems that generate and make that information useful -- including the information systems used to keep the "front-line" systems alive and secure. Prerequisites: MISA 501 and MISA 502.

MISA 521 Assuring Information Integrity in Data Warehousing/Mining 3 Credits (3,0)
Information Integrity has been defined in many ways, but perhaps the simplest and most effective definition is that "integrity" is the measure of how complete and correct the information is, how timely it is, and whether it is made available to you how and where you need it to do your job when you need to do it. Implicit in that definition are concepts like protecting the data from access by others, either for unauthorized purposes, or to protect the objectives the data supports from corruption or interruption. When organizational information scales up from in-house data bases to data warehousing operations, however, these leaps in volume and complexity bring with them even more data and information integrity issues. This course helps prepare the student to address the fundamental issues of availability, reliability, suitability -- "fitness for purpose" -- of the information their organization wants to find in their data warehousing and mining operations. It introduces key concepts in data quality assessment, and helps the student make the business case for instituting data and information quality and integrity as part of data warehousing and data mining operations. Prerequisites: MISA 501 and MISA 502, or approval of the Program Chair.

MISA 522 Social Media, Business and Web Analytics: Information Assurance Implications 3 Credits (3,0)
Social media and the analysis of business and web data have transformed organizations and business models. The wide availability of vast stores of data, which may range from high-value and reliable to error-prone and misleading, establishes a foundation where organizations can apply analytical techniques to understand customer and consumer behavior and solve business problems. Along with the substantial promise and capabilities that effectively exploiting this data can bring comes an array of data privacy and information assurance concerns. Enterprises seeking to leverage newfound data resources and analytical approaches have the task of addressing the security and assurance concerns while not stifling business activities. Prerequisites: MISA 501 and MISA 502.

MISA 523 Information Advantage -- Defensive: Countering Self-Deception and External Deceptions 3 Credits (3,0)
Defending the image and reputation of an organization, and assuring the value of the business intelligence it gathers and creates, is critical to protecting and enhancing that organization's competitive advantage within the marketplace. As such, leaders must effectively manage information and mitigate the risk of deception within internal and external environments. Managing the perception of an organization's image and reputation requires a proactive approach given advances in technology and globalization. Perception management topics will include a comprehensive review of threats, risk analysis, control techniques, and managerial/crisis issues. This course also offers defensive skills, tools and processes necessary to eliminate or counter the negative ramifications of erroneous information, corrupt practices and espionage. From a management perspective learners will explore strategic methods designed to protect intelligence and maintain an information advantage. Prerequisites: MISA 501 and MISA 502, or approval of the Program Chair.

MISA 531 Secure Information Systems Design 3 Credits (3,0)
Designing information systems with security and assurance goals in mind provides an important foundation to deploy secure solutions and support ongoing assurance in systems operations. Approaches that, in contrast, minimize the gathering of security requirements during design stages can be expected to result in substantial effort to engineer security into an existing system as the system is deployed. Adoption of secure design practices enables a much more efficient path to the deployment of secure systems. Secure design is an important concern for business analysts as they identify functional requirements, as well as to developers as they transform requirements and design elements into a working system. IT management strives to implement and deploy the system using secure systems design principles. But most importantly, it is as the business owners and operational managers assume functional ownership of deployed systems, and use it as they strive to build a resilient enterprise, that secure information systems design principles realize their greatest payback. Prerequisites: MISA 501 and MISA 502.

MISA 532 Integrated Threat Warning and Attack Assessment for Enterprise Information Systems 3 Credits (3,0)
Virtually every organization large or small faces a non-stop demand to be connected -- with competitors and customers, with regulators and suppliers, and especially with its own shareholders, stakeholders and employees. The sheer volumes of data exchanged and their complexity and sophistication are growing faster than ever before, which makes it even more difficult for organizations to detect, isolate and characterize potential hazards, and separate the accidents or non-deliberate from potentially hostile actions. Faced with this ever-increasing volume of more complex information interchange, organizations must use more powerful and sophisticated techniques to help sift suspicious network activity from routine traffic. Some of the most promising of these increasingly sophisticated monitoring techniques employ aspects of machine learning. This course provides the foundational knowledge for appropriately deploying those techniques. Topics include security risks and vulnerabilities, mobile systems, social networks, and ways to enhance system security. Prerequisites: MISA 501 and MISA 502, or approval of the Program Chair.

MISA 533 Product and Systems Safety and Reliability: Issues for Information Assurance 3 Credits (3,0)
Technical risk is created whenever computing systems are integrated with products and services, as a computing failure cascades into the failure of the product or service that relies upon the technology. The management of cascading technical risks becomes more urgent, and therefore challenging, in the realm of safety-critical systems, where failure could potentially result in significant damage, physical losses, or loss of life. Ever-increasing reliance on computerization for the control of physical assets such as vehicles and production facilities creates an increased need to address product and systems safety and reliability. Information assurance principles can and should be applied throughout such environments to ensure continuous, reliable system function. Prerequisites: MISA 501 and MISA 502.

MISA 534 Aviation / Aerospace Issues for Information Security 3 Credits (3,0)
During the past decade, airlines have made substantial investments in information technology solutions. These solutions extend throughout the airline's environment and contribute to improved operational efficiency, safety, and customer satisfaction. Securing these investments and protecting the information that these systems manage requires knowledge, leadership, and an effective information security system. The introduction of advanced e-enabled airplanes and systems will provide an increased level of operational efficiency for the airlines. However, this means increased interaction with many information systems that are outside the traditionally defines airline security perimeter. This course provides an overview of information security for the air transport industry and for airline operators. It outlines the requirements for an information security framework, discusses how digital airplanes influence airline, airport and air transport system information security and describes a general information security strategy for aviation and airlines.

MISA 541 International Considerations for Information Assurance and Protection 3 Credits (3,0)
Globalization of information resources within enterprises and across the world via the Internet increases systems complexity, including the distribution of system users, data, and architecture across national boundaries. Increasing global distribution of information presents substantial assurance challenges. The resulting information systems environment is multi-national, and therefore under the scope of multiple political and legal jurisdictions, may support users from numerous national and organizational cultures, and may be subject to a wide variety of threats to local users and system components. Management is faced with significant obstacles to ensuring physical and cyber security of systems resources and the protection of information assets in an environment of sometimes limited transparency. Recognition of emerging risks and appropriate enterprise response across a global environment has become a functional requirement for organizations of all sizes that seek to build the most efficient and effective information systems regardless of the physical location of people, processes, and computing resources. Prerequisites: MISA 501 and MISA 502.

MISA 542 Advanced Information Assurance Topics for Distributed Organizations and Systems 3 Credits (3,0)
This course challenges the student to integrate many aspects of their core MSISA studies into a variety of alternative global contexts. On the one hand, many organizations are small, flexible, and rapidly evolving in both the nature of their activities and their use of information systems; by contrast, many others generate their competitive advantage through large-scale information infrastructures that require much greater degrees of governance, management and control. Yet regardless of where on that spectrum a particular organization may find itself, going more global causes that organization many new challenges -- and provides many opportunities to reexamine, reengineer, or revalidate its previously-considered information assurance policies, programs and procedures. Using a combination of case studies and scenario-based analysis, students will examine a variety of global information assurance challenges pertaining to distributed organizations and systems. Students may elect to perform in-depth research, provide a detailed analysis of selected case studies, or conduct a real-world project. For instance, students may develop and evaluate a detailed business continuity management plan, or conduct an in-depth information risk assessment for an organization, develop a detailed risk management and treatment plan, or conduct a thorough analysis and evaluation of an existing information risk management plan. Quantitative and qualitative analytical methods should be considered essential to providing a rigorous, thoughtful, and well-supported final product. Prerequisites: MISA 501 and MISA 502, or approval of the Program Chair.

MISA 543 Assured Strategic Messaging: Keeping the Message Intact and Effective 3 Credits (3,0)
This course studies the role and impact of communication in achieving organizational goals through effective messaging. The communication strategy will focus on proven, effective strategies for understanding stakeholder information needs and translating them into clear and differentiated messaging. Specific attention will be placed on the following topics: identifying key internal and external audiences, developing communication goals and objectives, devising appropriate messaging, and creating a plan to reach designated stakeholders that uses the most efficient communication strategies and tactics. In addition, the course will explore industry trends, including the technological convergence of communication modes (voice, video and data), enterprise wide connectivity, distributed network environments, and the Internet. Prerequisites: MISA 501 and MISA 502, or approval of the Program Chair.

MISA 544 The High-Reliability Enterprise Model 3 Credits (3,0)
Reliable and resilient enterprises are those that are built to withstand negative forces and events, which can also make them more agile, better suited to take advantage of unforeseen opportunities. This course demonstrates that the development of secure and reliable products and services, and the continuous operation of critical internal systems, is best achieved in an organizational environment that prioritizes information assurance. Organizational approaches to the implementation of standards, best practices, and quality principles are essential considerations and provide the foundation that enables and promotes the building of reliable, trustworthy systems. Dimensions of information quality, overall quality management, process maturity, and others combine to set an organizational tone that supports assurance objectives and drive enterprises to the effective management of enterprise risks. Prequisites: MISA 501 and MISA 502.

MISA 691 Applied Methods 3 Credits (3,0)
This course challenges the student to integrate all aspects of their MSISA studies into a cohesive and comprehensive approach to a selected INFORMATION SECURITY and ASSURANCE problem. Students may elect to perform in-depth research, provide a detailed analysis of selected case studies, or conduct a real-world project. For instance, students may develop and evaluate a detailed business continuity management plan, or conduct an in-depth information risk assessment for an organization, develop a detailed risk management and treatment plan, or conduct a thorough analysis and evaluation of an existing information risk management plan. Quantitative and qualitative analytical methods should be considered essential to providing a rigorous, thoughtful, and well-supported final product. Prerequisites: MISA 501 and MISA 502, and Completion of at least 30 credit hours of the MSISA program, or approval of the program chair.

Leadership (MSLD)

Courses

MSLD 500 Leadership Foundations in Research 3 Credits (3,0)
Students are introduced to several topics that are foundational to the Master of Science in Leadership Program. Topics include: critical thinking, fallacies, digital literacy tools, library research, and writing using the APA style manual. Additionally, students learn qualitative and quantitative research fundamentals and complete an action research project. Students are also introduced to the requirements for the Graduate Capstone ePortfolio.

MSLD 511 Organizational Leadership 3 Credits (3,0)
This course is designed for students to explore leadership in organizations. The course provides students with knowledge and a review of organizational leadership theory and research. It also examines the effects of internal and external organizational factors on leadership outcomes. Topics covered are the approaches and models of leadership, to include the nature of leadership, effective leadership behavior, strategic leadership by executives, leadership and organization change, group and team leadership strategies, and the associated ethical, gender based, cross-cultural and diversity oriented aspects of leadership.
Prerequisites: MSLD 500.

MSLD 520 Management Skills for Leaders 3 Credits (3,0)
This course emphasizes the integration of the individual into the organization by studying the current and fundamental issues in organization theory and organizational behavior as they relate to the individual. The effectiveness of the individual in the organization is examined in terms of personal traits such as communicative abilities, leadership style and potential, and beliefs about organizational ethics and social responsibility.
Prerequisites: MSLD 500.

MSLD 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: MSLD 500.

MSLD 630 Organizational Change and Development 3 Credits (3,0)
In a constantly changing environment, leaders will need to become change architects for their organizations. This course focuses on leadership elements necessary to introduce planned change through an understanding of theories and concepts related to organizational intervention. The student will develop the skills necessary to anticipate the need for change; champion change agendas; diagnose organizational issues; develop change action plans, strategies, and techniques; and assess, monitor, and stabilize changed organizations.
Prerequisites: MSLD 500.

MSLD 631 Leading High Performance Teams 3 Credits (3,0)
High Performance Teams are an essential component of successful 21st Century organizations. This course focuses on the development, implementation, and leadership of High Performance Teams in the global environment. Throughout the course, the student will develop methods and models for assessing current organizational climate, resolving interpersonal issues, and developing strategies for planned organizational change through the use of high performance systems.
Prerequisites: MSLD 500 and MSLD 630.

