Leading the World in Aviation and Aerospace Education

DAYTONA BEACH, FLORIDA, CAMPUS
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900
(386) 226-6000
Admissions: (386) 226-6100 or (800) 862-2416
Financial Aid: (800) 943-6279
E-mail (Admissions): dbadmit@erau.edu

PRESCOTT, ARIZONA, CAMPUS
Embry-Riddle Aeronautical University
3700 Willow Creek Road
Prescott, AZ 86301-3720
(928) 777-3728
Admissions: (928) 777-6600 or (800) 888-3728
Financial Aid: (928) 777-3765
E-mail (Admissions): pradmit@erau.edu

WORLDWIDE CAMPUSES AND ONLINE
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900
(386) 226-6910
Admissions: (866) 509-0743 or (800) 522-6787
Financial Aid: (800) 943-6279
E-mail (Admissions): ecinfo@erau.edu
www.embryriddle.edu/ec

http://www.erau.edu
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2007-2008 Graduate Program Calendar

Deadlines for Daytona Beach and Prescott Campuses

<table>
<thead>
<tr>
<th>Admission</th>
<th>Fall Semester 2007</th>
<th>Spring Semester 2008</th>
<th>Summer Semesters 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>For U.S. Students</td>
<td>7/01/07</td>
<td>11/01/07</td>
<td>3/01/08</td>
</tr>
<tr>
<td>For International Students</td>
<td>7/01/07</td>
<td>11/01/07</td>
<td>3/01/08</td>
</tr>
<tr>
<td>Graduation Application</td>
<td>10/27/07</td>
<td>3/11/08</td>
<td>7/01/08</td>
</tr>
<tr>
<td>Thesis Defense</td>
<td>10/27/07</td>
<td>3/11/08</td>
<td>7/01/08</td>
</tr>
</tbody>
</table>

To be considered a Fall or Spring graduate, thesis defense must take place by specified dates.
To be considered a Summer A or Summer B graduate, students should check with their graduate program coordinator.
This 2007-2008 calendar applies to the residential campuses. It is presently under review and is subject to change. Worldwide students should contact the local Embry-Riddle center director for the academic calendar applicable to their specific location.

**Effective Date:** This catalog becomes effective July 1, 2007, for all campuses.

### Fall Semester 2007
**(August 27 - December 15)**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 22-24</td>
<td>Orientation and Registration</td>
</tr>
<tr>
<td>August 27</td>
<td>Classes begin</td>
</tr>
<tr>
<td>September 3</td>
<td>HOLIDAY - Labor Day</td>
</tr>
<tr>
<td>October 5</td>
<td>University Day - Prescott</td>
</tr>
<tr>
<td>November 9</td>
<td>University Day - Daytona Beach</td>
</tr>
<tr>
<td>November 12</td>
<td>Veterans Day</td>
</tr>
<tr>
<td>November 21-23</td>
<td>HOLIDAY - Thanksgiving</td>
</tr>
<tr>
<td>December 6</td>
<td>Last day of classes</td>
</tr>
<tr>
<td>December 7</td>
<td>Study Day</td>
</tr>
<tr>
<td>December 8-13</td>
<td>Final Examinations</td>
</tr>
<tr>
<td>December*</td>
<td>Commencement - Daytona (TBA)</td>
</tr>
<tr>
<td>December 15</td>
<td>Commencement - Prescott</td>
</tr>
</tbody>
</table>

### Spring Semester 2008
**(January 9 - May 3)**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 7-8</td>
<td>Orientation and Registration</td>
</tr>
<tr>
<td>January 9</td>
<td>Classes begin</td>
</tr>
<tr>
<td>January 21</td>
<td>HOLIDAY - Martin Luther King Day</td>
</tr>
<tr>
<td>February 18</td>
<td>HOLIDAY - Presidents Day</td>
</tr>
<tr>
<td>March 17-21</td>
<td>HOLIDAY - Spring Break</td>
</tr>
<tr>
<td>April 24</td>
<td>Last day of classes</td>
</tr>
<tr>
<td>April 25</td>
<td>Study Day</td>
</tr>
<tr>
<td>April 26, 28-May1</td>
<td>Final Examinations</td>
</tr>
<tr>
<td>May*</td>
<td>Commencement - Daytona (TBA)</td>
</tr>
<tr>
<td>May 3</td>
<td>Commencement - Prescott</td>
</tr>
</tbody>
</table>

### Summer Semester (Term A) 2008
**(May 8 - June 23)**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>May 6-7</td>
<td>Orientation and Registration</td>
</tr>
<tr>
<td>May 8</td>
<td>Classes begin</td>
</tr>
<tr>
<td>May 26</td>
<td>HOLIDAY - Memorial Day</td>
</tr>
<tr>
<td>June 19</td>
<td>Last day of classes</td>
</tr>
<tr>
<td>June 20</td>
<td>Study Day</td>
</tr>
<tr>
<td>June 21, 23</td>
<td>Final Examinations</td>
</tr>
</tbody>
</table>

### Summer Semester (Term B) 2008
**(June 26 - August 11)**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 24-25</td>
<td>Orientation and Registration</td>
</tr>
<tr>
<td>June 26</td>
<td>Classes begin</td>
</tr>
<tr>
<td>July 4</td>
<td>HOLIDAY - Independence Day</td>
</tr>
<tr>
<td>August 7</td>
<td>Last day of classes</td>
</tr>
<tr>
<td>August 8</td>
<td>Study Day</td>
</tr>
<tr>
<td>August 9, 11</td>
<td>Final Examinations</td>
</tr>
</tbody>
</table>

*Commencement dates are subject to change.*
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 70,000 alumni, you are now a member of a worldwide family of leaders in the aviation and space 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 global 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 80 years we have grown from the world’s finest aviation institute to an internationally respected comprehensive university, committed to teaching, research, scholarship, and professional service to the aviation and space community.

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

John P. Johnson, Ph.D.
President
MISSION OF THE UNIVERSITY

Embry-Riddle Aeronautical University is an independent, nonsectarian, nonprofit, coeducational university with a history dating back to the early days of aviation. The University serves culturally diverse students motivated toward careers in aviation and aerospace. Residential campuses in Daytona Beach, Florida, and Prescott, Arizona, provide education in a traditional setting, while an extensive network of campus learning centers throughout the United States and abroad serves civilian and military working adults through ERAU-Worldwide. See: http://spa.erau.edu/plan/mission2.htm, for the entire mission.

It is the purpose of Embry-Riddle to provide a comprehensive education to prepare graduates for productive careers and responsible citizenship with special emphasis on the needs of aviation, aerospace, engineering, and related fields. To achieve this purpose, the University is dedicated to the following:

To offer undergraduate and graduate degree programs that prepare students for immediate productivity and career growth while providing a broad-based education, with emphasis on communication and analytical skills.

To emphasize academic excellence in the teaching of all courses and programs; to recruit and develop excellent faculty and staff; and to pursue research and creative activities that maintain and extend knowledge in aviation, aerospace, and related disciplines.

To develop mature, responsible graduates capable of examining, evaluating, and appreciating the economic, political, cultural, moral, and technological aspects of humankind and society, and to foster a better understanding of the workings of the free enterprise system and its social and economic benefits, and of the profit motive, as vital forces to the potential of individuals and groups.

To promote ethical and responsible behavior among its students and graduates in the local, national, and international aviation and aerospace communities and in the community at large.

To develop and effectively deliver educational programs for the adult student and professional at the undergraduate and graduate levels, including off-campus degree programs, short courses, online learning, noncredit programs, seminars, workshops, and conferences.

To support each student’s personal development by encouraging participation in programs and services that offer opportunities for enhanced physical, psychological, social, and spiritual growth; and by complementing the academic experience and contributing to the development of a well-rounded individual prepared for personal and professional success.

To engage in research, consulting services, and related activities that address the needs of aviation, aerospace, and related industries.
Aviation and Embry-Riddle: The Lifelong Partnership

At the beginning of the last century no flying schools existed, much less an aviation university. It was not until 1903 that the Wright brothers achieved sustained, controlled flight by a powered aircraft and, in so doing, changed life on this planet forever.

It did not take long for aviation to come of age. By 1914, regular passenger service had been inaugurated in Florida between St. Petersburg and Tampa. Later that year, war came to the European skies. The combined effect of military and commercial demands produced a dynamic new industry.

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.

This 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 December 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.

Although it was a volatile time for aviation enterprises, the school prospered. Others came and went regularly, but Embry-Riddle was not affected.

Within three years the school had become a subsidiary of AVCO, the parent of American Airlines. The school remained dormant during most of the 1930s, mirroring the casualties of the Great Depression. 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.

The Lunken Airport operation had long since disappeared, but in 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.
In 1965, with Jack R. Hunt as president, Embry-Riddle consolidated its flight, ground school, and technical training programs into one location. 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 June 1970, Embry-Riddle changed its name from “Institute” to “University,” and resident centers were established at U.S. military aviation centers to serve the educational needs of active-duty military personnel. Application for Southern Association of Colleges and Schools accreditation through the Commission on Colleges was initiated in 1970 and received in 1972. The University has participated in the Self-Study process ever since.

Also 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 the legacy left behind by Hunt was Lt. Gen. Kenneth L. Tallman. Tallman was 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. Embry-Riddle’s programs in aerospace engineering, aeronautical science, and engineering physics are the largest in the nation.

Under the leadership of Dr. Ebbs, new graduate degree programs in safety science and space science were introduced, as well as new undergraduate degree programs in computer science, global security and intelligence studies, mechanical engineering, software engineering, and space physics. Major construction began on the Aviation Complex at the Daytona Beach Campus and the Academic Complex at the Prescott Campus.

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, trains Air Force pilots at the U.S. Air Force Academy in Colorado Springs, and trains Air Force, Air National Guard, and international flight safety officers at Kirtland Air Force Base in Albuquerque, N.M.

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. Under his leadership the University has expanded its research activity, has established new degree programs, and is developing a global strategy to take its aviation and aerospace expertise overseas.

Before joining Embry-Riddle, Dr. Johnson 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. Embry-Riddle is a global institution that holds a prominent position in aviation/aerospace education. The University is the
Embry-Riddle at a Glance

world’s largest independent aeronautical university and boasts a student body of 34,000 who come from all 50 states and more than 90 nations. The University offers more than 30 degree programs, at the bachelor and master level. Embry-Riddle provides flexible educational services to thousands of working adults through the Worldwide Campus. Many students receive their degrees from more than 130 teaching centers in the United States and Europe or through online learning.

ACCREDITATIONS AND AFFILIATIONS

Embry-Riddle Aeronautical University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, GA 30033-4097, Telephone: 404-679-4501) to award degrees at the associate, bachelor, and master levels. The bachelor degree programs in Aerospace Engineering and Computer Engineering at the Daytona Beach and Prescott campuses, along with Civil Engineering, Engineering Physics, and Software Engineering at Daytona Beach, and Electrical Engineering at Prescott, are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET, 111 Market Place, Suite 1050, Baltimore, MD 21102-4012, Telephone: 410-347-7700, http://www.abet.org).

The following bachelor degree programs are accredited by the Aviation Accreditation Board International (AABI, formerly Council on Aviation Accreditation, 3410 Skyway Drive, Auburn, AL 86830, Telephone: 334-844-2431): Aeronautical Science (Daytona Beach and Prescott), Aviation Business Administration (Daytona Beach and Prescott), Applied Meteorology (Daytona Beach and Prescott), Safety Science (Daytona Beach), and Air Traffic Management (Daytona Beach). Under the College of Aviation at Daytona Beach, the Maintenance Management area of concentration and the Aerospace Electronics area of concentration are also accredited by AABI.

The bachelor degree programs in Aviation Business Administration (Daytona Beach and Prescott) are also accredited by the Association of Collegiate Business Schools and Programs (ACBSP). The MBA in Aviation at the Daytona Beach campus is accredited by the ACBSP.