MSLD 632 Decision Making for Leaders 3 Credits (3,0)
The leaders in an organization often set the tone and establish benchmarks for success. In this course the focus is on developing a successful leadership style so as to facilitate team-building, collaboration and a corporate culture that promotes success. Decision-making techniques will be explored in the context of successful leadership styles. Students learn frameworks for approaching decisions and for representing real-world problems using models that can be analyzed to gain insight and understanding.
Prerequisites: MSLD 500.

MSLD 633 Strategic Leadership 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: MSLD 500.

MSLD 634 Leadership Ethics and Corporate Social Responsibility 3 Credits (3,0)
Students are introduced to several topics that form the foundation for Leadership Ethics and Corporate Responsibility. Topics include: personal dilemmas, morals, virtues, organizational dilemmas, and societal issues. The course focuses on the role of ethics in decision-making on three levels: the individual, the organization, and society.
Prerequisites: MSLD 500.

MSLD 640 Cases in Leadership 3 Credits (3,0)
This course will examine different case studies and leadership theories to help enhance the students understanding of leadership. The student will gain an understanding of how particular leadership theories impact organizations and their stakeholders. Students will grapple with real-world decisions and their organizational impact. Students will learn how to diagnose leader and organizational attributes and the importance of those attributes.
Prerequisites: MSLD 500.

MSLD 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.

MSLD 690 Graduate Leadership Capstone 3 Credits (3,0)
In the Graduate Leadership Capstone course, the student reviews and assimilates the materials and lessons from the Master of Science in Leadership Program. The capstone course has the following outcomes:* A reflective paper that develops significant themes, frameworks, and program outcomes within the context of the student?s leadership learning.* A leadership action plan to propel and guide the student into future phases of personal mastery and growth as a leader.* A leadership portfolio of significant program artifacts. The portfolio will demonstrate the student?s mastery of program outcomes and provide significant documentation to provide current or prospective employers.Prerequisite: Completion of all Leadership Program Courses.

Logistics and Supply Chain Management (LGMT)

Courses

LGMT 536 Purchasing for Logistics and Supply Chain Managers 3 Credits (3,0)
This course addresses the critical role of purchasing in supply chain management. The course begins with a review of the basic components of purchasing followed by a discussion of the role of purchasing in the supply chain and how it contributes to the strategy and profitability of the enterprise. The course also addresses the legal aspects of purchasing and the relationship between purchasing and inventory management, materials management, just-in-time manufacturing, and manufacturing resource planning. Global sourcing and the role of supply chain partnerships are also addressed, along with how to evaluate, bargain, and negotiate with suppliers. Other topics include the relationship between purchasing and quality assurance; different pricing methods; the use of different pricing strategies for different transportation modes; and the role of purchasing in evaluating capital investments as well as professional services.

LGMT 636 Transportation Management 3 Credits (3,0)
Transportation plays a key role in today's global economy. The focus of this course is on understanding the technical, operational, and economic characteristics of the different freight and package transportation modes and their application in integrated physical distribution systems. This course addresses regional, national, and international passenger transportation and explores the impact of the different transportation modes, transportation intermediaries, and intermodality on small package, freight, and passenger systems. The course also addresses national and international regulatory constraints and their impact on passenger transportation and global supply chain management. Additional topics include 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.

LGMT 680 Discrete Event Simulation Modeling 3 Credits (3,0)
Simulation refers to a collection of methods to mimic the behavior of real systems. The focus of this course will be simulation modeling of discrete event systems using simulation software ARENA. Introduction to the theory and application of systems simulation will be provided. The topics include, modeling systems dynamics using discrete events, modeling manufacturing-oriented and service-oriented systems, random variable generation, model verification and validation, and statistical analysis of output. Prerequisites: Satisfactory completion of an introductory statistics course, and/or permission of the Graduate Program Chair.

LGMT 682 Integrated Logistics Management 3 Credits (3,0)
The focus of this course is on integrated logistics management. Although different organizations define the concept differently, at its core, integrated logistics is all about the systematic management of activities associated with the delivery of goods and services to meet customer needs. As a result, this courses addresses the cross-functional management of a number of activities including sourcing, procurement, packaging, in-bound transportation, warehousing, inventory management, distribution, customer service, and reverse logistics where appropriate. Additional topics include the concept of life cycle cost, outsourcing, performance management, international logistics, and the role of web and EDI in managing the logistics information needs of the enterprise. Case studies and problems are used throughout the course to highlight important principles and best practices in integrated logistics management.

LGMT 683 Supply Chain Management 3 Credits (3,0)
The focus of this course is on supply chain management. Topics include the evolution and objective of supply chain management; the major stages and processes involved in planning and managing supply chains; and why the concept of strategic fit is so important to supply chain managers. Successful students will also understand the major drivers of supply chain performance; key metrics for managing performance; and how to plan and forecast demand under conditions of uncertainty to meet desired customer service levels. This course also addresses the purpose and content of the Supply Chain Operations Reference (SCOR) Model. Case studies and problems are used throughout the course to highlight important principles and best practices in supply chain management.
Prerequisites: MGMT 524.

LGMT 685 Global Logistics and Supply Chain Management 3 Credits (3,0)
Today, globalization is affecting almost every aspect of the world's economy - and the world's economy is sustained by global logistics. The focus of this course is on understanding the role of logistics and supply chain management in meeting the needs of the transnational enterprise, from the sourcing of raw materials through delivery of the finished product to the final customer. The course addresses the role and scope of logistics in the global economy; key strategies for supporting different market entry alternatives; the impact of different transportation modes on international supply chain management; the use of international commerce terms and contracts; the impact of exchange rates on supply chain profitability; supply chain security; and the role of global supply chain management as a key source of competitive advantage. A number of case studies are also analyzed throughout the course to highlight important principles and best practices in global logistics and supply chain management.

LGMT 691 Logistics and Supply Chain Management Capstone 3 Credits (3,0)
This course is designed to provide students with the opportunity to apply and demonstrate knowledge gained throughout the program. This will be accomplished utilizing a logistics and supply chain management portfolio. Demonstration of understanding of the full spectrum of logistics and supply chain management will include the following topics: sourcing, procurement, contracting, warehousing, inventory management, transportation, integrated logistics and supply chain management, logistics and supply chain security, global logistics and supply chain management, and ethics.Prerequisites: This course is a part is part of an integrated program. Each course builds on knowledge and skills developed in previous courses. These courses are not stand-alone courses and the degree is not just an assemblage of independent courses. Prerequisites must be enforced. The students must have completed all the required core courses in the MSLSCM program prior to attempting this course.

Management (MGMT)

Courses

MGMT 500 Business Foundations 3 Credits (3,0)
Students are introduced to several topics that are foundational to the Master of Science in Management Program. Topics include: library research, writing using the APA style manual, economics, communication, and management science. Additionally, students will learn qualitative and quantitative research fundamentals and review basic statistics. Students are also introduced to the requirements for the Graduate Management Capstone Project.

MGMT 503A Business Foundations - Management 1 Credit (1,0)
This course examines in-depth the major competencies which have been identified as essential prerequisite knowledge for a graduate student enrolled in the MBAA program to successfully complete the course work. The course is broken down into six stand-alone modules: management, quantitative methods, marketing, accounting, economics, and finance. Each student will only take those modules which have been identified through advisement as being required. Emphasis is placed on understanding the core knowledge and skills in each of the disciplines. Credit for this course is not applicable to the requirements of any Embry-Riddle degree.

MGMT 503B Business Foundations - Economics 1 Credit (1,0)
This course examines in-depth the major competencies which have been identified as essential prerequisite knowledge for a graduate student enrolled in the MBAA program to successfully complete the course work. The course is broken down into six stand-alone modules: management, quantitative methods, marketing, accounting, economics, and finance. Each student will only take those modules which have been identified through advisement as being required. Emphasis is placed on understanding the core knowledge and skills in each of the disciplines. Credit for this course is not applicable to the requirements of any Embry-Riddle degree.

MGMT 503C Business Foundations - Marketing 1 Credit (1,0)
This course examines in-depth the major competencies which have been identified as essential prerequisite knowledge for a graduate student enrolled in the MBAA program to successfully complete the course work. The course is broken down into six stand-alone modules: management, quantitative methods, marketing, accounting, economics, and finance. Each student will only take those modules which have been identified through advisement as being required. Emphasis is placed on understanding the core knowledge and skills in each of the disciplines. Credit for this course is not applicable to the requirements of any Embry-Riddle degree.

MGMT 503D Business Foundations - Quantitative Methods 1 Credit (1,0)
This course examines in-depth the major competencies which have been identified as essential prerequisite knowledge for a graduate student enrolled in the MBAA program to successfully complete the course work. The course is broken down into six stand-alone modules: management, quantitative methods, marketing, accounting, economics, and finance. Each student will only take those modules which have been identified through advisement as being required. Emphasis is placed on understanding the core knowledge and skills in each of the disciplines. Credit for this course is not applicable to the requirements of any Embry-Riddle degree.

MGMT 503E Business Foundations - Accounting 1 Credit (1,0)
This course examines in-depth the major competencies which have been identified as essential prerequisite knowledge for a graduate student enrolled in the MBAA program to successfully complete the course work. The course is broken down into six stand-alone modules: management, quantitative methods, marketing, accounting, economics, and finance. Each student will only take those modules which have been identified through advisement as being required. Emphasis is placed on understanding the core knowledge and skills in each of the disciplines. Credit for this course is not applicable to the requirements of any Embry-Riddle degree.

MGMT 503F Business Foundations - Finance 1 Credit (1,0)
This course examines in-depth the major competencies which have been identified as essential prerequisite knowledge for a graduate student enrolled in the MBAA program to successfully complete the course work. The course is broken down into six stand-alone modules: management, quantitative methods, marketing, accounting, economics, and finance. Each student will only take those modules which have been identified through advisement as being required. Emphasis is placed on understanding the core knowledge and skills in each of the disciplines. Credit for this course is not applicable to the requirements of any Embry-Riddle degree.

MGMT 524 Management Science 3 Credits (3,0)
Students have the opportunity to gain knowledge and experience in the application of management science processes and models used in decision making in management. Techniques include 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. Computer techniques are used to solve problems and to communicate the results in a clear and understandable fashion. Emphasis is placed on using quantitatively based analytical methodologies, interpreting quantitative results, and communicating conclusions. Prerequisites: MGMT 500 or MGMT 503D or Permission from the Graduate Program Chair.

MGMT 532 Philosophy, Principles, and Practices in Management of Quality 3 Credits (3,0)
The content of this course incorporates multiple aspects of the management of quality and the integration of quality considerations into all other management decision processes. The primary thrust of the course is an in-depth analysis of quality management concepts, methods, and techniques from a systems perspective. Areas of emphasis are leadership, strategy development and deployment, quality management tools, customer focus, supplier performance, management communications, projects, and training and development. The course encompasses the body of knowledge required in the Certified Quality Manager certification. Prerequisites: MGMT 500 or MGMT 503A and MGMT 503D or permission of the Graduate Program Chair.

MGMT 533 Federal Regulations, Ethics and the Legal System 3 Credits (3,0)
This course emphasizes understanding the complex regulatory and legal setting surrounding management. The federal acquisition regulations and how they affect all projects, such as legal responsibility and accountability, ethical considerations within and external to the organization, the internal environment and how it may affect projects are discussed. Regulatory controls and constraints on managerial decision making in areas such as occupational and environmental safety and discrimination in the workplace are included, as are other safety and security issues of which the manager should have knowledge. Prerequisites: MGMT 500 or MGMT 503A or Permission from the Graduate Program Chair.

MGMT 535 Theory and Application of Managerial Communications 3 Credits (3,0)
This course explores the impact of communication in managing 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 managers effectively communicate. Students will have the opportunity to gain an understanding of why good communication skills are important in business, how communication 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.

MGMT 630 Organizational Change and Development 3 Credits (3,0)
This course focuses on the managerial elements necessary to introduce planned change through an understanding of theories and concepts related to organizational change and development. The student will develop the skills necessary to anticipate the need for change; manage the change; diagnose organizational issues; develop change action plans, strategies, and techniques; and assess, monitor, and stabilize changed organizations. Pre-Requisites: MGMT 500 or MGMT 503A or Permission from the Graduate Program Chair.

MGMT 641 Airport Management 3 Credits (3,0)
In this course students have the opportunity to gain significant knowledge of the broad aspects of managing airports. Topics include air carrier relationships, governing body relationships, regulatory compliance, physical plant management, vendor relationships, zoning and land-use issues, and more.

MGMT 642 Air Carrier, Passenger, and Cargo Management 3 Credits (3,0)
The course provides students with a broad perspective of passenger and cargo air carrier management. Topics include an overview airline industry history, the role of air transportation in global economic development, alternative strategic approaches to route structure and product design, fleet selection, finance, and revenue management. Distribution systems including the role of travel agencies, freight forwarders, global distribution systems, and Internet portals are explored. The course concludes with a review of the regulatory foundation of international aviation, the effects of liberalization and privatization, and the continuing evolution of global airline alliances.

MGMT 643 Labor Issues in Air Transportation 3 Credits (3,0)
Current labor issues specific to air transportation and the historical and regulatory aspects of these issues are the theme of this course. Topics include the union movement in aviation, including public policy decisions, judicial rulings, early collective bargaining, and labor legislation. Additional topics emphasized are representation elections, the collective bargaining process, contract administration, and conflict resolution (grievance procedures). The primary focus of the course will be on current issues in labor relations and the effect private and public sector labor/management practices have, and have had, on the aviation industry. The impact of labor/management relations on human resource management will be analyzed.

MGMT 651 Production and Procurement in the Aviation and Aerospace Industry 3 Credits (3,0)
This course examines Production Operations from a systems perspective, and demonstrates how dynamic interchanges between the constituent parts of the system affect the operations and maximize efficiency and effectiveness. This course relates to the management of product and process design, operations, and supply chains. Areas of emphasis are quality management, scheduling, inventory management, purchasing, material management, JIT and manufacturing strategy. This course includes substantial measurement and analysis of internal processes. This course demonstrates that the products or services in an organization, as well as their management, drive how Operations Management is carried out in an organization. Prerequisites: MGMT 500 or MGMT 503D or Permission from the Graduate Program Chair.

MGMT 652 Concepts and Practices of Project Management 3 Credits (3,0)
In this course, the student has the opportunity to learn the techniques and principles related to project management, following the national standards for project management. The content of this course includes and extends the body of knowledge elements required for completion of the Project Management Professional (PMP) certification by the Project Management Institute. Prerequisites: MGMT 500 or MGMT 503D or Permission from the Graduate Program Chair.

MGMT 653 Labor Issues in an Industrial Environment 3 Credits (3,0)
In this course, the student conducts a comprehensive study of labor issues that are germane to both the industrial and the aviation environment. The course concentration includes the current issues affecting contemporary labor relations, the evolution of private and public sector bargaining practices, and the contract negotiation process. Specific areas analyzed include the historical evolution of the American union movement, union structure and government, congressional legislation and executive orders, the representative election process, contract administration, grievance procedures, mediation and arbitration, and conflict resolution. The strategic impact the labor movement has had on American industry is analyzed from both the employer and the employee perspective.

MGMT 661 Project Development Techniques 3 Credits (3,0)
A study of current scientific research methods that includes techniques of problem identification, hypothesis formulation, literature search strategies of libraries and on-line databases, design and use of data-gathering instruments, formulation of a research model and plan, and appropriate statistical data analysis. The COB Capstone Guidelines format and American Psychological Association (APA) style will be reviewed and followed. A formal Graduate Capstone Project proposal will be developed and presented by each student as a basic course requirement. **Prerequisites:** MGMT 500 and MGMT 524.

MGMT 665 Organizational Theory in a Technical Environment 3 Credits (3,0)
In this course the students review organizational theory and learn how the organizational design impacts organizational effectiveness and productivity. The student has the opportunity to gain and expand knowledge concerning how organizations carry out work. Included in the course are elements of organizational theory, organizational structure, organizational planning, leadership versus management, conflict between functional management, matrix versus hierarchical organizations, organizational alternatives, and human response in the organization. Topics address advantages and disadvantages of structural types, locus of power and locus of authority issues, and formal and informal networks. Also included are issues such as conflict resolution, change management, formal and informal work relationships, influence and authority in the technical setting, participation, sensitivity to cultural and minority differences, managing technical change and innovation in a large organization, communication in a technical organization, organization culture and tradition, government perspective, and industry perspective are reviewed. Prerequisites: MGMT 500 or MGMT 503A or Permission from the Graduate Program Chair.

MGMT 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. Prerequisites: MGMT 500 or MGMT 503A or permission of the Graduate Program Chair.

MGMT 672 Planning and Execution of Strategy 3 Credits (3,0)
In this course, the student addresses the integration of all management aspects of business with the cultural, ethical, and regulatory environments to form comprehensive, workable strategies for success. Multinational and international factors and differences related to enterprise success are emphasized. Prerequisites: MGMT 500 or MGMT 503A or Permission from the Graduate Program Chair.

MGMT 673 Global Economic Analysis 3 Credits (3,0)
Managers in any industry, and particularly those employed by aerospace firms conducting business worldwide, can benefit from a foundation in applied international economics. This course builds three economic models for markets in real goods and services, credit, and foreign exchange. These qualitative models are then integrated into a single analytical framework that students use to understand the effects of government economic policy initiatives and external shocks on an economy. This analysis provides the basis for recommending actions a firm can use to benefit from or mitigate the adverse effect of evolving global economic forces. No previous economic background is required, but students should welcome an analytic approach to problem solving. Prerequisites: MGMT 500 or MGMT 503B or Permission from the Program Chair.

MGMT 678 Talent Acquisition and Workforce Planning 3 Credits (3,0)
This course prepares managers to take a strategic approach to identifying, attracting, selecting, and retaining talent. The course addresses how to strategically develop a staffing strategy that reinforces business strategy, so students can learn best practices for forecasting, recruiting, staffing, and development of employees. Topics include strategic staffing, legal aspects of staffing, job analysis and forecasting, strategic sourcing, selection, workforce planning and workforce flow.

MGMT 679 Comprehensive Reward Systems 3 Credits (3,0)
This course examines current approaches to Total Compensation, including both the theory and practice of compensation, benefits, and rewards. The course analyzes how reward systems motivate employees and explores approaches to compensation policy and design. A strategic approach to reward strategies, linked to business and people strategies, will be taken. Topics include strategic compensation, rewards and motivating work environment, government and union influences, job evaluation and developing pay structures, market analysis, incentives and variable pay, compensation administration and executive compensation.

MGMT 691 Management Capstone Course 3 Credits
In this course, students are required to write a document on an aviation/ aerospace and/or management topic which exposes the student to the technical aspects of writing to include problem definition, analysis, and solution process utilizing statistical methods of evaluation. This course is included in the MSM curriculum to provide the student with the opportunity to pursue a project of special interest, but not to the level of a thesis. **Prerequisites:** MGMT 661.

MGMT 696 Graduate Internship in Aviation Business Administration 1-3 Credit (1-3,0)
Temporary professional or industrial work appointments are 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 common to the workplace. They are academic/professional activities coordinated by the University between offering organizations and graduate student. Prior approval of the graduate program coordinator is required.

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 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.

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 502 Managing Mobile & Distributed Organizations and their Information Systems 3 Credits (3,0)
Almost without exception, the modern organization is a mobile and distributed one -- it has people and business processes in many separate locations, interacting with each other to help the organization meet its objectives. In effect, such organizations succeed or fail in large part because their social networks strengthen the organization and help it learn, or get in the way of its core business functions. This course examines the managerial and leadership challenges of these distributed and mobile work places, and how they can and must be coordinated effectively to generate organizational knowledge and awareness to achieve organizational decision making. It then considers how mission needs and organizational objectives, as well as management style and organizational culture, may dictate how tightly, centrally-controlled these decision systems are (or, by contrast, how loosely-coupled, semi-autonomous and cooperative they are). With that foundation established, the course then turns to the opportunities and hazards that "bring your own technology" or BYOT brings to the modern knowledge workers' work places.

MMIS 503 Informatics: Cross-Disciplinary Computing for Competitive Advantage 3 Credits (3,0)
Many industries and markets that heretofore used a traditional MIS perspective are now using the informatics paradigm to gain greater benefit from their information, processing, and communications activities. But what is informatics? Informatics is about structure, behavior and interactions. It's about natural and engineered information and knowledge systems and the way people and organizations use these systems to leverage what they know as they solve problems and create opportunities across a wide variety of activities. Informatics embraces the study and use of both natural and engineered computation and information systems, and how they interact. This course examines the key concepts that make informatics different from "ordinary" information processing, and the kinds of organizations and objectives that can benefit best from an informatics outlook and perspective. Students then explore how to transform organizations to most effectively adopt and use the informatics outlook and the competitive advantages it can bring. Prerequisites: MMIS 501 and MMIS 502, or the approval of the Program Chair.

MMIS 504 Knowledge Management: Quality Management for the IS Enterprise 3 Credits (3,0)
Knowledge Management (KM) provides a disciplined approach to recognizing and exploiting the value-added transformation of raw data -- numbers, names, or quantities -- into progressively more useful and more powerful forms of understanding. KM has its roots in a variety of different disciplines. Using the overall framework of Quality Management, and its emphasis on learning organizations, this course provides a comprehensive overview of the field of knowledge management integrating theory, practice, history, issues, terms and a future outlook examining organizational change and organizational learning. Prerequisites: MMIS 501 and MMIS 502, or the approval of the Program Chair.

MMIS 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. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

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 .Prerequisites: MMIS 501, MMIS 502, or approval of the Program Chair.

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. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

MMIS 521 Data Warehousing and Information Quality 3 Credits (3,0)
The term "data warehouse" conveys many different meanings, which this course will examine in some depth. Whether the warehouse provides a historical look back through the organization?s transaction histories, or acts as an amalgam of many different data sets, from many different organizations, the key question the organization has to ask is why. Why build a data warehouse? Many different business processes are involved with and affected by the accumulation, extraction (mining), and interpolation of data that might exist between the real data points (data farming). Information quality, as a design discipline and as a management attitude, provides essential emphasis on assuring the right data comes in, to properly-designed and verified correct business decision processes, so that the right decisions can come out of the data warehouse and its operational use. Of all the many attributes and facets of data warehousing, data quality is undoubtedly the utmost significant one. Basically, this is because if the data is wrong, we place our organization at greater risk if we rely on the data warehouse for decision support.Over the past decade, a large number of vendors have saturated the market with several data warehousing products, and it is difficult to evaluate their offerings and help one?s organization choose wisely. Students will explore these issues by looking at selected steps in typical data warehousing projects, focusing on organizational objectives and needs, while examining the details of how data warehouses are designed, built, used and maintained. Administration, security, information quality and other key issues will also be placed in this project framework. Prerequisite: MMIS 501 and MMIS 502, or permission of the Program Chair.

MMIS 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. Prerequisites: MMIS 501, MMIS 502, or approval of the Program Chair.