Federal Aviation Administration-approved certification programs include maintenance technology (airframe and power plant); flight (private, commercial, instrument, multi-engine, flight instructor, and instrument flight instructor ratings); and flight dispatch.
Student Success…
We understand that students are the life-blood of Embry-Riddle. We focus and commit ourselves and our resources to the success of current, past, and future students. Our success is gauged by the difference we make in our students’ lives.

Learning Environment…
We seek intellectual growth through study, research, questioning, listening, and debate. We value the enlightened interchange of ideas as we challenge one another to do more, to study, to learn, to share, and to grow. We expect members of the student body, faculty, and administration to exercise their academic freedoms and to preserve those of others. We commit ourselves to a lifelong endeavor of learning. We are all teachers and we are all students.

Safety…
We care deeply about the health and safety of our students and fellow employees. We believe that each one of us, from the administration to the flight instructors, has a responsibility to make our workplaces safer for everyone. We support the open sharing of information on all safety issues and encourage all employees and students to report significant safety hazards or concerns.

Integrity, Honesty, and Trust…
Integrity is the most valued employee trait. We believe that honesty is the foundation for interaction in all academic, administrative, and personal matters. The leadership team and each individual bear the responsibility for earning the trust of others.

Diversity…
We respect the rights and property of all individuals regardless of gender, race, ethnicity, national origin, age, physical disability, economic background, sexual orientation, or religious belief. We believe in a community where all members are welcome, and individuals or groups are free from harassment.

Communication…
We speak candidly and we listen well. We hold that if every involved party has taken part in a decision, then everyone will support the decision. We believe that clear and frequent communication is essential for our safety, our relationships, and our productivity.
Embry-Riddle’s Statement of Values

**Process and Teamwork…**

We believe that the process of collegial decision-making contributes to the quality of the decisions. We also understand and appreciate that the most successful outcomes occur when organizational units work cooperatively as teams.

**Character…**

We accept responsibility for our actions. When we see a problem, we do not pass it off, we do not complain, we act. We involve others as appropriate to achieve our goals. We prize dedicated, committed, caring, conscientious, and creative individuals who strive for excellence in the performance of their duties and responsibilities.

**Change and Growth…**

We appreciate that great organizations like Embry-Riddle are constantly changing, adapting to external pressures, and growing. All of our work units are constantly improving quality. We realize that our jobs require us to grow professionally and take on more responsibility. Growth requires calculated risk-taking and we empower one another to take appropriate risks and learn from our mistakes. We believe in a willingness to challenge traditions and constantly seek innovative ways to manage and solve problems.

**Fiscal Soundness and Investments…**

We understand we must operate efficiently and effectively so that investments can be made in our capabilities and ourselves. We invest in technology as appropriate, principally to increase the quality and frequency of our interactions in support of our mission.

**Attitude…**

We recognize, endorse, and empower leadership at all levels. We understand the joy of living in harmony with one another and strive to maintain an open, productive environment. We prize an upbeat, can-do attitude. We are members of the Embry-Riddle community because we want to be here, and this positive attitude is reflected in our communications with one another and our students.
A STUDENT...
Is the most important person in this university.

A STUDENT...
Is not an interruption of your work, but the purpose of it.

A STUDENT...
Is not a cold statistic, but a flesh-and-blood human being with feelings and emotions like your own.

A STUDENT...
Is not someone to argue or match wits with.

A STUDENT...
Is a person who brings us needs - it is our job to fill those needs.

A STUDENT...
Is deserving of the most courteous and attentive treatment we can provide.

A STUDENT...
Is the person who makes it possible to pay your salary whether you are faculty or staff.

A STUDENT...
Is the lifeblood of this and every university.

A STUDENT...
Is something you once were, REMEMBER?
Embry-Riddle Aeronautical University is the world’s oldest and largest fully accredited university specializing in aviation and aerospace. As a global institution, the University educates more than 34,000 students annually at its residential campuses in Daytona Beach, Florida, and Prescott, Arizona, and through its Worldwide Campus.

The Daytona Beach campus has 4,500 undergraduate and 390 graduate students. The Prescott campus enrolls 1,600 undergraduate and 40 graduate students. The Worldwide Campus has 21,000 undergraduate students and 6,100 graduate students.

Our students hail from all 50 states and 91 nations. At the Prescott campus, the top five states of origin in descending order are California, Arizona, Texas, Colorado, and Oregon. At the Daytona Beach campus, the top five states of origin are Florida, New York, New Jersey, Pennsylvania, and Texas. International students make up 8 percent of the student body at Daytona Beach and 3 percent at Prescott, with India at the top, followed by Korea and Japan. At the residential campuses, females constitute 16 percent of the student population.

The 185-acre Daytona Beach campus is located next to Daytona Beach International Airport. High-technology industries in the Daytona Beach and Orlando areas, as well as the Kennedy Space Center, provide the University with an outstanding support base. The campus offers state-of-the-art facilities, including the new College of Aviation building, which has air traffic control simulation and research labs and a weather center. The Lehman Engineering and Technology Center houses the technol-
ogy for online learning, videoconferencing, decision support systems, and three-dimensional modeling. The Advanced Flight Simulation Center contains an FAA-certified Level-6 CRJ-200 simulator and Level-6 Frasca FTDs that provide a level of on-campus training unique to higher education. In addition, the Daytona Beach campus is constructing an academic building for the College of Business that will include high-tech classrooms and faculty offices.

The University’s 539-acre western campus is located in Prescott, Arizona, 100 miles north of Phoenix. New campus facilities include the Aerospace Experimental and Fabrication Building, the Academic Complex, and the Visitors Center. Due to open in 2008 is the Christine and Steven F. Udvar-Hazy Library and Learning Center. Also of note are the King Engineering and Technology Center, which is electronically linked to the Daytona Beach campus; the Robertson Aviation Safety Center, which is dedicated to the study of human factors, aircraft accident investigation, and aviation safety; and the Robertson Flight Simulation Center, which contains Frasca and Airbus A320 flight-training devices. In support of academic instruction are various laboratories for engineering graphics, materials, aircraft structures and composites, and basic circuits and electronic devices, in addition to a supersonic wind tunnel and shock tube.

The Worldwide Campus provides educational opportunities for civilian and military professionals who are unable to attend classes at one of the University’s residential campuses. Its academic programs are offered in the classroom through a network of more than 130 centers in the United States, Canada, Europe, and the Middle East and through Web-based online learning. The Worldwide Campus headquarters is in Daytona Beach.

Embry-Riddle offers the student a choice of more than 30 undergraduate and graduate degree programs in aviation, aerospace, business, engineering, and related high-tech fields. U.S. News & World Report’s "Best Colleges" guide ranks Embry-Riddle’s aerospace engineering program No. 1 in the nation among schools without doctorate programs. Our aerospace engineering program is also the largest in the nation. The University’s engineering physics program is the largest of all ABET-accredited engineering physics programs and is considered to be one of the best in the nation.

Embry-Riddle’s undergraduate aeronautical science (professional pilot) program is the largest in the world; it’s as large as the other top 10 U.S. collegiate flight programs combined. The program is supported by 92 instructional aircraft and 34 simulators. Embry-Riddle’s precision flight teams consistently rank among the top in the nation in the SAFECON competition sponsored by the National Intercollegiate Flying Association.

While pursuing their education, our students gain valuable experience through participation in cooperative education and internship programs. Some 375 students were awarded co-op or intern positions during the 2005-2006 academic year. Students also accrue skills by assisting faculty members in conducting solution-oriented research and consulting projects for the aviation, aerospace, and other industries. In fiscal year 2005-2006, some 93 faculty mem-
bers were involved in research and other activities with 111 sponsored projects. The total value of all active awards was almost $28 million.

Within one year of graduation, 97 percent of Embry-Riddle graduates are either employed or have decided to continue their education. The major airlines hire more alumni from Embry-Riddle than from any other collegiate aviation program, and Embry-Riddle is the nation’s largest supplier of air traffic controllers with bachelor degrees to the FAA.

Over the decades, Embry-Riddle has educated and trained thousands of men and women of the U.S. armed forces. The two Air Force ROTC detachments at Embry-Riddle’s residential campuses form the largest university-based Air Force commissioning source in the nation. The detachments also produce more commissioned officers and more pilots and other rated officers for the Air Force than any other institution in the nation except the Air Force Academy. The University also hosts Army and Navy ROTC units. Currently Embry-Riddle has a $30 million contract with the U.S. Department of Defense that maintains the University’s long-time status as the sole provider of aviation-related degree programs to the U.S. military in Europe. Embry-Riddle also has a $14.5 million contract to screen Air Force pilots at the U.S. Air Force Academy in Colorado Springs and provides training to Air Force, Air National Guard, and international flight safety officers at Kirtland Air Force Base in Albuquerque, N.M.

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.
Embry-Riddle seeks graduate students of good character who have demonstrated scholastic achievement and capacity for future growth. Our admission process is aimed at identifying the best students who show the potential to succeed in one of our graduate programs. We use the guidelines in the next section to determine which applicants are to be granted full admission to a graduate program. Students who fail to meet these guidelines but who are judged to have potential for success in a graduate program may be granted conditional admission (subject, of course, to openings in the graduate program). Students admitted under conditional status will have to prove their ability to pursue a graduate program by meeting specific performance criteria after matriculation at the University.

Admission actions are often taken in the anticipation of the applicant successfully completing the baccalaureate or some other admission requirement. **Admission granted by such actions is provisional and is automatically rescinded if the applicant fails to meet the requirement before the specified date for the start of graduate study.**

Specific programs may require that potential degree candidates display a mastery of a number of topical areas critical to the initiation of graduate-level study in their fields. Candidates are informed of these requirements along with their notification of acceptance.

Any questions relating to the criteria or any other aspect of the admissions process should be addressed to the Graduate Admissions Office on the Daytona Beach or Prescott campus.

**General Criteria**

Applicants must possess an earned baccalaureate degree or equivalent.

If earned in the United States, this degree must be from an appropriately accredited college, university, or program.

If earned outside the United States, the degree must be from an institution that offers a degree program that is equivalent to one in an appropriately accredited college, university, or program in the United States. Applicants educated at foreign schools may be required to submit an evaluation by submitting official certified documentation of their educational achievements to an international education evaluation organization specified by Embry-Riddle.

A well-defined process will be used to determine whether a student is fully qualified for admission to a specific graduate program. Criteria for making this judgment will include academic record, work experience, professional activities, publications, recommendations, written statements, and interviews, as appropriate.

Articulation of applicable courses to meet program requirements or course prerequisites may be required as a condition of admission.

In most cases, students required to complete undergraduate prerequisites as conditions of their admission will receive conditional status admission. Upon successful completion of the appropriate undergraduate prerequisite courses, these students will transition to full graduate student status. While in conditional status, these students are not eligible for assistantship opportunities.
PROGRAM-SPECIFIC CRITERIA

In addition to the general criteria for admission, some of our graduate programs have additional program-specific admission criteria.

Master of Science in Aeronautics (MSA)

Applicants for admission to the MSA program must have prerequisite knowledge in the areas of
- Psychology
- Economics
- Computer Applications
- Mathematics

If they do not possess such knowledge, they may be required to register for undergraduate prerequisite courses in these areas. The student should possess a strong academic record, generally evidenced by a CGPA of 2.50 or higher.

Master of Science in Aerospace Engineering (MSAE) and Master of Aerospace Engineering (MAE)

An applicant’s degree should be a Bachelor of Science degree in Aeronautical or Aerospace Engineering, or equivalent. If earned in the United States, the degree must be from an ABET-accredited program. The student should possess a strong academic record, generally evidenced by a CGPA of 3.20 or higher. During the course of study the student will not be permitted more than two C’s in order to continue in the program. Furthermore, if the student fails a course during the course of study he/she will be dismissed from the program. The GRE exam, although not required, will be considered for scholarship/assistantship purposes if scores are submitted.

Students with a Bachelor of Science or equivalent degree in other engineering disciplines, mathematics, or physical science, who otherwise meet the requirements for full admission, may also be admitted to the MSAE or MAE program.

Master of Business Administration (MBA)

Applicants for admission to the MBA program are required to take the Graduate Management Admission Test (GMAT) prior to matriculation. Students who have not taken the GMAT and/or achieved the minimum score will not be permitted to register for MBA 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.

Applicants must have prerequisite knowledge in the areas of
- Management
- Quantitative Methods
- Accounting
- Marketing
- Finance
- Economics

If they do not possess such knowledge, they may be required to register for modules or undergraduate business courses in these areas.

For information on GMAT Administration, see http://www.mba.com.
Master of Science in Safety Science (MSSS)
Applicants for admission to the MSSS program must have prerequisite knowledge in the areas of
- Psychology
- Statistics
- Natural Science
- Mathematics
- Computer Applications

If they do not possess such knowledge, they may be required to register for undergraduate prerequisite courses in these areas. The student should possess a strong academic record, generally evidenced by a CGPA of 2.75 or higher.

Master of Science in Human Factors and Systems (MSHFS)
Applicants for admission to the MSHFS program must have prerequisite knowledge in the areas of
- Psychology
- Statistics

If they do not possess such knowledge, they may be required to register for undergraduate prerequisite courses in these areas. The student should possess a strong academic record, generally evidenced by a CGPA of 3.0 or higher.

Master of Science in Space Science (MSSPS)
Applicants for admission to the MSSPS program must possess a baccalaureate degree in engineering, physics, chemistry, or mathematics. The GRE exam, although not required, is strongly encouraged for this degree program. The student must possess a strong academic record, generally evidenced by a CGPA of 3.00 or higher.

Conditional Admission
1. Students who fail to satisfy the guidelines for full admission but are judged
Admission to the University

to have potential for success in a graduate program may be granted conditional admission. Students admitted under conditional status must prove their ability to pursue a graduate program by meeting specific performance criteria after matriculation at the University.

2. Students admitted on conditional status will be monitored closely as to scholarly performance. Students who are admitted conditionally will be on conditional status until they have completed nine hours of graduate work. During this period, students may receive no grade lower than a B. Students will not be permitted to repeat courses during this period.

3. The conditions of admission will be communicated to applicants in the letter of admission. Students are fully admitted to the program when the conditions have been properly satisfied.

PROCEDURES FOR ADMISSION

Applications will not be processed until all required documents are received. Applications received after the submission deadlines stated in the following sections will be processed as quickly as possible, but acceptance for admission may not be early enough for the applicant to begin the program as soon as desired. From the day of the receipt of all application documentation, admission notifications are usually sent within three weeks.

Daytona Beach applicants should submit their applications for admission to
Embry-Riddle Aeronautical University
Graduate Admissions Office
600 S. Clyde Morris Blvd.

Daytona Beach, FL 32114
(800) 388-3728 - or - (386) 226-6115
fax: (386) 226-7070
Financial Aid: (800) 943-6279
email: graduate.admissions@erau.edu
http://www.erau.edu/graduate

Prescott applicants should submit their application to
Embry-Riddle Aeronautical University
Graduate Admissions Office
3700 Willow Creek Road
Prescott, AZ 86301-3720
(800) 888-3728 - or - (928) 777-6993
fax: (928) 777-6958
email: prmss@erau.edu
http://www.erau.edu/graduate

UNITED STATES CITIZENS AND PERMANENT RESIDENTS OF THE UNITED STATES

All applicants must submit the following items to the Graduate Admissions Office prior to the application deadline:

1. Completed application form and the $50 application fee.

Please note: Permanent residents must provide a photocopy of their ARC (Alien Registration Card).

2. Transcripts.
   a) Official sealed transcripts for all college coursework earned (both graduate and undergraduate). Transcripts must be sent directly from the institutions attended to Embry-Riddle. A minimum of a bachelor degree is required.
   b) Course descriptions for all graduate coursework to be considered for transfer.
3. **Statement of objectives.** The statement of objectives is an important part of your application. You should give your reasons for wishing to do graduate work in the field you have chosen, incorporating your interests and your background as well as your long-term professional goals, defining how Embry-Riddle’s programs support those interests and goals. This should be at least three or four paragraphs.

4. **Three graduate applicant reference forms,** two academic and one professional.

5. **Resume.** A current resume outlining your education, work experience, special activities, and awards.

6. **Assistantships.** If interested in assistantship opportunities, submit an assistantship application declaring your interest in research, teaching, or administrative fields. Indicate any special skills that you feel may qualify you for an assistantship. To be eligible for an assistantship, a student must have a minimum 3.00 GPA in their undergraduate degree and have full graduate status (conditional admission eliminates a student from eligibility until all conditions are removed). Additional departmental restrictions and test scores are required for some positions.

7. **Test Scores.**
   a) MBA/A applicants should have GMAT scores sent directly to Embry-Riddle by the testing agency. For more information on the GMAT exam, refer to http://www.mba.com. Indicate school code number 5190.
   b) GRE scores, although not required by all programs, are desired for review by some program coordinators. See specific requirements under the program of your choice in this section of the catalog. For more information on the GRE exam, refer to www.gre.org. Indicate school code 5190.

All materials submitted become the property of Embry-Riddle Aeronautical University and cannot be reproduced, returned, or forwarded.

**Special Requirements for International Applicants**

Embry-Riddle is authorized under federal laws to enroll nonimmigrant alien students. An international applicant is defined as a nonresident, nonimmigrant applicant entering the United States on a nontourist visa.

In addition to the above required documents, **international applicants must also submit the following:**

1. All applicants whose native language is not English, or who were educated at schools where English was not the language of instruction in all disciplines, must submit their official TOEFL scores sent directly from the testing authority. The minimum acceptable score is 550 written/213 computer-based/79 iTOEFL.

2. In addition to official sealed transcripts, for any transcript not in English, a notarized English translation must also be submitted.

**SEVIS**

SEVIS is the Student and Exchange Visitor Information System consisting of a governmental computerized system to maintain
and manage data related to foreign students and exchange visitors during their stay in the United States. This system allows for real-time access to this information and assists colleges and universities in ensuring that students comply with the terms of the visas. For more information about SEVIS and visa requirements, please refer to the U.S. Immigration and Customs Enforcement (ICE) Web site at http://www.ice.gov/sevis/.

I-20 Requirements for International Students

Upon application, international students who require an initial or renewed student visa must submit the following:

2. Supporting bank letter verifying appropriate funds on deposit. Please refer to the student’s acceptance packet for the specific dollar amount requirement. This amount will reflect the amount needed to cover tuition, fees, books, health insurance, and living expenses for one year, plus $3,000 for each accompanying dependent. In the case of sponsored students, an official notification of public or private sponsorship will take the place of a bank letter. A University assistantship contract does not relieve a student from the requirement to provide both a financial affidavit and a supporting bank letter, unless waived by the appropriate University official. International students must be fully prepared upon arrival on campus to meet all normal living expenses and manage their finances for the period of time required to complete the degree.
3. The I-20 Form must be in the student’s possession before departure and be presented to the nearest U.S. embassy or consulate to obtain the necessary entry visa before departure to the United States.

The I-20 will be issued to the student upon admission to the University, if all required documentation has been received.

These rules and procedures apply equally to international students already studying in the United States who wish to pursue graduate study at Embry-Riddle. The only exception is that they must follow the procedures required by the U.S. Bureau of Immigration and Customs Enforcement to obtain approval for the transfer. Students should seek the assistance of the international student advisor at their current university to assist them with the transfer procedures. Transfer students should contact their current school’s International Student Service Office and request that their SEVIS record be released to Embry-Riddle at the end of their last semester at their current school. This will allow our admissions office to issue a new I-20.

Admission Time Limit

Applicants who have been accepted for admission into Embry-Riddle graduate programs must enroll in Embry-Riddle graduate courses in one year from the date of the semester for which they were accepted. Those who do not enroll in the specified time period must reapply for admission according to the regulations and procedures in effect at the time of reapplication.

A student who cancels the application at any point in the application process may reactivate the application at any time up to
Admission to the University

one year from the date of application. After one year, a new application, fee, and supporting documents must be submitted.

ADMISSION DEPOSIT

At least 30 calendar days prior to matriculation, admitted students must submit a $200 tuition deposit, along with an admitted student enrollment form to confirm enrollment at the University. This form is provided to admitted students by the Office of International and Graduate Admissions.

The deposit will be held in the student’s account for one year and will be credited toward tuition during the first semester of attendance. After one year, if a student has not matriculated, the deposit is forfeited.

CREDIT FOR PRIOR ACADEMIC WORK AND FOR COURSES TAKEN AT OTHER INSTITUTIONS

Students applying prior academic work toward their Embry-Riddle graduate program requirements must submit appropriate documentation for such credit as part of the admission process. The request must be in writing and be accompanied by official transcripts or equivalent evidence of such work. Requests must be approved by the academic department chair or their designee.

Prior academic work and courses taken at other institutions by veteran students and/or other eligible students receiving Veterans Education Benefits will be evaluated and credit granted as appropriate and will be reported to the DVA as required by law.

Credit (called transfer credit) may be received for graduate work done at another appropriately accredited college or university.

Credit (called escrow credit) may be received for certain graduate courses taken by Embry-Riddle undergraduates.

Credit may be received for certain graduate courses taken as nondegree graduate work or as part of another (completed or noncompleted) Embry-Riddle graduate degree program. When transferring from one Embry-Riddle graduate program to another this credit may include prior work on a GRP or thesis.

The combined total credit applied to an Embry-Riddle graduate degree may not exceed 12 credit hours.

In order to satisfy a graduate degree program requirement, the academic work for which such credit is sought must be determined to be specifically relevant to the applicant’s graduate degree program at Embry-Riddle. The content of the applicable course or other program should be used to determine the nature of the credit to be applied to the student’s degree requirement. The appropriate Daytona Beach or Prescott academic department chair or designee shall make these determinations.

Credit will be granted only if the student demonstrated performance expected of a graduate student at Embry-Riddle (in the case of graduate courses, this normally means that the course was completed with a B or better [3.00 on a 4.00 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 generally be accepted only for courses that were completed in the seven-year period immediately preceding
Admission to the University

the date that the student begins classes.

Permission to obtain graduate credit for courses to be taken outside the University after matriculation must be granted by the academic department chair or designee.

The last nine hours of graduate credit on a degree program must be earned at Embry-Riddle.

A student may not be enrolled in more than one degree program. Upon completion of a Embry-Riddle graduate degree program, a student may elect to apply to another graduate degree program at this university. After meeting admissions requirements and receiving notification of acceptance, a student may request that up to 12 hours of credit be transferred to the new degree program if the hours are applicable to the newly elected degree program. The transfer of these hours is at the discretion of the appropriate college dean or their designee.

INTRA-UNIVERSITY TRANSFER

Graduate students who have matriculated on either the Daytona Beach, Prescott, or Worldwide Campuses who are continuously enrolled students, and who have met their financial obligations on the campus where they matriculated, may transfer from one campus to the other. Transfers are not automatic and certain conditions must be met. Additionally, a vacancy must exist in the program to which the student wishes to transfer, either permanently or as a visiting student.

Students are urged to begin this process at least 45 days before the first day of classes in order to avoid any interruption in the progress toward their degree.
All University graduate academic and non-academic procedures and regulations are subject to change. Therefore, all procedures and regulations in effect at a given time may not be reflected in the current catalog. When such changes do occur, notice of the change may be in the form of an addendum or in the next catalog. Catalog addenda are effective on the date published unless otherwise stated.