MMIS 523 Data Mining, Machine Learning and Knowledge Discovery 3 Credits (3,0)
Many organizations are familiar with "drilling down" in their data systems to see the details behind a higher-level, more abstract piece of business knowledge -- such as going from "customer complaints have risen 20% this year" to the statistical process control systems? measurements that should have warned us of that before disaster struck! 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 lawyers in "discovering" new knowledge in the sea of data that they already have, but cannot digest without significant software help. But data mining and knowledge discovery is not just the domain of "Big Data", as books such as Big Data for the Little Guy, and small business analytics web pages at major big data providers demonstrate. This course surveys these methodologies, and guides the student in identifying the criteria to use to define, manage and operate a successful data mining and machine learning system that meets organizational needs. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

MMIS 524 Applied Knowledge Management and Business Intelligence 3 Credits (3,0)
Business intelligence (or BI) 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 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 can have positive or negative impacts upon the organization depending upon how it is done and how it is used (or misused). In that regard, BI is shown to be a focused application of the principles of knowledge management. This course presents students with both the theoretical concepts and practical applications of BI, and examines some aspects of BI successes and failures. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

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. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

MMIS 532 Practicum on Project Management Tools 3 Credits (3,0)
Project managers are expected to manage projects and measure their performance and success using the triple constraint of time, cost and scope/quality. While the triple constraint is necessary, it is not enough. Projects that are delivered on time, within budget and meet scope specifications may not necessarily perceived to be successful by key stakeholders. That is why metrics and key performance indicators have become increasingly integral project management tools, especially with the current advances in information technologies. This course is designed to introduce students to key performance indicators and other metrics that project managers may use to measure project success before it is too late. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

MMIS 533 Advanced Topics in Project Management 3 Credits (3,0)
Managing projects is not an easy task. Managing software development projects is even more demanding. Software development project managers are prone to a number of common mistakes. Some of these mistakes are not exclusive to software development, but they are more prevalent and could be more damaging. This course explains the steps involved in establishing and managing a software project. It provides coverage of key topics that must be addressed in managing a software development project. It highlights the unique considerations of software development projects, and it explores software project management activities from product concept through development and implementation. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

MMIS 541 Information Risk Management 3 Credits (3,0)
Management information system leaders' responsibility includes structuring the IT and information security functions to defend the organization's information assets, i.e., information and data, hardware, software, processes, networks and people. As the organization grows and develops for IT-based systems to remain viable, information security and the discipline of risk management must become an integral part of the economic basis for making business decisions. These decisions are based on trade-offs between the costs of applying information systems controls and the benefits realized from the operation of secured, available systems. Whether your company is small (<250), medium(>250) or large (>500), organizations must design and create safe environments in which business processes and procedures can function. This course addresses these unique environments and how they must maintain their confidentiality, privacy and assure the integrity of organizational data that are met via the application of the principles of risk management. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

MMIS 542 Ethical and Legal Concerns for Information-Intensive Systems 3 Credits (3,0)
In exploiting organizational information systems and technologies that support a small or larger enterprise, managers will need to understand the controversies that comprise the field of cyber ethics, which examines the ethical, moral, legal, and social issues involving the use of information and information technology. This course will explore the roles and responsibilities of computer/IT professionals in developing safe and reliable computing capabilities under the category of professional ethical and legal considerations. The broader social and ethical concerns associated with information technology are examined under topics such as privacy, security, crime, intellectual property and internet regulation. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

MMIS 543 Business Continuity and Resilience through Information Systems 3 Credits
This course focuses on how organizations stay flexible and responsive, so as to survive long enough to successfully accomplish their goals and objectives. This focus on continuity planning looks at how organizations survive and conduct ongoing operations despite the ways that natural disasters, deliberate sabotage, or accident might bring disruptions, damages or deaths. Key to organizational success, this course argues, is a planning methodology and process that focuses first on key organizational information needs and decision processes, across the strategic, tactical and operational time frames, to identify potential risks and risk mitigation strategies. These strategies might include back-up systems, alternative work processes, and contingency plans and preparedness activities.This course is about being prepared for the unexpected, being ready for a disaster incident and managing a contingency plan that supports business continuity and security should an information system disaster occur. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

MMIS 551 Translating Organizational Strategies into Enterprise Information Strategies 3 Credits
This course takes a broad and deep look at the ongoing co-evolution of an enterprise's strategic goals, objectives and plans, and the development, use and adaptation of the strategic information systems that should be facilitating the accomplishment of those goals and objectives. Much of the classical literature on strategic systems planning and development has made assumptions about goals, objectives, and the enterprise's context as being reasonably well-defined and static -- assumptions which common experience seems to reject as mistaken. Instead, this course looks at how various evolutionary and adaptive strategies can be used not only to constantly improve the strategic decision making processes themselves, but also to continuously improve the information systems business processes that serve the enterprise and its decision makers. The course also looks at how industry-leading standards and knowledge banks, such as the Control Objectives for Information and related Technologies (COBIT 5) and the Information Technology Infrastructure Library, can offer experience-based insight and guidance on these issues. Prequisites: MMIS 501 and MMIS 502 or permission of the Program Chair.

MMIS 552 Information Systems and Information Technology Governance 3 Credits
Governance is the broad category of policies, plans and procedures that help translate an organization's strategic objectives and plans into the management and control of the people, systems and resources allocated to those plans. Governance is thus strongly linked to organizational compliance with many kinds of government regulations and statutory requirements which aim to control or mitigate risk -- risk to investors, customers, employees and society at large. Two strongly competing governance models bring very different perspectives to this course. The first is data or information governance, which focuses on how the organization does an information or knowledge quality management process. The second is often called information technology governance, even though it focuses on the delivery of information services -- or knowledge work -- to the organization via systems and technologies. Prerequisites: MMIS 501 and MMIS 502, or the approval of the Program Chair.

MMIS 553 Change Management and Configuration Control 3 Credits
One of the biggest detrimental factors as an organization grows and its niche transforms is resistance by employees ranging from the shop floor to organizational management. Effective communication is also essential for successful change; all stakeholders must be kept informed to keep negativity at bay, and they must share the same view even as that view changes, thus the need for configuration management. This course presents techniques for reducing social and systemic resistance to change, and provides the student with effective tools for accomplishing change management and configuration control. These tools can be applied to small and large systems at any level of an organization, including the organization itself.This course also discusses the distinction between "change leadership", "change management", "configuration management", and "configuration control". Each has a distinct role in managing organizational change, keeping all stakeholders informed, along with establishing and maintaining their positive attitude toward the change. The enterprise uses all of its information systems and technologies to capture and reflect organizational changes. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

MMIS 561 Global Information and Technology Management 3 Credits
Organizations are using information technology (IT) to transform themselves into global enterprises via key ventures in global e-business, e-commerce and other IT initiatives. IT is a critical component of enterprise success and plays a key role in enterprise globalization, as organizations deploy global IT architectures. The continuous integration of new technologies requires effective management practices to support emerging architectures and organizational objectives. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

MMIS 562 Advanced Topics in Distributed Systems 3 Credits
The explosive growth in mobile, grid, and cloud computing requires that organizations respond to these changes or lose their market share. Customers expect that just as changing geographic location is no longer a limitation to their communication, it should also not limit the conduct of business. Similarly, customers do not consider the technical limitations of the devices they use; they just expect the magic to work. Organizations that respond to these technological advances can experience explosive growth, or an organization can remain rooted in the past and wither. For example, mobility poses special problems to the Internet, which was based upon fixed geographic locations for all nodes. Now cloud storage and ubiquitous computing are expected staples of a company's electronic presence. Making effective use of these technologies often entails enterprise-wide changes to the information system. This course provides a management perspective for evaluating current versus future IT resources when faced with technological shifts more closely resembling science fiction than the stately world of business. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

MMIS 563 Strategic Communications Management 3 Credits
Becoming a strategic communicator is more important with recent business trends including globalization, competitive business environments, working in teams, flatter organizational structures and greater dependency on communication to get things done. Using strategic and tactical communication skills as a leader and manager has become more important because it is through the process of influencing others that many of these tasks are accomplished successfully. This course provides all the communication topics that are relevant and critical for successful business, management and corporate communications, written, oral presentation, interpersonal and small group communication as well as planning and implementing communication plans for internal and external organizational audiences. Prerequisites: MMIS 501 and MMIS 502, or approval of the Program Chair.

MMIS 691 Applied Methods 3 Credits
This course challenges the student to integrate all aspects of their MMIS studies into a cohesive and comprehensive approach to a selected INFORMATION SYSTEMS problem. Students may elect to perform in-depth research, provide a detailed analysis of selected case studies, or conduct a real-world project. For instance, students may develop and evaluate a detailed information systems acquisition and implementation plans, or conduct an in-depth research of new trends in business analytics, or conduct a thorough analysis and evaluation of an information management system in specific industry. Quantitative and qualitative analytical methods should be considered essential to providing a rigorous, thoughtful, and well-supported final product. Prerequisites: MMIS 501 and MMIS 502, and Completion of at least 30 credit hours of the MSMIS program, or approval of the program chair.

Project Management (PMGT)

Courses

PMGT 501 Fundamentals of Project Management 3 Credits (3,0)
This course provides the student with fundamental techniques and principles related to project management, following the national standards for project management. The content of this course includes and extends the body of knowledge elements required for completion of the Project Management Professional (PMP) certification by the project Management Institute. This course encompasses the study of project management, paying particular attention to the ten knowledge areas: initiation, scope, time, cost, quality, human resources, communications, risk, procurement, and stakeholder management as they relate to the five process groups of initiating, planning, execution, monitoring and controlling, and closing of projects. Examples and student initiated projects and project simulations are utilized to emphasize the integrated relationships. Project management software is utilized throughout the course, particularly to demonstrate the usefulness of automated calculations, recordkeeping, and reporting as related to planning and controlling projects. Throughout, the merger of technical skills, general management skills, and project management skills for successful project completion is emphasized. Where applicable, the information delivered in this course is compliant with ISO 9,000, 10,000 series standards and the Project Management Institute generated Guide to the Project Management Body of Knowledge. **Prerequisites:** MGMT 524.

PMGT 502 Effective Communications for Managing Projects 3 Credits (3,0)
This course is designed to help the student explore the role of communication in managing projects and to provide a broad survey of the theoretical, organizational, behavioral, and technical aspects of communications. An emphasis is placed on the application of theory to practice, which is intended 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 managers effectively communicate. Students will have the opportunity to gain an understanding of why good communication skills are important in business, how communication 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. Special attention is devoted to development and use of project communications plans, Project Management Information Systems (PMIS), and appropriate archival of project information.
Prerequisites: PMGT 501.

PMGT 611 Anatomy of Project Organizations 3 Credits (3,0)
In this course, the student has the opportunity to gain and expand knowledge concerning how organizations carry out work. Included in the course are elements of organizational theory, organizational structure, and organizational planning as applicable to projects. Topics address advantages and disadvantages of organizational structure (functional, matrix, or projectized), locus of power and locus of authority issues, and formal and informal networks. Also included are issues such as conflict resolution, change management, formal and informal work relationships.
Prerequisites: PMGT 502.

PMGT 612 Leading Projects Across Cultural, Corporate, and International Boundaries 3 Credits (3,0)
Emerging and evolving economies, world circumstances, and global competition require that project managers be able to lead and manage projects in this challenging arena. Project Managers must operate within environments that contain diverse cultures and projects including multiple corporations crossing international boundaries. Additionally, topics include project portfolio management, the Project Management Office (PMO), and software tool use involving multiple projects. Sensitive issues surrounding multinational and multicultural environments will be addressed and discussed.
Prerequisites: PMGT 502.

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 opportunities. Uncertainty and associated risks and opportunities become more complex as project span organizational, national, and cultural bounds. In this course the student will investigate the sources or risk, the pervasiveness of risk, analysis of risk, and the planning and control of risk events.
Prerequisites: PMGT 611 and PMGT 612.

PMGT 614 Planning, Directing, and Controlling Projects 3 Credits (3,0)
In this course the student will gain increased knowledge and experience in the art and science project management. Emphasis will be placed on planning, directing, and controlling projects. 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 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. This will normally be accomplished utilizing a project management portfolio. Demonstration of the study of project management, paying particular attention to the ten knowledge areas: initiation, scope, time, cost, quality, human resources, communications, risk, procurement, and stakeholder management as they relate to the five process groups of initiating, planning, execution, monitoring and controlling, and closing of projects.
Prerequisites: PMGT 614.

Research (RSCH)

Courses

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 and apply for solving qualitative and quantitative research problems. The course introduces the need for non numerical data analysis and how part of a methodology can allow for in depth analysis of complex issues and relationships. 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.

Safety (SFTY)

Courses

SFTY 510 Industrial Hygiene & Toxicology 3 Credits (3,0)
This course addresses the technical concepts and application of industrial hygiene and toxicology as it pertains to preventing occupational illnesses. Topics include the recognition of occupational health hazards, hazard evaluation through screening and sampling, and the prevention and control of occupational health hazards in order to mitigate occupational illnesses. The course also prepares the student to select, interpret and apply federal and state occupational health and safety laws and regulations.