**STUDENT RESPONSIBILITIES**

Students are responsible for being fully informed about all procedures and regulations governing their participation in Embry-Riddle’s graduate programs. The necessary information may be found in the current graduate catalog, Student Handbook, orientation and information packets published and distributed by the campuses, and periodic announcements published by the University. A student who requires clarification of any policy or regulation should seek help from his/her academic advisor or the office of Records and Registration. University regulations will not be waived because a student is unaware of established standards and procedures.

**ACADEMIC ADVISING**

The graduate program coordinator is the student’s academic advisor. Academic advisors help students choose and schedule courses that meet their educational goals. The advisor’s signature is required on all registration and add/drop forms.

Academic advisors post a schedule of office hours, and students should feel free to call on their advisors when assistance or discussion is needed.

**REGISTRATION**

Students are required to register for each term of enrollment. Tuition deposits, registration, and fee payments must be completed according to instructions published by the office of Records and Registration. Students are not officially enrolled until they complete all phases of registration, including financial requirements.

Late registration will be allowed during the first five days of classes if unusual circumstances prevent the student from registering during the normal registration period. Registration will not be allowed after the last day for late registration, as designated in the academic calendar of this catalog.

**SCHEDULE OF CLASSES**

A schedule of classes is prepared for each term. The University reserves the right to make necessary and appropriate adjustments to the published schedule to include cancellation or rescheduling of any class.

**ACADEMIC INTEGRITY**

Embry-Riddle is committed to maintaining and upholding intellectual integrity. The faculty, colleges, divisions, or campuses of the University may impose sanctions on students who commit the following academic integrity violations.

1. Cheating: The use of inappropriate sources of information on a test or being a party to obtaining or possessing an examination before the time the examination is scheduled.
Academic Regulations and Procedures

2. Plagiarism: Presenting as one’s own the ideas, words, or products of another.
3. Forgery and unauthorized alteration or misuse of one’s own or another’s academic records or transcripts.
4. Knowingly furnishing fake or misleading information to the University when seeking admission to the University or campus.
5. Forging, altering, falsifying, destroying, or unauthorized use of a University document, record, or identification. This includes using the logo, stationery, or business cards of the University or otherwise identifying oneself as an agent of the University for personal, non-University business.
6. Misuse of computing facilities and/or security violations, including attempted violations of computing facilities.

Sanctions may include a failing grade on the assignment, a failing grade for the course, or dismissal from the University.

Exclusion from Courses

A student making no real progress in a course or whose behavior is deterring from the course may be excluded from the course by the appropriate dean with a grade of W or WF. Students have five calendar days following written notification of this exclusion in which to appeal. Until the final disposition of the appeal, the student is considered enrolled in the course.

Course Loads

Full-time graduate students normally take nine semester credit hours. Additional courses above this load require permission from the appropriate department chair. If a student demonstrates exceptional academic performance, the department chair or designee may approve a maximum one-course overload. A student’s enrollment may be restricted when deemed in the best interest of the student.

The Grading System

The following indicators are used on grade reports and transcripts.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Student Performance</th>
<th>Grade Points Per Credit Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Excellent</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Satisfactory</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Passing</td>
<td>2</td>
</tr>
<tr>
<td>F</td>
<td>Failure</td>
<td>0</td>
</tr>
<tr>
<td>WF</td>
<td>Withdrawal from the University-Failing</td>
<td>0</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawal from a course</td>
<td>N/A</td>
</tr>
<tr>
<td>AU</td>
<td>Audit</td>
<td>N/A</td>
</tr>
<tr>
<td>I</td>
<td>Passing but incomplete</td>
<td>N/A</td>
</tr>
<tr>
<td>IP</td>
<td>In progress</td>
<td>N/A</td>
</tr>
<tr>
<td>N</td>
<td>No grade submitted by instructor</td>
<td>N/A</td>
</tr>
<tr>
<td>P</td>
<td>Passing grade (credit)</td>
<td>N/A</td>
</tr>
<tr>
<td>S</td>
<td>Satisfactory (noncredit)</td>
<td>N/A</td>
</tr>
<tr>
<td>T</td>
<td>Transfer credit</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Grade reports are issued at the end of each term. Students are solely responsible for informing the office of address changes. The University is prohibited from releasing grade information without the express written authorization of the student. Such authorization must be granted each term because blanket authorizations are prohibited by law.

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.

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

Thesis Grading
A final grade of P or F is awarded upon completion of the thesis. If the student is making progress, a grade of IP is awarded at the end of each term. The P grade will replace the IP grade for all terms. If the student has not made progress, a grade of F will be issued and will result in a change from IP to F for all thesis credits. A student enrolled for a thesis will receive a grade each term, as determined by the student’s thesis committee. Students must continually register for one credit hour of thesis until complete.

Graduate Research Project Grading
A final grade of P or F is awarded upon completion of the graduate research project. If the student is making progress, a grade of IP is awarded at the end of each term. If the student has not made progress, a grade of F will be issued and will result in a change from IP to F for the original three hours, and from IP to N for all remaining credits. Students who do not complete their graduate research project in the number of credit hours required by their degree program are required to register for one credit hour for every subsequent term, until completion.

Internship Grading
A final grade of P or F is awarded upon completion of a graduate internship.

Dropping a Course
Students may drop a course, with no notation of course enrollment on their transcripts, during the drop period only. The drop period extends through the third week of Spring and Fall terms and the second week of Summer terms.
Auditing a Course (AU)

Because students audit a course solely to enhance their knowledge, 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.

Withdrawing from a Course (W)

Students receive a grade of W if they withdraw from a course before the tenth week of Spring and Fall terms and the fifth week of Summer terms. If they withdraw from a course after this period, they receive a grade of F. If students stop attending their classes and fail to withdraw from the University, a grade of F is assigned for each course in which they were enrolled.

Students are not permitted to drop or withdraw from a course while a charge of academic dishonesty is pending. Students who withdraw from a flight course before the initial attempt at the final phase check receive a grade of W.

Incomplete Grade (I)

In exceptional cases, faculty may assign the temporary grade of incomplete (I) if a student is unable to complete the required work in a course because of medical emergency, death in the family, military duty, or other extenuating circumstances. If a student does not complete the course in the specified period, the grade of I automatically converts to an F.

The period to convert an I in a graduate course extends through a time period determined by the instructor, but no later than three calendar months following the end of the term in which the I grade was assigned.

Repeating a Course

Students may petition to repeat one course in which a grade of less than a B was earned for the purpose of improving their grade point average. Both grades earned appear on the transcript, but only the replacement grade is included in the calculation of the grade point average.

Undergraduate Enrollment in Graduate Courses

During their senior year, Embry-Riddle undergraduate students may take selected Embry-Riddle graduate courses, normally 500-level, for credit toward their undergraduate or graduate degree. Students must be within 10 hours of completion of the undergraduate degree, have the approval of the program coordinator of the appropriate graduate program, and have at least a 2.50 CGPA to qualify for enrollment in graduate courses while an undergraduate.

Academic Warning and Dismissal

Warning

Full-time students whose cumulative grade point average (CGPA) falls below 3.00 are placed on Academic Warning. Students on Academic Warning must raise their cumulative grade point average to 3.00 in the next
12 hours of graduate work.

Dismissal

1. Students on conditional status who fail to satisfy the conditions of their admission;
2. Earn less than a B in three graduate courses;
3. Earn an F in any two graduate courses;
4. Are on Academic Warning and fail to earn a 3.00 CGPA in the next 12 hours of graduate work;
5. Earn less than a 2.50 cumulative grade point average.

Students may appeal their first academic dismissal from the University by submitting a petition in writing detailing the existence of any exceptional mitigating circumstances to the chancellor or designee in 30 days of the receipt of the dismissal notice. The chancellor or designee will refer the student petition to the appropriate appeals committee for recommendation. Upon recommendation of the appeals committee, the chancellor or designee reviews the case and makes the final determination of the action to be taken. Such action will be taken in a timely manner not to exceed 30 days of the receipt of the petition. If confirmed, academic dismissal is final.

Students whose academic dismissal is final will not be readmitted to the University for two years. Unless readmitted to the University, such students will not be permitted to take any further graduate courses with the University. After this two-year period has lapsed, a student must reapply and meet all admission requirements in effect at the time of application to be eligible for reconsideration.

Dismissal for Cause

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

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.

Transfer Between Graduate Degree Programs

A graduate student who wishes to transfer from one program to another must prepare a written petition before the transfer will be considered. Requests for transfer of credits from Embry-Riddle or other institutions and/or advanced standing credits should be included in this petition.

The department responsible for the new program, however, has the prerogative to accept or reject the student’s request and to determine the courses applicable to the new program. Students should contact the appropriate graduate program coordinator.

When a student elects to transfer from one degree program to another, the catalog in effect when the transfer is approved is applicable.
Academic Regulations and Procedures

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 be awarded a second graduate degree, the student must satisfy all the requirements of the degree sought.

CATALOG APPLICABILITY

1. A petition to come under the provisions of a later catalog requires approval from the department chair or designee.
2. Former graduate students who reapply for admission to the University will, if readmission is granted, come under the provisions of the catalog in effect at the time of readmission.
3. Students who change from one graduate degree program to another come under the provisions of the catalog in effect on the date the change of program petition was approved.

TIME LIMITATION FOR DEGREE COMPLETION

The student has seven years from the date of admission to the master degree program to complete the degree. No Embry-Riddle course older than seven years at the time of graduation may be used in the program of study for a master degree. (Prerequisite courses are exempt from this requirement.) Transfer courses older than seven years, earned at other universities, may be accepted at the discretion of the appropriate program coordinator. Students who do not maintain continuous enrollment (missing enrollment at the University for a period of two years) must file for readmission to the University, although seven years is measured from when the student was first admitted to the program.

LOSS OF GRADUATE STATUS AND READMISSION

Under certain circumstances (other than graduation), a graduate student may lose graduate status and will no longer be considered a student at Embry-Riddle. This can occur when:

1. A student voluntarily withdraws from the University.
2. A student is dismissed from the University and the dismissal becomes final.
3. A student fails to meet the requirement for continuous enrollment. This occurs when a student does not enroll in at least one term in a two-year period.
4. A student does not complete the degree requirements of a graduate program within seven years of starting the graduate program.

Students who fail to maintain continuous enrollment for any reason are required to apply for readmission under the catalog in effect at that time.

WITHDRAWAL FROM THE UNIVERSITY

Students who leave the University for any reason must officially process a withdrawal clearance through the office of Records and Registration. When a student withdraws from the University after the end of the
scheduled withdrawal period, a WF grade will be assigned for all courses in which the student is enrolled unless an exception is granted for medical reasons or other extenuating circumstances by the appropriate chancellor or designee.

**Graduation Requirements**

The following summary of graduation requirements is provided for all students. An Embry-Riddle master degree will be conferred upon the successful completion of the general requirements of the University and the specific requirements of the degree sought.

1. All course, thesis, GRP, and other academic requirements, as appropriate, must be met.
2. The student is not on Academic Warning.
3. All debts and obligations to the University are satisfied.
4. The student is not under University investigation for misconduct or other disciplinary matters.
5. A student must be enrolled in the term in which he/she graduates.
6. An application for graduation must be initiated by the student and received in the time limit specified by the appropriate campus records office.
7. Participation in graduation exercises will not be permitted, a diploma will not be awarded, nor a transcript annotated as complete, until all of the degree requirements have been satisfied.

**Graduation Honors**

Students who have completed a graduate degree program and who have excelled academically throughout their graduate careers are recognized through the publication of graduation honors. To be eligible, graduate students must have completed their degree program with a cumulative grade point average of 4.00 based on grades received in all courses that apply to specific degree requirements.