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)
This course is designed to teach the essentials of fire protection in the context of safety, health and environmental management. The course will provide an introduction to fire behavior and combustion to include fire chemistry, fire dynamics and concepts related to the development and spread of fire. The course will also address fire prevention methods, fire detection systems and fire protection including control systems, fire suppression and extinguishment. Lastly, the development of fire safety programs will be addressed, along with emergency action plans and response.

SFTY 580 Environmental Protection for the Safety, Health and Environmental Manager 3 Credits (3,0)
This course is designed to equip students with the knowledge, skills and techniques used by the safety, health and environmental manager to protect workers, the community and the environment from environmental hazards; to facilitate a strategic approach to environmental conservation and sustainable business practices; and, to comply with EPA, OSHA and state and local regulations. Prevention and mitigation of environmental problems will be paramount in the course, but management techniques and programs focused on containment and clean-up of spills and releases will also be addressed.

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 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 630 System Safety Programs 3 Credits (3,0)
This course emphasizes the specialized integration of systems engineering and sound management practices into all phases of a system's life cycle, to achieve acceptable risk, given the confines of operational effectiveness and fiscal responsibility. Hazard recognition, assessment and risk mitigation strategies and resources are applied to systems from conception and design phases to operational and disposal phases, as a means to minimize legal risk and maximize safety and health.

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 or comprehensive examination that provides significant evidence of experience in occupational safety management studies. Students will work with designated faculty to formulate, develop, and complete the occupational safety management project or examination. The completion of the Capstone Course is designed to document significant evidence that Program Outcomes have been met, and provides the student evidence of experience to show to current and prospective employers. The Capstone Course will be taken at the end of the student'sdegree program.

System Engineering (SYSE)

Courses

SYSE 500 Fundamentals of Systems Engineering 3 Credits (3,0)
This course provides the student with a broad introduction to the fundamental principles, processes, and practices associated with the application of Systems Engineering across the system life cycle. The student will develop an understanding of the skills necessary to translate needs and priorities into system requirements, and develop derived requirements, forming the starting point for engineering of complex systems. Key topics include 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. The course will cover the integrative nature of systems engineering and the breadth and depth of the knowledge that the systems engineer must acquire concerning the characteristics of the diverse components that constitute the total system.
Prerequisites: STUDENT MUST BE ADMITTED TO MSYSENG.

SYSE 530 System Requirements Analysis and Modeling 3 Credits (3,0)
This course is concerned with the development, definition, and management of requirements for system or product. Topics include the system requirements process, requirements elicitation techniques, alternative requirements analysis techniques, requirements specification, requirements verification and validation, requirements management, and requirements standards and tools. Issues such as stakeholder identification, risk analysis, trade off analysis as it relates to the requirements will be covered.
Prerequisites: STUDENT MUST BE ADMITTED TO MSYSENG.

SYSE 560 Introduction to Systems Engineering Management 3 Credits (3,0)
This course addresses the fundamental principles of engineering management in the context of systems engineering and explores issues related to effective technical planning, scheduling and assessment of technical progress, and identifying the unique challenges of the technical aspects of complex systems and systems of systems and ability to control them. Topics will include 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, and systems engineering planning and organization, communication and SE management tools and techniques. The course covers an examination of processes and methods to identify, control, audit, and track the evolution of system characteristics throughout the system life cycle. The course includes the development of a Systems Engineering Management Plan, Integrated Master Schedule and/or Integrated Master Plan.
Prerequisites: STUDENT MUST BE ADMITTED TO MSYSENG.

SYSE 610 System Architecture Design and Modeling 3 Credits (3,0)
This course is focused on concepts and techniques for architecting systems and the process of developing and evaluating architectures. The course includes generating a functional, physical and operational architecture from a top level operations concept for the allocation and derivation of component-level requirements. Variety of modeling and analysis approaches will be discussed as well as the generation of analyzable architecture models for evaluating the behavior and performance of candidate system concepts. Additional topics include 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. Specialized areas of design and architecture may be addressed, such as spacecraft design, design of net centric systems, or smart engineering systems architecture.
Prerequisites: STUDENT MUST BE ADMITTED TO MSYSENG.

SYSE 625 System Quality Assurance 3 Credits (3,0)
This course presents the managerial and mathematical principles and techniques of planning, organizing, controlling and improving the quality, safety, reliability and supportability of a system throughout the system life cycle. The course focuses on the importance of structuring and controlling integration and test activities. Topics include establishing a baseline control during the integration and test phases; cognitive systems engineering and the human-systems integration in complex systems environments; establishment of criteria for planning tests; the determination of test methods; subsystem and system test requirements; formal methodologies for measuring test coverage; sufficiency for test completeness; and development of formal test plans to demonstrate compliance. Also covered are methods of developing acceptance test procedures for evaluating supplier products. The quality related topics including fitness for use, quality costs, quality planning, statistical quality control, experimental design for quality improvement, concurrent engineering, continuous improvement and quality programs such as ISO 9001:2000, ISO 14001, CMMI, Malcolm Baldridge and TQM. Reliability related topics covered include reliability prediction using discrete and continuous distribution models. Supportability related topics include system supportability engineering methods, tools, and metrics and the development and optimization of specific elements of logistic support. Quality and safety is a key theme throughout the course.
Prerequisites: STUDENT MUST BE ADMITTED TO MSYSENG.

SYSE 660 Organizational Systems Management 3 Credits (3,0)
This course introduces concepts of organizational management and leadership, which are approached from a systems and complex systems perspective to explain the behavior of systems. Focus areas will include strategic management, organizational transformation, and organizational environments. Models will be drawn from a variety of areas including marketing, finance, organizational behavior, and strategic and operational management.
Prerequisites: STUDENT MUST BE ADMITTED TO MSYSENG.

SYSE 697 Systems Engineering Project 3 Credits (3,0)
This course consists of a project in systems engineering that the student will undertake at the conclusion of the academic coursework for this program. It will culminate in a written document on a project chosen and carried out by the student under the guidance of the student's Systems Engineering Project Advisor. The project will be expected to demonstrate the student's mastery of his topic, and must be of a quality suitable for publication.
Prerequisites: STUDENT MUST BE ADMITTED TO MSYSENG.

Technical Management (TMGT)

Courses

TMGT 555 Applied Regression Analysis 3 Credits (3,0)
Students are challenged in the application of regression analysis - diagnosing practical problems, deciding upon the appropriate regression model and knowing which inferential technique will answer the practical question. Topics covered include Multiple Regression Models, Model Building, Variable Screening Methods, Regression Pitfalls, Residual Analysis and Special Topics in Regression. Prerequisites: MGMT 500 or MGMT 503D or permission of the Graduate Program Chair.

Unmanned Systems (UNSY)

Courses

UNSY 501 Application of Unmanned Systems 3 Credits (3,0)
This course prepares students to understand the application of unmanned systems and their respective elements and technology to the operational domains, including atmospheric, exo-atmospheric, ground, and maritime environments. It includes applications, business cases, selection criteria, limitations and constraints, and ethical, safety, and legal considerations. Students will research, appraise, and recommend unmanned system tasking, environmental operational requirements, and system collaboration opportunities.

UNSY 601 Unmanned Systems Command, Control, and Communications 3 Credits (3,0)
This course provides a detailed examination of the command, control, and communication (C3) of unmanned systems. The student will examine and evaluate elements and components, interoperability, human factors, operator controls and interactions, situational awareness, teaming, supervisory control, infrastructure, and considerations associated with C3. Course applications include identifying current unmanned system C3 issues, recommending strategies or solutions to address issues, and evaluating appropriate C3 elements, components, or technology to support unmanned system missions and tasks.

UNSY 605 Unmanned Systems Sensing, Perception, and Processing 3 Credits (3,0)
This course provides a detailed examination of the sensing, perception, and processing of exteroceptive and proprioceptive data for unmanned systems. The student will examine and evaluate elements, components, technology, and processing methods associated with internal and external (payload) sensing systems. The content of the course includes identifying types of sensors, operational requirements, capture and format of data, feedback, control, depiction of state, and processing. This course prepares students to integrate environmental and state sensing into unmanned systems. It will include examinations of sensor selection, application, payload considerations, processing, and the latest technology advancements.

UNSY 610 Unmanned Systems Autonomy and Automation 3 Credits (3,0)
This course provides students with an opportunity to examine the benefits, limitations, and capabilities of autonomous control technology and support for unmanned systems. The student will examine and evaluate elements, components, technology, and processing methods associated with autonomous and semi-autonomous operation of unmanned systems. The content of the course includes supported capabilities, reference framework, man-machine collaboration, cognitive capability, interaction and manipulation, allocation of functions and responsibilities, high-level tradeoffs, limitations, and associated advancements. This course prepares students to better understand the implications and capabilities associated with autonomy in unmanned systems. It will include examinations of associated technology, programming, processing, and interoperability required to understand the application of autonomy and automation.

UNSY 615 Unmanned Systems Power, Propulsion, and Maneuvering 3 Credits (3,0)

This course represents a detailed examination of the power, propulsion, and maneuvering (actuation) elements of unmanned systems required to support interaction and operation in remote environments. The student will examine and evaluate the elements, components, and processing associated with the generation and storage of power, propulsion methods to achieve locomotion or motion, and actuation used to manipulate control surfaces and other controls in support of maneuvering. The course applications include identifying and analyzing current manipulation options, power storage and distribution, and propulsion methods for unmanned systems.

UNSY 691 Graduate Capstone Course 3 Credits (3,0)

The Master of Science in Unmanned Systems Capstone Course is the culminating effort of the student's entire learning experience. The student will complete a project or comprehensive exam that provides significant evidence of experience in unmanned systems studies. Students will work with designated faculty to formulate, develop, and complete the project or exam. The completion of the 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. The Capstone Course will be taken at the end of the student?s degree program.

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Professional Education Course Descriptions

Business, Law, and Finance

ALF 3000 Essentials of Business Ownership 3 Credits
Students will learn the basics of starting, owning and managing a business. This course will cover the fundamentals from idea generation all the way to implementation.

ALF 3001 Financial/Accounting Management 3 Credits
This course provides an understanding of financial and accounting terms even for students with no financial background. The course will cover foundational principles of interpreting financial statements, determining company profitability and measuring cash flow.

ALF 3002 Marketing Management 3 Credits
This course focuses on the principles and techniques of marketing by exploring the issues necessary in the management of the marketing process. The course will detail the entire marketing process including the role of ethics and technology and the basic principles of advertising and public relations.

ALF 3003 Strategic Management in Operations 3 Credits
This course develops the practical and managerial skills necessary to successfully plan for operational success. The course covers the basic details for developing an operational plan and designing the strategic direction necessary to achieve these goals.

ALF 3004 Legal Issues in Operations 3 Credits
In today's legal environment there are many issues that a business encounters when operating successfully. This course will explore some of the more important legal topics including employment law, licensing, and permits and tax issues.

ALF 3005 Successful Selection Systems 3 Credits
A successful selection system is a comprehensive recruitment to post-hire process for attracting, selecting and on-boarding the right candidates for your job and your company. Such a system will yield a highly engaged, immediately productive workforce with the knowledge, skills and abilities to contribute quickly to the organizations' objectives. This course will explore how to develop and implement such successful selection systems within your organization.

ALF 3006 Human Resources as a Strategic Partner 3 Credits
The HR department exists in large part to address issues that fall into grey areas. Human resource departments and managers are charged with a great deal of responsibility and as such this course focuses on working within HR as a strategic partner within the organization. This course explores what this means and how to accomplish this objective.

ALF 3007 High Performance Organizations 3 Credits
In today's fast paced business climate, becoming a high-performance organization is what sets the great organizations apart from the good. It is what makes the difference between surviving and thriving. High Performance or Performance Driven Organizations are known for realizing a higher return on investment, greater profits, increased productivity, decreased operational costs, improved customer and employee retention, and other key indicators that set them apart from average companies. This course will explore the characteristics and development of high performance organizations.

ALF 3008 Legal Aspects of Contracts 3 Credits
It is seldom that a business person does not encounter a contract. This course will focus on the basics of business contracts so as to draw attention to important business points that are found in everyday business contracts. No legal knowledge is necessary for this course and this course will not equip you to evaluate the law but rather understand the legal and business issues in most business contracts.

ALF 3009 Tax Issues 3 Credits
This course covers the basic tax issues that are important in transactional work; whether the business is a sole proprietorship, partnership or corporation. The basic tax issues in operating a business will be covered in this course along with tax strategies for business planning.

ALF 3010 Business Plan Development 3 Credits
In this course students will learn the essentials of creating and developing a successful business plan that can be used for both internal strategic management and external positioning for financing. .

ALF 3011 Understanding Financial Statements 3 Credits
In this course students will learn the fundamentals of understanding financial statements for purposes of obtaining financing. It is critical that every business owner understands how to interpret and explain the financial condition of their business. Financing.

ALF 3012 Persuasive Communication 3 Credits
Persuasive communication is essential for not only selling products and services of a business, but for obtaining financing and running daily operations as well. This course will provide students with the opportunity to gain confidence and improve their communication skills. Even the most skilled communicator can always learn additional techniques for success.

ALF 3013 Budgeting Essentials 3 Credits
In this course students will be introduced to the fundamentals of the budgeting process including understanding not only how to prepare a budget but how to manage a budget within the context of a hierarchical organizational structure.

ALF 3014 Organizational Leadership and Decision-Making 3 Credits
The leaders in an organization often set the tone and establish benchmarks for success. In this course the focus is on developing a successful leadership style so as to facilitate team-building, collaboration and a corporate culture that promotes success. Different decision-making techniques will be explored in the context of successful leadership styles.

ALF 3015 Organizational Development and Change 3 Credits
Since most business organizations are social systems, this course will focus on the organizational culture and how it influences the way people work so as to maximize the long-term health of the organization and its people. This course will explore the developmental process and how to be successful in effectuating change.

ALF 3016 Principles of Buying or Selling a Business 3 Credits
In this course students will be exposed to the acquisition and disposition process. Topics will include valuation, strategic positioning, and financing options. This course is excellent for anyone interested in buying an ongoing business rather than starting one from an idea as well as for anyone seeking to sell an ongoing business.

ALF 3017 Business Best Practices 3 Credits
Best practices are important in achieving excellence and success. This course focuses on several best practice models from various industries and integrates some of the common themes into a game plan for business success.

ALF 3018 Negotiating Strategies 3 Credits
The environment and culture of any business relationship is often the product of a negotiation. This course will explore the process of negotiating, evaluate negotiation styles and consider successful negotiation strategies for most environments. There will be an opportunity to role-play a negotiation.

ALF 3019 Seven Management Disciplines 3 Credits
The seven management disciplines essential to management and business success are discussed in the context of all areas of business operation and management. This course provides a round-table opportunity to evaluate real-life business issues.

ALF 3020 Management Issues in the IT Environment 3 Credits
This course introduces effective management principles for working with IT professionals. Management techniques and effective strategies are explored in this course.

ALF 3021 Collaborative Problem-Solving 3 Credits
This course develops collaborative problem-solving skills and focuses on the importance of teams in the IT environment.

ALF 3022 Financial Accounting for IT Managers 3 Credits
In this course you will be introduced to the fundamentals of financial accounting management and the profit and loss responsibility that is normally attributable to a position of management.

ALF 3023 Introduction to the Legal System 3 Credits
This course will introduce you to the legal system including the differences between Common Law and Statutory Law as well as procedures and systems of law, particularly the court system.

ALF 3024 Paralegal Fundamentals (Introduction to Legal Assistantship) 3 Credits
This course will provide an understanding of the role of paralegals and the general substantive areas of law encountered by paralegals as well as basic legal terminology.

ALF 3025 Legal Writing 3 Credits
This course introduces the student to the fundamentals of legal writing, including analytical reasoning and analysis as well as the importance of using legal authorities to support conclusions. Critical thinking is also an important part of this course.

ALF 3026 Legal Research 3 Credits
This course will familiarize the student with print and electronic research for the legal profession. Students will learn how to find legal authorities and cases.

ALF 3027 Ethics for Paralegals 3 Credits
This course is a more in-depth exploration of the Code of Professional Conduct for lawyers and paralegals. It is a follow-up to ALF 3024 Paralegal Fundamentals and provides the student with a solid foundation in the ethical requirements surrounding the field of law.

ALF 3028 Introduction to Business Law (Transactions) 3 Credits
This course is an introduction to contracts and transactions involving starting and selling businesses. The course will introduce students to basic concepts involved in real estate, commercial law, and banking.

ALF 3029 Corporate Document Drafting 3 Credits
In this course, students will have the opportunity to learn the fundamentals of how to draft various types of transactional drafting. The course emphasizes clear and concise writing, grammatical and syntactical principles and draftsmanship. This course is foundational for anyone who drafts or reviews documents or contracts.

ALF 3030 Business Entity Formation 3 Credits
In this course students will learn how to form, maintain and dissolve various business entities. Students will have a chance to prepare various documents related to entity formation and maintenance. Students will also learn some of the subtle differences between the various types of entities. This class is a follow-up to ALF 3028 Introduction to Business Law (Transactions).

ALF 3031 Bankruptcy Law 3 Credits
Students in this course will become familiar with the basic requirements of a Chapter 7, 11, and 13 bankruptcy. Students will also have the opportunity to become familiar with some of the more general court rules and preparation of documents for filing.

ALF 3032 Intellectual Property Law 3 Credits
In this course, students will become familiar with the various types of intellectual property; such as trademarks and copyrights. Students will become familiar with the preparation of documents of filing for intellectual property protection as well as the various types of business arrangements and documents that protect intellectual property rights.

ALF 3033 Private Business Mergers and Acquisitions 3 Credits
In this course, students will become familiar with transactional work that is built around the private company (small and middle market-- from $5M to $50M in gross revenue) acquisition and sale of the assets of a business from initial negotiations through closing. This program delves into the deal drivers and business points facing smaller companies; such as cash flow, valuation of assets, intellectual property and tax and accounting issues.

ALF 3034 Real Estate Law 3 Credits
This is a survey course in which students learn about various real estate documents and the practice of real estate law. This includes deeds, mortgage instruments, foreclosure notices, mechanic's liens, leases and listing contracts.

ALF 3035 Probate and Estate Planning 3 Credits
In this course students will learn the effects of various types of ownership upon passage of property at owner death, with or without a will; administration, taxation of estates and inheritance; basic requirements for trusts, wills, and guardianships. The course will also cover the basics of the administration of a decedent's estate.

ALF 3036 Civil Litigation 3 Credits
In this course students will learn the effects of various types of ownership upon passage of property at owner death, with or without a will; administration, taxation of estates and inheritance; basic requirements for trusts, wills, and guardianships. The course will also cover the basics of the administration of a decedent's estate.

ALF 3037 Transactional Drafting 3 Credits
It is important that a paralegal be familiar with certain key provisions in most transactional documents, including representations and warranties, conditions to closing and certain provisions in the "General Clauses" or "Miscellaneous Clauses" section of the transactional document. Participants will learn why certain provisions are included in different types of general contracts.

ALF 3038 Trial Preparation 3 Credits
In this course, students will learn the fundamentals of preparing for trial. Students will learn about document preparation, discovery, scheduling and working with the courts.

ALF 3039 Interviewing Skills for Paralegals 3 Credits
In this course, students will learn the skills necessary to assist attorneys with interviewing witnesses and parties in the litigation process.

ALF 3040 Essentials of Purchasing 3 Credits
In this course, the student will learn the fundamentals of the purchasing function in the context of efficiency and organization. Topics such as the administrative aspects of purchasing, purchasing methodologies, and optimization strategies will be explored.

ALF 3041 The Supply Chain Process 3 Credits
In this course, students will be introduced to the various aspects of the supply chain environment including enterprise resource planning systems and requirement systems. The interrelationships between purchasing, vendor selection, sources of supply and the role of technology will also be explored in this course so that a student understands the integrated approach to planning, acquisition, flow and distribution from raw materials to finished products.

ALF 3042 Management Essentials 3 Credits
In this course, the focus is on the management function and the skills and resources that develop and grow a successful manager. Topics such as developing a corporate culture, working successfully with teams, developing and implementing successful people management strategies and workflow and performance management will be explored in this course.

ALF 3043 Positioning for and Finding Financing 3 Credits
This course is essential for any business owner or manager who must find financing either for start-up purposes or for running existing business operations. This course discusses the various types of financing from venture capital to traditional financing sources. If taken as a part of the certificate program, this course requires two prerequisites.

ALF 3044 The Procurement Process 3 Credits
In this course, students will be introduced to principles that guide how suppliers are selected to provide goods and services through the various phases of the procurement process. This is an excellent course to gain an understanding of RFPs, responses and contract bid work.

ALF 3045 Supplier Contracting 3 Credits
This course explores the contracting process and provides an understanding of the source of supply (i.e., purchase orders, contracts, etc.) and explores decision-making in supplier contracting. This course provides a foundation in contracting issues.

ALF 3046 Price and Cost Analysis 3 Credits
In this course, students will learn various techniques associated with evaluating pricing and costing including methodologies and techniques to improve profitability and minimize losses. Different price comparison methods as well as strategic cost analysis will be explored.

ALF 3047 An Introduction to Accounting: The Accounting Cycle 3 Credits
This course introduces the student to basic accounting terminology as well as examines the fundamental principles of basic accounting and the accounting cycle.

ALF 3048 Journals, Ledgers and Worksheets 3 Credits
This course develops the practical skills necessary to record transactions in chronological order by using journals, and categorize them by account using ledgers.
Prerequisites: ALF 3047.

ALF 3049 Payroll Accounting 3 Credits
In this course you will be introduced to the standard requirements of the payroll process. It will cover payroll expenses, liabilities, taxes, forms, laws, and regulations as well as a variety of other payroll functions.

ALF 3050 Accounting for Accounts Payable 3 Credits
In this course you will be introduced to the proper accounting procedures for working with accounts payable.

ALF 3051 Accounting for Accounts Receivable 3 Credits
In this course you will be introduced to the proper accounting procedures for working with accounts receivable.

ALF 3052 Developing Effective Leadership Skills 3 Credits
Managers by virtue of their position are leaders. This workshop introduces participants to various leadership styles, performance issues, and methods for succeeding as effective leaders.

ALF 3053 Performance Management 3 Credits
The effectiveness of a performance management approach is dependent upon the clear articulation of performance indicators and objectives and the ability to manage the cascading process from department, to team, and to individual level. The most successful organizations, however, take a systems approach to the performance management and measurement process. This course explores the concept of the organization and performance management in the context of systems thinking, provides practical techniques for re-vamping the performance management function and establishing systems to sustain organizational and employee performance through new thinking and methodologies.

ALF 3054 Decision Making and Time Management 3 Credits
This course emphasizes the importance of learning how to make effective decisions and focusing on building time management habits that will last a lifetime. Participants will learn about the various types of decisions, techniques for effectiveness, and strategies for success. Strategies will be developed to implement an energetic plan of attack to minimize time wasters as well as internal black holes.

ALF 3055 Developing Effective Interpersonal Communication and Assertion Skills 3 Credits
Effective communications enhances teamwork, productivity, and personal satisfaction. Participants must learn the essentials of speaking, writing and navigating within a variety of communication styles and contexts.

ALF 3056 Productivity and Benchmarking 3 Credits
Productivity and benchmarking is a critical tool for the evaluation of goal achievement. This course focuses on some of the fundamental aspects of how to establish meaningful metrics as well as implement plans that enhance overall productivity.

ALF 3057 Project Management 3 Credits
In this course students will learn the essentials of creating and developing a successful project plan to better understand the basic organization and structure necessary as they direct and orchestrate small or large scale projects.

ALF 3058 E-Business Management Strategies 3 Credits
This course focuses on management and leadership essentials as they pertain to the e-environment. Participants will learn techniques for effectively managing and working in an e-economy as well as how to utilize e-commerce to develop and grow a business. Participants will learn how to re-engineer business processes for competitive advantage, customer service, and return on investment.