**Transcript Requests**

A signed request for an academic transcript, accompanied by a fee, may be submitted by the student to the appropriate Records and Registration office. Transcripts will not be released to students who have failed to meet their financial obligations to the University.

**Privacy of Student Records**

The University respects the rights and the 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 nondisclosure request. Students are required to file their request for nondisclosure on an annual basis. Directory information consists of the student’s name, address, telephone number, date and place of birth, major field of study, participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, the most recent education
institution attended by the student, and
other similar information.

FERPA allows disclosure of educational
records or components thereof under certain
conditions. Students desiring additional
information regarding FERPA should contact
the office of Records and Registration.

STUDENT GRIEVANCES

It is the policy of Embry-Riddle to admin-
ister its educational programs in a fair,
equitable, academically sound manner
and in accordance with the appropriate
regulations and criteria of its governing
board, accrediting associations, and federal
and state laws and regulations. To this end,
graduate students are provided an oppor-
tunity to express any complaint, grievance,
or dispute that upon investigation may be
redressed.

SUBSTANCE ABUSE

Embry-Riddle promotes substance abuse
awareness by sponsoring educational
programs and distributing literature. The
University is additionally committed to
assisting students in the resolution of prob-
lems associated with substance abuse and
encourages students to seek additional help
through referrals from University Health
Services and Counseling offices.
FINANCIAL INFORMATION

Embry-Riddle Aeronautical University is committed to providing high-quality education at a reasonable cost. For more detailed information about tuition, fees, and other University expenses, Daytona Beach students should contact Student Accounting at (800) 943-6279. Prescott students should contact Student Accounting at (928) 777-3726.

FALL 2007/SPRING 2008 TUITION

Detailed tuition rates are described in the 2007/2008 financial insert:
http://www.erau.edu/er/costs.html.

Bills for tuition and fees, issued at the end of registration, are payable on the first day of class. If full payment cannot be made by this date, tuition payment agreements on outstanding balances are available at the rate of 1.5% per month. Tuition payment agreements are available in the Student Accounting Office.

DINING SERVICES

A variety of meal plans are offered. Please refer to the dining service brochure at the Daytona Beach or Prescott campus for a complete description of plans and services.

FEES

A Graduate Internship Fee based on the cost of one credit hour in a student’s degree program is charged for the semester of internship.

Contact Student Accounting at the appropriate campus for other miscellaneous fees.

REFUND POLICY

Students who officially withdraw from all classes are eligible for a partial refund of tuition. Spring and Fall tuition refunds for reduction of hours are not available after the last day of add/drop. Summer term refunds are calculated on a per-course basis.

During all terms the effective date of the withdrawal, as determined by the Records and Registration Office, governs refund computations. Students who are suspended for disciplinary reasons will not be eligible for a full or percentage refund.

Please reference the Withdrawal/Refund Schedule applicable to the campus you are attending.

The following are refundable according to the Withdrawal/Refund Schedules:

- Tuition
- Student Government Association fees
- Housing fees (less housing processing fee)
- International Student Service fee
- Health Service fee
- Technology Fee
- Meal Plans – unused balance at time of withdrawal

WITHDRAWAL/REFUND SCHEDULE

Fall/Spring Semesters

<table>
<thead>
<tr>
<th>Period</th>
<th>Class days</th>
<th>Refund %</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Days 1-5</td>
<td>*100%</td>
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<tr>
<td>II</td>
<td>Days 6-10</td>
<td>80%</td>
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<tr>
<td>III</td>
<td>Days 11-15</td>
<td>60%</td>
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<tr>
<td>IV</td>
<td>Days 16-20</td>
<td>40%</td>
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<tr>
<td>V</td>
<td>Days 21-25</td>
<td>20%</td>
</tr>
<tr>
<td>VI</td>
<td>Days 26 and after</td>
<td>0%</td>
</tr>
</tbody>
</table>

*Less $100 administrative fee
Financial Information

**Summer A/B**

<table>
<thead>
<tr>
<th>Period</th>
<th>Class days</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>1-3</td>
<td>*100%</td>
</tr>
<tr>
<td>II</td>
<td>4-6</td>
<td>80%</td>
</tr>
<tr>
<td>III</td>
<td>7-9</td>
<td>60%</td>
</tr>
<tr>
<td>IV</td>
<td>10-12</td>
<td>40%</td>
</tr>
<tr>
<td>V</td>
<td>13-15</td>
<td>20%</td>
</tr>
<tr>
<td>VI</td>
<td>16 and after</td>
<td>0%</td>
</tr>
</tbody>
</table>

*Less $100 administrative fee

Requests for refunds due to circumstances clearly beyond the student’s control, such as illness, required military service, etc., must be accompanied by appropriate documentation, such as a physician’s statement, or military orders.

A request for a refund must be submitted within 60 days of the date the student completed a change of registration. Refund petition requests will normally be processed in 10 business days. Personal appeals for denied requests must contain additional documentation not previously presented.

**STUDENT ACCOUNTS**

At the time of acceptance for admission, a University account is opened for each student. This account remains open until graduation. The primary use of this account is for University charges and payments. If an account shows credit balances, a student may request a refund in the form of cash, a check, or a transfer to an Eagle Card account. Each student is encouraged to open and maintain an account at a local bank for personal matters.

**PAYMENT PROCEDURES**

Cash, Visa, MasterCard, Discover, AMEX, and personal checks are acceptable forms of payment. Payments may be made via ERAU Online. A credit card is the only method accepted at this Web site payment location. An ERAU Online password must be used to access information. Payments made by mail should be addressed to the campus Cashier Office and timed to arrive prior to the first day of class.

The University offers a Flex payment plan where the student determines the amount and terms of the agreement. The student may sign up for the plan as early as February for the academic year’s costs or to spread out these out-of-pocket expenses over three to six months. There will be fees incurred for deferring payment. Fees may vary depending on the campus attended.

Charges incurred subsequent to registration are due 30 days from the date of invoice or the last day of class, whichever occurs first. All payments should include the student’s name and identification number.

**BOOKS AND SUPPLIES**

Purchases are made directly from the University Bookstore. Cash, checks, Eagle Dollars, Visa, MasterCard, and AMEX are accepted. Students whose estimated financial aid is higher than the total amount for tuition and fees may request to use these funds for book purchases from the Cashier Office.

**DELINQUENT ACCOUNTS**

When a student’s account is delinquent, registration for that term is subject to cancellation, and registration for any subsequent semester 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. Continued delinquency...
may result in administrative withdrawal from the University. Administrative withdrawal will not relieve a student of the obligation to pay outstanding debts. Sums remaining unpaid will be charged interest at the maximum rate allowed by law. The student is also subject to the costs of collection, including collection agency fees and reasonable attorney fees for making such collection. Delinquent accounts may be reported to one or all three major credit bureaus.

**Financial Assistance**

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.

A complete description of financial assistance programs is available online under the Financial Aid section (http://www.embryriddle.edu). Students who expect to need help in meeting their financial obligations are encouraged to seek such assistance through one or more of the programs available for this purpose.

**Eligibility Requirements**

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

1. Be U.S. citizens or eligible noncitizens;
2. Cannot be accepted conditionally in a program;
3. Be enrolled or accepted for enrollment as at least a half-time student in a degree program. For financial aid purposes, graduate students must register for a minimum of three graduate hours.
4. Be maintaining 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, domestic students may complete the Federal Application (FAFSA) online at http://www.fafsa.ed.gov. Each year, students are required to reapply for financial aid. Students are mailed a federal PIN by the Department of Education to renew their aid application each year online at http://www.fafsa.ed.gov. Returning students may also request application materials from the Financial Aid Office. Students attending the Worldwide Campus may request financial aid materials through the center, the Financial Aid Office, or online at http://www.fafsa.ed.gov. Notices will be posted on ERAU Online to remind students of the availability of the forms.
Financial Information

EXTENDED PAYMENTS

Students who use financial assistance to pay their University expenses 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. Financial assistance is credited to student accounts after the official registration period.

To qualify for a payment extension, students must have applied for financial assistance and must have received final approval of their award.

PROGRAMS AVAILABLE

The major categories of financial assistance programs include scholarships, grants, loans, and student employment. Loans from state and federal government sources or from private lenders must be repaid; however, the interest rate is usually low and the repayment period is extended. Grants and scholarships do not have to be repaid, nor does the income earned through student employment. Most of these programs are based on the student’s financial need.

Federal Loans

• Federal Stafford Loan
• Federal Unsubsidized Stafford Loan

Embry-Riddle Employment

• Embry-Riddle Student Employment
• Off-Campus Referral Program

Financing Options

• Various privately sponsored loans for education

Consult the financial aid information on the Embry-Riddle Web site for additional information.

ATHLETIC GRANTS

The University offers a limited number of athletic grants for qualified students. Awards are available for baseball, basketball, golf, soccer, tennis, wrestling, cross-country track, and women’s volleyball. The maximum value permitted by the NAIA is the actual cost of tuition, room, board, books, and fees. However, most grants are awarded as partial tuition waivers. To qualify, students must meet both University and NAIA eligibility requirements. Specifically, NAIA requires that student-athletes must be graduate students at the institution from which they earned their undergraduate degree and have a maximum of 10 semesters of full-time student status in which to compete. The grants are highly competitive, and interested students should contact the Athletic Department for specific details.

OTHER FINANCIAL ASSISTANCE PROGRAMS

Veterans Education Benefits

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 U.S. Department of Veterans Affairs (DVA).

Students must be pursuing a degree in a specific program to be eligible to receive benefits. Admission procedures for veterans
and other eligible persons are the same as those for other students. Students who do not satisfy all requirements for full admission may be certified for two terms; however, they may be required to repay the DVA for some or all benefits received if they do not achieve full admission status during that time.

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 graduate students who are on academic warning and fail to earn a 3.00 CGPA in the next 12 credit hours of graduate work or are otherwise subject to dismissal. The DVA 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 DVA 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 this catalog, and the rules and regulations of the DVA 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 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 program. Students who receive DVA benefits are subject to strict academic regulations and should be aware of how auditing a course, repeating a course, changing degree programs or enrollment status, and other actions may affect their eligibility to receive benefits.

For further information on approved programs and the application process, eligible persons should contact the Veterans Certifying Official at the campus they plan to attend.

Military Tuition Assistance

Military tuition assistance may be available to graduate students on active military duty. For further information, students should contact the educational services officer at their assigned installation.

Graduate Assistantships

Graduate assistantships are academic appointments that are normally reserved for qualified graduate students at the Daytona Beach and Prescott campuses. A graduate teaching assistant helps in teaching undergraduate students in specified courses or laboratories under the general supervision of a faculty member. A graduate research assistant is involved in research activities under the direction of a faculty member or a research associate. A graduate administrative assistant assists departments or faculty with curriculum development, special projects, and other duties as assigned. To be eligible for a graduate assistantship, a student must have full graduate status in a degree program, must have maintained a CGPA of 3.00 out of a possible 4.00 or above through
the end of the semester (graduate or undergraduate) preceding the appointment, and must demonstrate adequate communication and technical skills.

Each department has the responsibility to post the availability of its graduate assistantships. Students interested in applying should submit a resume directly to the department. Incoming students should contact departments directly about the availability of assistantships.

Full graduate assistantships carry a stipend set by the University and a tuition waiver for up to nine graduate credits per semester. Graduate assistants with such appointments are expected to devote 20 hours each week to effectively carry out their assignments. Under some circumstances, partial assistantships providing either tuition or a stipend may be granted. In such cases, expected time to be devoted is set by the assigning department. Graduate assistants are permitted to accept other University employment; however, University policies limit all students to a total of 25 hours of work per week, including the graduate assistantship. All graduate teaching, research, and administrative assistantships, both full and partial, require that the recipient be registered for at least three graduate credits at Embry-Riddle for any semester of their appointment. Summer registration is not required, but encouraged.
Embry-Riddle believes that a well-rounded education goes beyond the classroom. The opportunities for co-curricular involvement are limitless and are designed to encourage the personal and educational development of all students.

**STUDENT ACTIVITIES**

The mission of the Department of Student Activities is to provide students with the opportunity to experience co-curricular programs that support and complement the educational process and contribute to a well-rounded education. Student Activities works with other areas of the campus to offer cultural, intellectual, recreational, and entertainment events for all Embry-Riddle students, while providing a learning experience not available in other academic settings.

There are over 100 clubs on the Daytona Beach campus and over 65 on the Prescott campus. Each campus has sports clubs, special interest groups, Greek life (sororities and fraternities), honor societies, aviation clubs, military organizations, and religious clubs. The Department of Student Activities provides support for all these organizations in addition to assisting students in starting a new club/organization. Involvement in any club or organization develops social responsibility, strong group dynamics, leadership, communication, management, budgeting, and decision-making skills. Students have the opportunity to learn about all the organizations at the fall and spring Activities/Club Fair.

The Department of Student Activities is also the point of contact for the Programming Board (Touch-N-Go Productions in Daytona Beach and Board of Campus Activities in Prescott) Leadership Development and Homecoming Activities.

For specific campus information, visit the Office of Student Activities in Daytona Beach or the lower level of the Student Hangar in Prescott.

**DELTA MU DELTA**

The Delta Mu Delta National Honor Society is a nationally recognized organization that identifies business administration students who have distinguished themselves scholastically. Founded in 1913, Delta Mu Delta has grown to encompass 76,000 members from over 150 chapters. The Society has established an affiliation with the Association of Collegiate Business Schools and Programs (ACBSP), which requires that Delta Mu Delta chapters be established exclusively at colleges and universities with business programs accredited by ACBSP. Graduate students who achieve a 3.65 cumulative grade point average and who complete 12 credit hours of graduate work are considered for membership in Delta Mu Delta.

**INTRAMURAL AND RECREATIONAL SPORTS**

Intramural and Recreational Sports at each residential campus strives to create an atmosphere of competition and fun by offering a wide variety of activities ranging from team sports such as flag football, volleyball, basketball, floor hockey, and softball to individual competition in such sports as table tennis, racquetball, and tennis. Other sports are also available on request. The director assists chartered clubs and organizations with the use of sports facilities and equip-
Student Life and Services

An equipment loan program offers many items for free checkout on an overnight basis with a valid University I.D. card. Students are encouraged to use all on-campus sports-related facilities: outdoor swimming pool, tennis and basketball courts, playing fields, indoor racquetball, gymnasium, and fitness center. Hours vary for each facility and are posted.

In addition to on-campus recreational activities, each area offers a virtually unlimited variety of outdoor recreational opportunities. Hiking, camping, fishing, sailing, and skiing are a few of the activities available in the surrounding area.

Whether students seek a highly competitive league to demonstrate their athletic skills or select a competition that encourages group participation for fun and to stay in shape and reduce the stress in their lives, they are sure to find what they are looking for in intramural recreational sports.

Student Employment

The Student Employment office provides assistance to students seeking part-time employment on or off campus at the Daytona Beach and Prescott locations. On-campus employment is available to students regardless of financial need. Working on or off campus not only gives students more financial support, but also helps them develop self-confidence, gain valuable employment and credit references, establish a work record, and acquire useful skills in time management, financial planning, and communication.

At Embry-Riddle, because students work and serve each other, a sense of community is created. Students are participants in the life and work of the University as well as consumers of the educational program.

Embry-Riddle depends on student workers for much of the work essential to sustain day-to-day operations.

Embry-Riddle adheres to the principle of equal employment opportunities for all students.

Safety and Security

Safety and security at Embry-Riddle is provided by the University’s Safety department. The Safety department is an in-house segment of the University consisting of both full-time officers and part-time student assistants. The Safety department includes patrol and escort services, parking and traffic services, life safety systems, crime prevention, communications/dispatch services, and locksmith services.

The patrol and communications sections provide 24-hour service to the University and its satellite locations. Safety officers respond to routine requests for service as well as emergency conditions throughout the University. They also conduct field investigations as required and provide specialized security service to the University’s flightline. The parking and traffic services section manages campus parking, traffic, and associated enforcement functions. It also provides support for special events. The crime prevention section actively engages in safety education and crime prevention programs for students, faculty, and staff. The department maintains a close liaison with local law enforcement agencies to provide the safest possible learning environment.
CAMPUSS MINISTRY

The University recognizes that the typical student feels challenged by the many questions, experiences, and world views encountered on campus. It also recognizes that because students are faced with a consuming social life and the subtle influence of peers, it is important to encourage and promote spiritual development. Special opportunities for deepening faith, such as student religious-club sponsored meetings and programs and pastoral counseling, are offered during the regular scholastic year. At the Prescott campus, a Community Interfaith Directory is distributed at New Student Orientation and local church groups are invited to offer their worship services to the new students. At the Daytona Beach campus, worship services are available each Sunday at the Interfaith Chapel.

DISABILITY SUPPORT SERVICES

The University is committed to ensuring access and providing reasonable accommodation for students with documented disabilities who request assistance. The director is the coordinator of Disability Support Services at the Daytona Beach campus and Worldwide; the director of Student Activities coordinates Disability Support Services for students at the Prescott campus.

Students’ needs are addressed on an individual basis with regard to their specific disabilities, academic and career goals, learning styles, and objectives for personal development. Campus-specific services might include academic advisement or assistance with planning academic schedules, registration assistance and advance registration, academic intervention programs, time management training, study skills assistance, arrangements for peer tutoring, testing modifications, advocacy, and facilitation of physical access. 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 individual student. Because certain academic programs are FAA-certified, those programs are subject to regulation by that agency. Therefore, regulatory limitations may delay or preclude participation or licensure in those programs by persons with certain disabilities. Prospective students considering a program of study are encouraged to contact the Disability Support Services coordinator for information on eligibility concerns or campus-specific services.

HEALTH SERVICES

Maintaining good health promotes a productive university experience. The Health Services staff is committed to facilitating students’ wellness through direct care, education, and assistance with lifestyle modification.

Services include assessment, prescriptive and nursing care, referrals, wellness education and counseling, women’s health care, medical grounding of flight students, and assistance with aerospace medical concerns.

Prospective flight students should be aware that certain sensory impairments, medical, neurobiological, and psychological conditions, and prescriptive medications may delay or preclude medical certification by the FAA. These issues should be discussed with an aviation medical examiner (AME) to ensure participation in flight instruction. Students may also contact the Health Services clinical staff for informa-
tion on eligibility for medical certification. A copy of the student’s FAA Medical Certificate, Class I or II, must be submitted to Admissions at least 60 calendar days prior to the desired enrollment date. Failure to meet this requirement may delay entry into the flight training curriculum.

Health insurance is strongly recommended for all students. Individual policies should be reviewed prior to enrollment to ascertain adequate coverage and determine approved providers should off-campus referrals be indicated or desired. A campus group policy is available for purchase with rates determined annually. Information on benefits, premiums, enrollment, and claims is available by visiting http://www.studentresources.com or by calling, toll free, (800) 237-0903.

International students should contact the International Student Services department about their specific insurance requirements.

COUNSELING SERVICES

The college experience is highly complicated, offering students tremendous intellectual and personal opportunities as well as difficult challenges and demands. Many students find themselves seeking counseling as a way of learning, growing, and dealing with these experiences.

Individual counseling provides an avenue for students to meet one-to-one with a counselor to discuss and explore the issues, concerns, and feelings they are experiencing. Issues addressed in counseling vary from adjustment to college life, relationship problems and stress, to more serious problems. Counseling is available without cost to students, and the content and records of sessions are confidential.

INFORMATION TECHNOLOGY SERVICES

Information Technology strives to provide students with stable, secure, highly available, always-on systems via the Web that offer a leading-edge in technology. The Embry-Riddle Web portal, known as ERNIE (Embry-Riddle Network for Information Exchange) can be found at http://ernie.erau.edu. ERNIE accounts are provided to all students. ERNIE gives students one-stop-shopping for class and University information as well as details on campus events. ERNIE also provides a number of services that students can access, such as email, unofficial transcripts, class grades, class schedules, account balances, and flight schedules. Additional services are available and more are continually being added. ERNIE can be accessed from any computer with an Internet connection. Information Technology also provides the following services:

• Computerized labs and classrooms
• Email accounts
• Network storage space for class assignments
• Storage space for personal Web pages
• Assistance in connecting to the Residential Network (ResNet) for on-campus housing
• Voicemail accounts for on-campus housing
• Popular Microsoft software titles available.
• Telecommunications support for University Housing
Wireless Internet access in many buildings

As the technology used in the aviation and aerospace industries grows and advances, so do the tools of teaching future aviation and aerospace pioneers.

LIBRARIES

The mission of the Embry-Riddle libraries 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. Library services and resources are provided through two main libraries: the Jack R. Hunt Library in Daytona Beach serves the Florida campus and the students of the Worldwide Campus, and the Prescott Library serves the Arizona campus. Both facilities are state-of-the-art and hold a combined total of over 120,000 volumes and 1,800 periodical titles in addition to government documents, reports, conference proceedings, and multimedia sources. The libraries are fully automated with online catalogs and Internet access from staff and public workstations. Both offer specialized electronic databases to students of Embry-Riddle and various public access sources for the general public. The Prescott Library holds special materials relating to aviation safety and the Hunt Library houses a historical aviation collection dating from 1909. The libraries participate in local, state, and national networking consortia that give students access to virtually unlimited information worldwide via the Internet and through local arrangements and reciprocal borrowing agreements. Both facilities are open over 90 hours per week (with extended hours during exam periods). Information professionals with specialized training in aviation and aerospace assist students and teach research skills, including how to identify, evaluate, and use information in all formats.

DAYTONA BEACH EAGLE CARD

The Eagle Card serves as a student’s identification and is required for borrowing library books, cashing checks, and attending University-sponsored events. Continuing Embry-Riddle students can use their existing “Student” Eagle card. Students new to the University will be issued their Eagle Card during Graduate Orientation. Its optional debit card feature makes purchasing goods and services on campus easy and provides a convenient way to track expenses. Students simply deposit money into an Eagle Dollars account and, when a purchase is made at a campus dining location, the University Bookstore, a designated vending machine, etc., the amount of the purchase is deducted from the value remaining on the account. For added convenience, all monies deposited but not used are carried forward from semester to semester. There are no early withdrawals from any Eagle Card account. For a full disclosure of the terms and conditions, visit our Web site at http://www.erau.edu/eaglecard.

DINING SERVICES

A variety of nutritious and satisfying dining services and meal plan options are offered on both the Daytona Beach and Prescott campuses. At both locations, dining facilities are located in or near residence halls and offer a wide range of food selections from full hot meals to fast food and snacks. Students can also enjoy weekly specials and
Student Life and Services

events such as cookouts, buffets, and celebrations. Dining service hours are designed to meet the needs of students, with meals available throughout the day.

Accommodations can be made for students with special dietary needs or medical conditions. Dining service personnel are available to consult with students on an individual basis. Requests for special services should be made to the director of Dining Services at each campus.

MAIL

Daytona Beach Campus
Prior to a student’s arrival, all personal mail, UPS, Federal Express, deliveries, etc., should be addressed as follows:

Student Name
“New Student”
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900

Prescott Campus
Prior to a student’s arrival, all personal mail, UPS, Federal Express, deliveries, etc., should be addressed as follows:

Student Name
“New Student”
Embry-Riddle Aeronautical University
3700 Willow Creek Road
Prescott, AZ 86301-3720

All students are assigned a mailbox that they are required to check on a daily basis. University and personal communications are placed in the student mailboxes each day.