ALF 3059 E-Business Marketing Strategies 3 Credits
This course will cover the essentials of marketing as they pertain to reaching customers and promoting business through the Web. Participants will learn techniques and strategies that will enhance their organization's ability to utilize technologies effectively for e-marketing, e-mail campaigns, data mining, and other e-marketing tools to increase market, and promote branding and corporate image.

ALF 3060 E-Business Technology 3 Credits
This course explores some of the technologies that are necessary to support an e-business. Topics will include database management, building an infrastructure to support the operations of an e-business, website authoring tools and design, search engines, intranets, internet speed and access, servers, knowledge management, intellectual property, and security.

ALF 3061 E-Business Legal Issues 3 Credits
Legal considerations for the new economy is an intense study of legal issues surrounding Web business. It is designed for lawyers, executives, upper-level managers, entrepreneurs, sales/marketing professionals, software developers, engineers -- anyone interested in the legal ramifications of doing business on the Web. However, students of various backgrounds may choose to include this program as part of a broader study of e-commerce and e-business.

ALF 3062 E-Business Operations 3 Credits
The course explores the processes necessary to provide strategic support within the organization. Basic operational issues will be addressed as they relate to e-business. Issues related to e-business financial transactions, project evaluation, managing virtual offices and virtual employees, and other operational topics will be covered.

ALF 3063 E-Commerce 3 Credits
This course explores the special topics associated with e-commerce. Participants will focus on website issues related to e-commerce transactions, catalogs, shopping carts, and serving customers through various distribution channels. Operational strategies peculiar to the e-retailing environment will be explored in more detail.

ALF 3064 Introduction to Grant Research 3 Credits
This course covers the diverse types of grants that are available. It will cover corporate, non-profit, education, and government grants that are available. You will learn the basics on how to research for and find available grants as well as how to begin the grant process.

ALF 3065 Introduction to Grant Writing 3 Credits
This course equips students with the skills and tools necessary to enter the field of grant writing. It will cover the fundamental elements of a grant proposal such as the objectives, problems addressed, methodology, evaluation and assessments, budget and cover letter, as well as the members involved.

ALF 3066 Specialized Techniques for Grant Writing 3 Credits
In this course you will learn that technical writing is a form of communication. You will learn to use it as a type of conversation as well as an interactive process that involves writers and readers who respond to one another. You will learn how to create documents that use explanation, description and intentional direction in order to persuade or direct your readers. You will learn how to develop concise and direct communication with your readers.

ALF 3067 Technical Writing 3 Credits
This course is designed to cover the basic communication needs of students pursuing careers in a highly competitive world of Science, Education, Grant Writing as well as various other high communication based careers. The course covers the topics of style and purpose offering students focused practice with short writing assignments.

ALF 3068 Advanced Grant Writing 3 Credits
In this course you will learn how to develop successful and fundable grants. We will focus on the skills needed to prepare professional, competitive and compelling and successful grant proposals. The course includes a lesson on the "Potential Pitfalls" of Grant Writing.

ALF 3069 Writing Effective Newsletters 3 Credits
Many office and businesses use newsletters to communicate with employees, customers, and others as a means of business development. In this course participants will learn how to write newsletters that are interesting and add value to the business. This course is appropriate for anyone who wants to learn why newsletters are effective, how to write them effectively and how to develop a method for consistently creating them on a regular basis.

ALF 3070 Persuasive Communication 3 Credits
Persuasive communication is essential not only for selling the products or services of the business but for obtaining financing and running daily operations. This course will provide students with the opportunity to gain confidence and improve their communication skills. Even the most skilled communicator can always learn additional techniques for success.

ALF 3071 Effective Writing Skills 3 Credits
In this course you are introduced to the fundamentals of effective writing techniques so as to strengthen writing skills for clear effective communication.

ALF 3072 Grammar Essentials 3 Credits
In this course you will be exposed to the fundamental elements of grammar. You will touch on a variety of grammar essentials as well as frequently misused grammar elements. You will learn how to write, evaluate, edit and format basic documents within a professional office environment.

ALF 3073 Effective Communication 3 Credits
Public speaking is not just for those who stand-up in front of an audience. Public speaking is speaking to a colleague or co-worker in the office, presenting an opportunity to your boss, or working with a customer or vendor. Speaking skills are another reflection of your professionalism and competency. Communication is a method of branding yourself, your office, and your employer. This course will provide practical techniques on how to make your message clear.

Online Ground School

AVS 1000F Private Pilot Ground School-Fixed Wing 7.5 Credits
This course examines the basics of aerodynamics, aircraft performance, VFR cross-country navigation techniques, weather reports and forecasts, Federal Aviation regulations, elements of resource management, and safe flying practices. Modules available for JAA, EASA, CASA, and other international regulatory agencies.

AVS 1000H Private Pilot Ground School-Helicopter 7.5 Credits
This course examines the basics of aerodynamics, aircraft performance, VFR cross-country navigation techniques, weather reports and forecasts, Federal Aviation regulations, elements of resource management, and safe flying practices. Modules available for JAA, EASA, CASA, and other international regulatory agencies.

AVS 1100F Instrument Rating Ground School-Fixed Wing 7.5 Credits
This comprehensive instructor-facilitated online course prepares the student to become an instrument-rated pilot. It examines Federal Aviation Administration (FAA) regulations pertaining to instrument flight rules (IFR), airplane navigation instruments, instrument-flight illusions, air traffic control procedures, weather reports and forecasts, IFR cross-country planning techniques, aeronautical decision making techniques, and in-flight emergency management. Modules available for JAA, EASA, CASA, and other international regulatory agencies.

AVS 1100H Instrument Rating Ground School-Helicopter 7.5 Credits
This comprehensive instructor-facilitated online course prepares the student to become an instrument-rated pilot. It examines Federal Aviation Administration (FAA) regulations pertaining to instrument flight rules (IFR), helicopter navigation instruments, instrument-flight illusions, air traffic control procedures, weather reports and forecasts, IFR cross-country planning techniques, aeronautical decision making techniques, and in-flight emergency management. Modules available for JAA, EASA, CASA, and other international regulatory agencies.

AVS 1200F Commercial Pilot Ground School-Fixed Wing 7.5 Credits
This comprehensive instructor-facilitated online course prepares the student to become a commercial-rated pilot. It examines aerodynamics, aircraft performance, VFR cross country navigation techniques, weather reports and forecasts, Federal Aviation Administration (FAA) regulations, and elements of resource management, and safe flying practices. Modules available for JAA, EASA, CASA, and other international regulatory agencies.

AVS 1200H Commercial Pilot Ground School-Helicopter 7.5 Credits
This comprehensive instructor-facilitated online course prepares the student to become a commercial-rated pilot. It examines aerodynamics, aircraft performance, VFR cross country navigation techniques, weather reports and forecasts, Federal Aviation Administration (FAA) regulations, and elements of resource management, and safe flying practices. Modules available for JAA, EASA, CASA, and other international regulatory agencies.

Online Pilot Specialty

AVS 2001 Controlled Flight into Terrain 0.3 Credits
The CFIT course is designed for qualified flight crew with experience on large jet transport aircraft. This syllabus may be required as part of a CRM recurrent training program for crews operating under the JAA or equivalent jurisdiction.

AVS 2002 ETOPS 0.3 Credits
After this lesson students will be able to explain ETOPS concept and how it has improved twin engine aircraft efficiency.

AVS 2003 Future Air Navigation System 0.3 Credits
When students have completed this lesson, they will be able to identify the following components associated with Future Air Navigation Systems otherwise known as FANS.

AVS 2004 GPS 0.3 Credits
This course teaches topics of GPS including system components, normal and non-normal operations, and authorization and documentation.

AVS 2005 High Altitude Training 0.3 Credits
The High Altitude Training course is designed to provide initial and recurrent training for flight or cabin crew members operating above 10,000 feet MSL. It is a required element of the regulations under ICAO, CARs, FARs, and JARs for all crewmembers operating or working onboard airplanes above 20,000 feet.

AVS 2006 Jet Upset Training 0.3 Credits
The Jet Upset Training course is designed for qualified flight crew with experience on large jet transport aircraft. This syllabus may be required as initial or recurrent training for crews operating under JAA or equivalent jurisdiction.

AVS 2007 MNPS 0.3 Credits
In this course you will be introduced to Minimum Navigation Performance Specifications (MNPS). This is an online self-paced course.

AVS 2008 North Atlantic Procedures-NAT 0.3 Credits
The NAT course is designed for airline crews with no previous experience in North Atlantic operations, or who require a review of North Atlantic procedures. This is an online self-paced course.

AVS 2009 Performance Training - Tire Speed Limit 0.3 Credits
The goal of the Performance Training course is to enable flight crew and dispatchers to understand the rationale for tire speed and operational procedures related to tire speed limit. This course meets training requirements promulgated by the appropriate regulatory agencies requiring training. This is an online self-paced course.

AVS 2010 Polar Operations 0.3 Credits
This course will provide an understanding of: flight preparation and planning, designated polar routes, polar route planning charts, designated areas of magnetic unreliability, operation in true heading reference, Canadian airspace, Russian airspace, North Pole over flight, metric altitude conversions, use of QFE/QNH altitude references, polar diversions, dispatch considerations - solar flare activity, HF communications, general purpose (GP) radio stations, Satcom use and coverage areas, HF communications in Russia, VHF communications in Russia, CPDLC.

AVS 2011 Precision Runway Monitoring 0.3 Credits
This course teaches the meaning of Precision Runway Monitored approach (PRM), the difference between an Instrument Landing System (ILS)/PRM, and a Localizer Type Directional Aid (LDA/PRM) known as a Simultaneous Offset Instrument Approach (SOIA), and also the training required to legally conduct a PRM approach.

AVS 2012 Required Navigation Performance 0.3 Credits
The Required Navigation Performance (RNP) course is designed for experienced airline pilots requiring initial or recurrent training.

AVS 2013 Reduced Vertical Separation MINS 0.3 Credits
The RVSM course is intended for experienced airline pilots and flight dispatches requiring initial or recurrent training in areas where reduced vertical separation standards are used.

AVS 2014 RNAV SAAAR Approaches 0.3 Credits
This course teaches students the terminology, requirements, procedures and considerations of RNAV SAAAR approaches.

AVS 2015 TCAS/ACAS 0.3 Credits
The TCAS/ACAS course enables flight crew to operate the TCAS avionics, interpret the information presented by TCAS and conduct appropriate avoidance maneuvers.

SFY 2020 Dangerous Goods 0.3 Credits
The goal of the Dangerous Goods course is to enable flight crew to learn the hazards and operational procedures required to operate an aircraft carrying goods that are designated as dangerous goods or restricted for transport by air. This syllabus is required by CAR for Commercial Air Service.

WXR 2001 Cold Weather Winter Operations (C) 0.3 Credits
The Cold Weather Winter Operations course is for experienced airline pilots and flight dispatchers attending initial or recurrent training for ground icing conditions related to cold weather/winter operations.

WXR 2002 Hot Weather Operations 0.3 Credits
This course teaches the effects of hot weather on aircraft operations; relevant aircraft systems particularly susceptible to heat; hot weather considerations for various phases of flight.

WXR 2003 Low Visibility-Cat Ii/Cat III Ops 0.3 Credits
The Low Visibility CAT II/CAT III Ops course is designed for experienced Airline Pilots requiring certification for operations under reduced visibility conditions. Can be delivered for either initial or recurrent training.

WXR 2004 Thunderstorm Avoidance 0.3 Credits
This course teaches students the components and hazards associated with thunderstorms and how to avoid them.

WXR 2005 Volcanic Ash Avoidance 0.3 Credits
The Volcanic Ash Avoidance course is designed for experienced airline pilots, initial or recurrent training for operation in areas where volcanic ash encounters are possible.

WXR 2006 Wind Shear 0.3 Credits
This course enables students to define, classify and understand the causes and risks to aircraft operations associated with wind shear and micro-burst. Students also learn wind shear avoidance and micro-burst recovery procedures in the event of an encounter.