INTERNATIONAL STUDENT SERVICES

The International Student Services Office serves as the central point of contact for issues concerning international students at Embry-Riddle. An International Student Orientation is held each semester to familiarize students with University policies and procedures as well as the American education system generally. The office provides services that include advising students on immigration regulations and financial and personal matters. The office also assists international students with the processing of forms and documentation of status required by foreign governments, sponsors, the U.S. government, and the University.

International Student Services staff members continually strive to provide opportunities for international students to become involved in campus and community programs that facilitate a cross-cultural awareness with University faculty, staff, and students as well as the local communities of Daytona Beach and Prescott. Some of these activities include International Days on both campuses, programs with local families to introduce students to the community, speaking engagements in local schools and at community service organizations, and trips to area attractions such as amusement parks, national parks, and cultural festivals.

All international students are expected to check in on arrival at Embry-Riddle with passport and immigration documents to the International Student Services Office, Student Center Annex, (386) 226-6579 for Daytona Beach students, or (928) 777-3774 for Prescott students.

CAREER SERVICES OFFICE

The Career Services Office provides career resources and career development assistance to all students and alumni of Embry-Riddle. The Career Services Web site offers students and alumni a virtual library of job
search aids, including interview tips, sample resumes and cover letters, company profiles, direct links to employment Web sites, cooperative education/internship opportunities, current job listings, and a Web-based resume referral service.

Industry/Career Expos are held in the fall on both campuses. Over 100 companies visit the campuses to recruit students for full-time, cooperative education, and internship opportunities and to provide information on the industry. On-campus interviews and informational presentations are also scheduled year-round.

The Career Services Office employs a staff of program managers to provide one-on-one career advisement, mock interviews, and resume-critique services. The Career Services Office encourages students to contact them early in their education to explore career options and to develop a successful job search strategy.

Career Services
Daytona Beach: (386) 226-6054
e-mail: careers@erau.edu
Prescott: (928) 777-3823
e-mail: prcareer@erau.edu
Worldwide Campuses and Online
e-mail: eccareer@erau.edu
http://www.embryriddle.edu

Graduate internship experiences are designed as academically based experiential education. A student enrolled in a University-approved graduate internship and registered for three credit hours will be considered full-time by all University departments other than Financial Aid. The Financial Aid Office will consider a three-hour internship as half-time enrollment and will process financial aid accordingly. They will report enrollment to the outside agencies as half-time, thus keeping them out of repayment on their student loans.

**EMBRY-RIDDLE LANGUAGE INSTITUTE**

The Embry-Riddle Language Institute (ERLI) at the Daytona Beach campus is an intensive English program providing English-language instruction and cultural orientation to nonnative speakers of English. Most of our students plan to attend Embry-Riddle, but we also welcome others who just want to improve their English-language ability. If you desire to become more proficient in listening, speaking, reading, and writing the English language, this intensive English program is for you. Students benefit from a computer laboratory with up-to-date language-learning software and TOEFL preparation software. Students who wish to attend Embry-Riddle can be granted conditional acceptance pending completion of our program or a passing TOEFL score, assuming they meet all other University admission requirements. Eligible students are also able to earn a part-time recommendation after successful completion of a semester at ERLI, which allows them to begin their University studies while continuing their English-language studies. Other benefits to our program include field trips, social events, and full access to all Embry-Riddle facilities.

For more information, contact:
Embry-Riddle Language Institute
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900
(386) 226-6192
fax: (386) 226-6165
e-mail: erli@erau.edu
INTRODUCTION

Status quo is virtually an unknown concept in the aviation industry. The technology with which aviation works and the national and international regulations by which it must abide are subject to rapid, frequent, and sweeping change. Aviation touches every sphere of modern personal and business life and, therefore, must be sensitive to and respond to stimuli from a variety of unrelated sources. A healthy aviation industry is critical to the nation’s economic well-being and security.

Embry-Riddle graduate degree programs are designed to stress pragmatic solutions to the managerial, technological, and organizational challenges in the aviation and aerospace industry today. The problems currently confronting industry are brought into the classroom for analysis, making use of the latest theories, tools, and techniques available to engineers, operations personnel, and managers. Case studies, simulations, com-
puter-aided analysis, and computer-assisted design, as well as experiential exercises are interspersed throughout the curricula to achieve a balance between theory and the realities of the aviation/aerospace industrial world of the 21st century.

In most programs, opportunities are provided in each degree program to tailor the curriculum to meet specific, individual career objectives. Classes are scheduled to accommodate both full-time and part-time study. Many of the graduate courses are nonsequential, allowing study to begin in any term. Electives needed to complete the requirements of any graduate degree are selected from among the 500/600 numbered courses (except BA 503 and the AED course series) listed in this catalog.

GRADUATE INTERNSHIPS

Graduate internships are temporary professional or industrial work opportunities available to graduate students in some programs. There are two types of internships: resident and nonresident. Resident internships are professional work activities supported by a partnership between the University and industry and conducted on campus under the supervision of a faculty/staff sponsor. Nonresident internships are professional work activities conducted off campus at the supporting organization facility. Full-time employees of the offering organization are not eligible for an internship appointment and cannot receive elective credit for their professional work service.

Graduate students who have full graduate status in a degree program and are in good standing with a minimum of six completed graduate credit hours, and who earn a cumulative GPA of 3.00 on a 4.00 basis, are eligible to apply for graduate internships. Students must demonstrate adequate communication and technical skills.

Students selected for an internship must register for the approved number of credit hours in the appropriate departmental internship course, and pay all fees. Graduate academic credit is awarded at a rate of one credit hour for every 200 clock hours of work completed, up to a maximum of three credit hours in one semester. Three internship credit hours may be applied as an elective toward degree requirements in most degree programs. Students are advised to consult with their graduate program coordinator for approval to use internship credits toward their degree program.

THESIS AND GRADUATE RESEARCH PROJECT OPTIONS

Requirements

Students who elect a thesis or graduate research project must obtain approval of the research topic. The University encourages graduate students to select thesis and graduate research project topics that permit them to participate in faculty research. Once approved, a research advisor and one or more additional committee members are selected and approved by the department coordinator or designee. Normally, if a student is working with a faculty research team as part of his/her thesis or graduate research project, the faculty member who is directing the student’s research should generally be the student’s research advisor. The graduate research project option may not be available for all programs.
The College of Arts and Sciences is home to several outstanding degree programs and, in addition, is the primary provider of the curricula that fulfill the university’s general education goals. At the graduate level the College offers the Master of Science in Space Science and the Master of Science in Human Factors and Systems.

The College of Arts and Sciences’ primary responsibility is to provide a high-quality educational opportunity to all adequately prepared students. It seeks to inculcate in its students a lifelong love of learning and an appreciation of the cultural, intellectual, and historical impact of the search for truth and knowledge. The College seeks to develop in its students the ability to think independently and to accept responsibility. Students are expected to master the skills that enable them to communicate clearly and to interact with people different from themselves.

The College endorses and encourages the use of nontraditional experiences to enhance learning, including cooperative education, industry internships, study abroad, and research involvement.

Our faculty are actively involved in research and scholarly activities that often involve students. The Space Physics Research Lab, the Atmospheric Physics Research Lab, and the Laboratory for Advanced Instrumentation Research are operated by the faculty in our academic departments and provide ample opportunities for research. The Arts and Letters program promotes campus activities in the arts and humanities that enrich the lives of faculty as well as students.

Our excellent faculty and energetic, enthusiastic student body make the College of Arts and Sciences a wonderful place to work and learn.
Master of Science in Human Factors and Systems (MSHFS)

INTRODUCTION
The Department of Human Factors and Systems offers graduate instruction leading to the Master of Science degree in Human Factors and Systems with two distinct tracks in Human Factors and in Systems. These programs are designed to meet the highest academic standards, fully preparing students for doctoral-level studies while at the same time preparing students for immediate employment in the real world of cost sensitive and operationally driven aviation/aerospace environments.

The Human Factors track will develop a graduate with the capacity to design, conduct, and apply human factors research in support of the design of simple and complex systems. It will develop a student’s ability to work as a human factors professional in aviation and aerospace environments based on their academic preparation and to actively participate in human factors projects at the graduate level. A variety of research, consulting, and internship arrangements are included in the program.

This track is based on the scientist-practitioner model of the American Psychological Association (APA) and adheres to guidelines established by the committee for Education and Training of APA’s Division 21 (Applied Experimental and Engineering Psychology). The program has been designed to meet the accreditation requirements of the Education Committee of the Human Factors and Ergonomics Society, as well as the International Ergonomics Association.

Students receive education in the content and techniques of human factors, including statistical and quantitative procedures, experimental design, survey methods, computer techniques, and other research methodologies.

The Systems track provides a systemic focus to the transformation of an operational need into a defined system configuration through the iterative process of functional analysis, synthesis, optimization, and design integration.

History indicates that a properly coordinated and functioning system that has a minimum of undesirable side effects cannot be achieved unless the system designer is sensitive to operational feasibility during the early stages of system development and assumes the responsibility for a user-centered life cycle. Therefore, a major focus of the Systems Track is an appreciation of the total life cycle.
of the system, including design, development, testing, production, operations, sustaining support, and disposal.

The track addresses considerations of human factors, reliability, maintainability, logistic support, safety, producibility, economic, and related parameters as they apply to system design, integration, and evaluation. The goal of the track is to produce graduates who understand the proper balance between operational, behavioral, economic, and logistic factors.

Finally, the Systems track produces graduates who can move easily across disciplines. The graduates will understand the relative capabilities and limitations of each and thus know where trade-offs can effectively be made. This interdisciplinary prerequisite also requires that the graduate be able to use the tools and techniques of the various disciplines in both traditional and nontraditional applications.

*A five-year Human Factors and Systems program is available. Please see the undergraduate catalog for details.

**DEGREE REQUIREMENTS**

**HUMAN FACTORS TRACK**

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HFS 500 Systems Concepts, Theory, and Tools</td>
<td>3</td>
</tr>
<tr>
<td>HFS 510 Research Design and Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>HFS 600 Human Factors in Systems</td>
<td>3</td>
</tr>
<tr>
<td>HFS 610 Research Design and Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>HFS 615 Sensation and Perception</td>
<td>3</td>
</tr>
<tr>
<td>HFS 620 Memory and Cognition</td>
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<table>
<thead>
<tr>
<th>Electives*</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 511 Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>HFS 515 Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>HFS 520 Team Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>HFS 525 Human and Organizational Factors in Technological Systems</td>
<td>3</td>
</tr>
<tr>
<td>HFS 530 Systems Psychology</td>
<td>3</td>
</tr>
<tr>
<td>HFS 590 Graduate Seminar</td>
<td>3</td>
</tr>
<tr>
<td>HFS 625 Applied Testing and Selection</td>
<td>3</td>
</tr>
<tr>
<td>HFS 630 Cognitive Systems</td>
<td>3</td>
</tr>
<tr>
<td>HFS 635 Human Computer Interaction</td>
<td>3</td>
</tr>
<tr>
<td>HFS 640 Aviation/Aerospace Psychology</td>
<td>3</td>
</tr>
<tr>
<td>HFS 645 Underpinnings of Human Factors and Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>HFS 650 Human Factors of Aviation/Aerospace Applications</td>
<td>3</td>
</tr>
<tr>
<td>HFS 696 Internship in Human Factors and Systems (highly recommended)</td>
<td>3</td>
</tr>
<tr>
<td>HFS 699 Special Topics in Human Factors and Systems</td>
<td>3</td>
</tr>
<tr>
<td>MSA 611 Aviation/Aerospace System Safety</td>
<td>3</td>
</tr>
<tr>
<td>MSA 612 Aviation/Aerospace Industrial Safety Management</td>
<td>3</td>
</tr>
<tr>
<td>MSE 500 Software Engineering Discipline</td>
<td>3</td>
</tr>
<tr>
<td>TM 605 Organization Theory in a Technical Environment</td>
<td>3</td>
</tr>
<tr>
<td>TM 610 Managing Effective Technical Work Teams</td>
<td>3</td>
</tr>
</tbody>
</table>

* Electives are selected with the consent of the student’s graduate advisor. Other elective courses may be selected with the approval of the graduate advisor. A total of four electives must be fulfilled for degree completion.