Aircraft-Specific Ground School

AVS 4000 DC-10 Refresher Course 1 Credit
Embry-Riddle Aeronautical University's DC-10 refresher course is designed for experienced Airline Pilots and dispatchers requiring initial or recurrent training and will enable flight crew and dispatchers to explain the hazards and operational procedures required to operate the DC-10 aircraft. This course meets the training requirements for FAA, JAA, CAA, Transport Canada and IOSA.

AVS 4001 MD-11 Ground School 1 Credit
This course is designed for experienced airline pilots attending ground school training. This is related to initial training for certification and licensing on the MD-11 aircraft. This course meets the training requirements for FAA, JAA, CAA, Transport Canada and IOSA.

AVS 4100 MD-80 Ground School 4 Credits
This course is designed for experienced airline pilots attending ground school training. This is related to initial training for certification and licensing on the Boeing MD-80 aircraft. This course meets the training requirements for FAA, JAA, CAA, Transport Canada and IOSA.

AVS 4200 CRJ-200 with 700 and 900 Differences Ground School 4 Credits
CRJ-200 with 700 and 900 Differences Ground School course is designed for experienced airline pilots and dispatchers requiring initial or recurrent training and will enable flight crew and dispatchers to explain the hazards and operational procedures required to operate the CRJ-200 series aircraft. This course meets the training requirements for FAA, JAA, CAA, Transport Canada and IOSA.

AVS 4300 A319 with A320/321 Differences Ground School 4 Credits
The A319 with A320/321 Differences course is designed for experienced airline pilots and dispatchers requiring initial or recurrent training on the Airbus A319 aircraft. This course meets the training requirements for FAA, JAA, CAA, Transport Canada and IOSA.

AVS 4301 A330 with A340 Differences Ground School 4 Credits
The A330 with A340 Differences course is designed for experienced airline pilots and dispatchers requiring initial or recurrent training on the Airbus A330 aircraft. This course meets the training requirements for FAA, JAA, CAA, Transport Canada and IOSA.

AVS 4700 B737-200 Ground School 4 Credits
The B737-200 course is designed for experienced Airline Pilots attending ground school training. This is related to initial training for certification and licensing on the Boeing 737-200 aircraft. This course meets the training requirements for FAA, JAA, CAA, Transport Canada and IOSA.

AVS 4701 B737 Next Generation (NG) Ground School 4 Credits
The B737-NG course is designed for experienced Airline Pilots attending ground school training. This is related to initial training for certification and licensing on the Boeing 737-NG aircraft. This course meets the training requirements for FAA, JAA, CAA, Transport Canada and IOSA.

AVS 4702 B757 and 767 Ground School 4 Credits
The B757 and 767 Ground School course is designed for experienced airline pilots and first officers attending ground school training. This is related to initial training for certification and licensing on the Boeing 757/767-300ER aircraft. This course meets the training requirements for FAA, JAA, CAA, Transport Canada and IOSA.

AVS 4703 B747-400 Ground School 4 Credits
The B747-400 course is designed for experienced airline pilots attending ground school training. This is related to initial training for certification and licensing on the Boeing 747-400 aircraft. This course meets the training requirements for FAA, JAA, CAA, Transport Canada and IOSA.

AVS 4704 B777 Ground School 4 Credits
The B777 course is designed for experienced airline pilots attending ground school training. This is related to initial training for certification and licensing on the Boeing 777 aircraft. This course meets the training requirements for FAA, JAA, CAA, Transport Canada and IOSA.

Business Management

CE 2111 Value Proposition Analysis for Corporate Aviation 1.6 Credit
This course is designed for current or prospective flight department employees who will be making strategic decisions about the flight department and are managing the flight department's interactions with passengers, customers and/or the parent company. The course covers different methods used in conducting a travel analysis, evaluating options for lift, justifying the flight department value, proposing various travel options and optimizing the fit of the flight department with corporate goals.

CE 2112 Flight Department Finance, Budgeting and Accounting 2.4 Credits
This course is designed for anyone who desires more knowledge about and/or the ability to manage flight department finances using best practices, accepted accounting principles and efficient budgeting techniques. The course covers the basics of budgeting, forecasting, financial management, taxation, and cost recovery. It also provides an accounting primer to allow aviation professionals to better understand accounting principles and financial reports. The financial, taxation and insurance considerations of aircraft acquisitions and ownership are presented.

CE 2113 Community Relations 1 Credit
This course is designed for flight department personnel who will be involved in or are interested in community relations and public relations issues. Various areas of community interaction with the flight department are presented, including community service opportunities, community concerns, noise abatement, environmental issues, airport administration, and mediation strategies.

Leadership

CE 2121 Strategic Vision and Planning 1.4 Credit
This course is intended for flight department personnel and management who will be involved in or desire to know more about the planning process. Goal setting, value statements, mission statements, vision statements, strategic planning and business planning are presented in a practical manner focused on developing and communicating effective planning processes.

CE 2122 Leadership and Motivation 1.2 Credit
This course is designed for flight department management or prospective management employees. Course participants will learn how to exercise leadership by being a role model, empowering personnel, building effective teams, promoting the exchange of information, and making sound decisions in order to achieve flight department goals and promote corporate objectives.

CE 2123 Managerial Communications 1.2 Credit
This course is designed for flight department personnel who want to disseminate information using effective verbal and non-verbal communication strategies and engage personnel in order to enhance performance and understanding at relevant levels of the corporation. Communication techniques, tools, barriers and technologies are presented in a practical manner to assist in the management of a corporate flight department.

CE 2124 Professional Development 1.2 Credit
This course presents the resources and knowledge to enhance professional knowledge using industry resources (e.g., conferences, publications, local, regional, and national associations and legislation) in order to enhance personal effectiveness as a flight department manager.

CE 2125 Human Factors 2.4 Credits
This course is designed for aviation and transportation specialists who need a solid understanding of human factor issues in their work environment. The course focuses on aviation, specifically business aviation, but the concepts apply anywhere humans are performing complex tasks. Participants will learn how to detect, prevent and manage various human factors issues as part of a system safety culture.

Corporate Aircraft Operations

CE 2131 Standard Operating Procedures and Processes 1.4 Credit
This course is designed for all flight department personnel or aspiring flight department personnel who will work within or initially implement a system of standard operating procedures for flight operations using manufacturer's specifications, pertinent regulations, and accepted industry practices in order to ensure safety and efficiency.

CE 2132 Scheduling and Dispatch 1.2 Credit
This course is designed for those flight department employees who will be scheduling and dispatching corporate aircraft or will be establishing scheduling and dispatch procedures using industry resources (e.g., NBAA Management Guide, software packages) in order to conduct safe and efficient flight.

CE 2133 Record-Keeping and Regulatory Compliance 1 Credit
This course is designed for flight department personnel who will establish and/or maintain a record-keeping system using accepted industry practices in order to document regulatory compliance and initiate appropriate action within the department.

Human Resource Management

CE 2141 Workload Management and Staffing 1 Credit
This course is designed for managers who will determine the level of staffing needed for the flight department by assessing workloads in order to make efficient use of corporate assets.

CE 2142 Employee Training Programs 1 Credit
This course is designed for those flight department personnel who will be supporting technical training for all personnel within the flight department using recognized external and internal programs in order to ensure competence in each prescribed discipline, and promoting personal and professional growth through training and education by providing financial support and scheduling flexibility in order to support career development.

CE 2143 Staffing and Team Building 1.4 Credit
This course prepares employees to coordinate a team of qualified individuals by identifying internal and external talent in order to acquire the highest level of expertise and achieve department goals. Course participants will be able to fill key positions by identifying potential candidates and providing the necessary training and growth opportunities in order to ensure orderly transitions and minimize operational disruptions. Topics include the job market, training gaps, skills gaps, project management, knowledge management, teambuilding skills and forecasting human resource requirements.

CE 2144 Performance Reviews and Feedback Systems 1 Credit
This course is designed for flight department personnel to supply the skills and knowledge needed in conducting regular performance reviews by establishing appropriate goals for all employees consistent with department objectives and by evaluating progress in order to maximize employee performance.

CE 2145 Compensation and Reward Programs 1 Credit
This course is designed for managerial personnel who will be evaluating compensation for the flight department using benchmarking surveys and considering corporate policy and total compensation packages in order to attract and retain employees. Course participants will also learn how to respond to employee performance by rewarding or disciplining as appropriate in order to maximize the effectiveness of the department.

CE 2146 HRM Laws and Ethics 1 Credit
This course is designed for departmental managers who ensure compliance with regulatory requirements and corporate policies concerning human resource matters by providing documentation or access to people with the information in order to maintain company standards within the department.

Corporate Aviation Technical Services

CE 2151 Aviation Safety Programs and Emergency Preparedness 1.6 Credit
This course is designed for professionals who want to better understand and ultimately implement safety programs within the department. Concepts covered include emergency preparedness, emergency equipment, safety programs, best practices, and risk management.

CE 2152 Aviation Maintenance Management 1.6 Credit
This course is designed for those who will maintain aircraft and installed components in accordance with manufacturer's specifications and pertinent regulations in order to provide safe, secure, and efficient transportation of passengers and products, and maintain aircraft spares, supplies, and other inventories by following appropriate regulations and industry practices in order to minimize downtime and provide for efficient, safe service. Participants will also learn how to standardize technical reviews in the flight department by requiring all staff to adhere to uniform practices and accepted procedures in order to provide quality service.

CE 2153 Customer Service Programs 1 Credit
This course is designed for flight department employees who will maintain cabin information systems and passenger service items in accordance with manufacturer's specifications and pertinent regulations in order to ensure reliability, comfort, and effective service. Measuring customer expectations and satisfaction levels is also covered.

CE 2154 Aviation Security 1.2 Credit
This course is designed for those who intend to apply rigorous security procedures in accordance with regulations airport requirement, and corporate policies in order to provide a secure environment for passengers, employees, and assets. The concepts presented also include knowledge and skill areas needed to implement procedures using established company policies in order to safeguard information and physical assets of the corporation.

CE 2155 Vendor Management 0.8 Credits
This course is designed for those flight department employees who will be managing and negotiating contracts with qualified vendors and service providers using accepted business practices in order to procure needed services, equipment, and supplies for the department.

CE 2157 Aviation Safety Audits 1.6 Credit
This course is designed for mid and upper level Aviation Managers who are tasked with developing internal safety policies and procedures and responsible for conducting periodic safety audits.

Faculty and Administration

Officials of the University

Johnson, John P.
President and CEO; Professor, College of Arts and Sciences
B.A. and M.S., Florida State University; Ph.D., Kent State University

Ayers Jr., Francis H.
Chancellor, Prescott Campus
B.A., Virginia Polytechnic Institute and State University; M.S., Embry-Riddle Aeronautical University; Ed.D., Nova Southeastern University

Cruise, Rodney
Vice President, Administration
B.A., Warner Southern.

Douglas, Bernadine.
Vice President, External Relations.
B.S., University of Florida; M.B.A., Webster University

Hampton, Bill
Vice President, Enrollment Management
B.S., Embry-Riddle Aeronautical University; M.B.A., Embry-Riddle Aeronautical University

Heist, Richard H.
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Louis Seno
Vice President, Corporate Relations and Government Affairs

Watret, John
Chancellor, Worldwide.
B.Sc., Heriot-Watt University; M.S. and Ph.D., Texas A&M University; P-ASEL

Young, Brandon
Vice President, Human Resources
B.S. and M.B.A., University of Central Florida

Worldwide Administration

Sims, Brad
Chief Academic Officer
B.S. and Ph.D., Purdue University;
M.S., University of Florida.

Jost, Robert A.
Vice Chancellor for Administration
B.B.A. and M.B.A., Stetson University.

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Marketing & Enrollment Management

Bowen, Dagmar

Director of Financial Aid
A.A. and B.A.S., Daytona State College.

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B.S., Embry-Riddle Aeronautical University.

Dammer, Linda T.
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B.S., Robert Morris University.

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Trombley III, Edward F.
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Worldwide Academic Administration

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College of Arts & Sciences

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College of Business

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Ph.D., Capella University.

Online Education

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Faculty

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Chair, Department of Engineering Sciences
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