**Option I**

| HFS 700 Thesis                      | 6       |

**Option II**

-OR-

| HFS 515 Ergonomics                  | 3       |
| HFS 611 Work Physiology             | 3       |

| Comprehensive Exam                 | 0       |

**Total Required** 36

**SYSTEMS TRACK**

<table>
<thead>
<tr>
<th>Core Courses</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HFS 500 Systems Concepts, Theory, and Tools</td>
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<tr>
<td>HFS 505 System Engineering I</td>
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</tr>
<tr>
<td>HFS 510 Research Design and Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>HFS 600 Human Factors in Systems</td>
<td>3</td>
</tr>
<tr>
<td>HFS 605 System Engineering II</td>
<td>3</td>
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<tr>
<td>HFS 610 Research Design and Analysis II</td>
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</table>

<table>
<thead>
<tr>
<th>Electives*</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BA 511 Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>BA 520 Organizational Behavior, Theory, and Applications in Aviation</td>
<td>3</td>
</tr>
<tr>
<td>BA 521 Global Information and Technology Management</td>
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Credits
# Academic Programs

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HFS 515</td>
<td>Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>HFS 520</td>
<td>Team Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>HFS 525</td>
<td>Human and Organizational Factors in Technological Systems</td>
<td>3</td>
</tr>
<tr>
<td>HFS 530</td>
<td>Systems Psychology</td>
<td>3</td>
</tr>
<tr>
<td>HFS 590</td>
<td>Graduate Seminar</td>
<td>3</td>
</tr>
<tr>
<td>HFS 625</td>
<td>Applied Testing and Selection</td>
<td>3</td>
</tr>
<tr>
<td>HFS 635</td>
<td>Human Computer Interaction</td>
<td>3</td>
</tr>
<tr>
<td>HFS 640</td>
<td>Aviation/Aerospace Psychology</td>
<td>3</td>
</tr>
<tr>
<td>HFS 645</td>
<td>Underpinnings of Human Factors and Ergonomics</td>
<td>3</td>
</tr>
<tr>
<td>HFS 650</td>
<td>Human Factors of Aviation/Aerospace Applications</td>
<td>3</td>
</tr>
<tr>
<td>HFS 696</td>
<td>Internship in Human Factors and Systems (highly recommended)</td>
<td>3</td>
</tr>
<tr>
<td>HFS 699</td>
<td>Special Topics in Human Factors and Systems</td>
<td>3</td>
</tr>
<tr>
<td>MSA 611</td>
<td>Aviation/Aerospace System Safety</td>
<td>3</td>
</tr>
<tr>
<td>MSA 612</td>
<td>Aviation/Aerospace Industrial Safety Management</td>
<td>3</td>
</tr>
<tr>
<td>MSA 641</td>
<td>Production &amp; Procurement Management in the Aviation/Aerospace Industry</td>
<td>3</td>
</tr>
<tr>
<td>MSA 643</td>
<td>Management of Research &amp; Development in the Aviation/Aerospace Industry</td>
<td>3</td>
</tr>
<tr>
<td>MSE 500</td>
<td>Software Engineering Discipline</td>
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</tr>
<tr>
<td>MSE 520</td>
<td>Formal Methods for Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>MSE 540</td>
<td>Simulation and Software Engineering</td>
<td>3</td>
</tr>
<tr>
<td>MSE 545</td>
<td>Specification and Design of Real-Time Systems</td>
<td>3</td>
</tr>
<tr>
<td>TM 505</td>
<td>Computer Applications in Systems Management</td>
<td>3</td>
</tr>
<tr>
<td>TM 510</td>
<td>Project Development Techniques with Statistical Applications</td>
<td>3</td>
</tr>
<tr>
<td>TM 610</td>
<td>Managing Effective Technical Work Teams</td>
<td>3</td>
</tr>
<tr>
<td>TM 615</td>
<td>Planning for Systems Development and Operations</td>
<td>3</td>
</tr>
<tr>
<td>TM 645</td>
<td>Advanced Operations Research and Management Science</td>
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</tbody>
</table>

* Electives are selected with the consent of the student’s graduate advisor. Other elective courses may be selected with the approval of the graduate advisor. A total of four electives must be fulfilled for degree completion.

## Credits

**Option I**

- HFS 700 Thesis ............................................. 6
- **Total Required** ........................................ 36

**Option II**

- HFS 515 Ergonomics .................................... 3
- **-AND-**
- HFS 611 Work Physiology ................................ 3
- **-AND-**
- Comprehensive Exam

**Total Required** ........................................ 36
Academic Programs

Master of Science in Space Science (MSSPS)

Daytona Beach Campus College of Arts and Sciences

Department Chair
John Olivero

Program Coordinator
Peter Erdman

INTRODUCTION

The Master of Science in Space Science (Engineering Physics) degree program provides graduate-level education and training in space science and space systems engineering. The goal is to provide graduates with the skills that will allow them to make an immediate contribution to the space-related industries or to proceed to doctoral studies in a wide variety of disciplines. This program’s objectives are:

- Fundamental understanding of scientific and engineering approaches to conceiving and designing complex spacecraft systems.
- Development of the diverse set of research skills required to evolve the state of the art in the areas of space science and engineering.

The program specifically emphasizes scientific instrumentation, applied optics, remote sensing, spacecraft subsystems (power, attitude, and thermal control), and a wide variety of topics in space science and engineering.

This program is heavily research oriented, with a majority of the faculty in the Department of Physical Sciences actively involved in scholarly activities in the space sciences and engineering. The research areas include experimental programs with satellite systems, sounding rockets, ground-based remote-sensing experiments, and a parallel program of theoretical studies in the areas of space systems engineering, upper atmospheric physics, space physics, and plasma and magnetospheric physics.

DEGREE REQUIREMENTS

The curriculum consists of 15 credits of required coursework, with an additional 15 credits of electives and/or thesis research. The core courses emphasize the heavily technical nature of the space sciences and require an undergraduate degree in Physics, Engineering, or a related field (such as Mathematics or Chemistry) for preparation.
### Master of Science in Space Science

<table>
<thead>
<tr>
<th>Option</th>
<th>Core Courses</th>
<th>Electives</th>
<th>Thesis</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis</td>
<td>15</td>
<td>9</td>
<td>9</td>
<td>33</td>
</tr>
<tr>
<td>NonThesis</td>
<td>15</td>
<td>18</td>
<td>0</td>
<td>33</td>
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**Core Courses**

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>EP 501</td>
<td>Numerical Methods for Engineers and Scientists</td>
</tr>
<tr>
<td>EP 505</td>
<td>Advanced Spacecraft Dynamics and Control</td>
</tr>
<tr>
<td>EP 509</td>
<td>Advanced Space Physics</td>
</tr>
<tr>
<td>EP 600</td>
<td>Experimental Methods in Space Science</td>
</tr>
<tr>
<td>EP 605</td>
<td>Spacecraft Power and Thermal Design</td>
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**Electives**

<table>
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<th>Course</th>
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<tr>
<td>AE 508 Heat Transfer</td>
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</tr>
<tr>
<td>AE 514 Introduction to the Finite Element Method</td>
<td>3</td>
</tr>
<tr>
<td>AE 520 Perturbation Methods in Engineering</td>
<td>3</td>
</tr>
<tr>
<td>AE 524 Rocket Engine Propulsion Systems</td>
<td>3</td>
</tr>
<tr>
<td>BA 511 Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>EP 696 Graduate Internship in Eng. Physics</td>
<td>1-3</td>
</tr>
<tr>
<td>EP 699 Special Topics in Eng. Physics</td>
<td>1-3</td>
</tr>
<tr>
<td>EP 700 MSSPS Thesis</td>
<td>1-9</td>
</tr>
<tr>
<td>MA 502 Boundary Value Problems</td>
<td>3</td>
</tr>
<tr>
<td>MA 504 Potential Theory</td>
<td>3</td>
</tr>
<tr>
<td>MA 506 Probability for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>MA 510 Fundamentals of Optimization</td>
<td>3</td>
</tr>
<tr>
<td>MSE 500 Software Engineering Concepts</td>
<td>3</td>
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<tr>
<td>MSE 545 Specification and Design of Real-Time Systems</td>
<td>3</td>
</tr>
<tr>
<td>MSE 585 Metrics and Statistical Methods for Software Engineering</td>
<td>3</td>
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<tr>
<td>MSE 610 Software Architecture and Design</td>
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<tr>
<td>MSE 655 Performance Analysis of Real-Time Systems</td>
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Academic Programs

College of Aviation

Dr. Tim Brady, Dean

The College of Aviation integrates into one unit the departments of Aeronautical Science, Applied Aviation Sciences, and Flight Training. This cohesive unit takes advantage of the various talents and expertise of faculty and staff in these related areas. By having these areas in one complex composed of the Aviation Building, the Simulation Center, the Flight Laboratory, and the Maintenance Complex, the College provides an atmosphere in which students are able to immerse themselves in an environment designed to provide them with the best resources available for the highest quality degree possible.

The Aviation Building, a strikingly beautiful state-of-the-art facility opened in 2002, houses the academic departments, classrooms, and laboratories, including the Air Traffic Simulation laboratory, providing a unique experience for students in various curricula. The Simulation Center contains the most advanced ab-initio aircraft simulation devices on the planet: aircraft-specific Cessna 172 and Piper Seminole Flight Training Devices, plus a CRJ FTD. Each of these devices exactly simulates the aircraft, including the flying qualities, and each has powerful, realistic visuals.

The College of Aviation complex also serves as a living laboratory that can research all elements of an air transportation system, including dynamic modeling of air traffic control interfaces, security systems, and safety systems, through its highly sophisticated aircraft and air traffic simulation. These simulations can then be incorporated into the real world where a fleet of airplanes can bring the simulation scenarios to life in an in-flight laboratory.

The College offers the Master of Science degree in Aeronautics with specializations in Aviation/Aerospace Education, Management, and Operations, as well as Human Factors and Safety Systems.

Embry-Riddle has positioned the College of Aviation to serve its students with distinction while investigating and developing new education and programs for pilots, air traffic managers, meteorologists, and safety and security professionals of the new century.
INTRODUCTION

The Master of Science in Aeronautics (MSA) degree program is designed to provide the aviation/aerospace professional with a rigorous academic approach to a generalist education oriented degree. It provides an unequaled opportunity for flight crew members, air traffic control personnel, flight operations specialists, industry technical representatives, and aviation educators to enhance their knowledge and pursue additional career opportunities.

Entry into the MSA program requires possession of an undergraduate foundation in the areas of college-level mathematics, introduction to computers, economics, and behavioral science.

The student may choose from five specializations: Air Traffic Management, Aviation/Aerospace Education Technology, Aviation/Aerospace Management, Aviation/Aerospace Operations, Aviation/Aerospace Safety Systems. Students must complete the Advanced Aviation/Aerospace Science core consisting of 12 credits. Students then complete the 12 credits that make up the selected specialization. The remaining credits consist of electives, and either a thesis or a graduate research project.

MSA students can also complete courses leading to multiple specializations. The multiple specialization is declared prior to the completion of the degree program. Students wishing to complete multiple specializations must have 12 unduplicated credits in each of the specializations and a minimum of 39 credit hours.
Academic Programs

DEGREE REQUIREMENTS

Air Traffic Management Specialization

Track 1: For students with NO ATC experience or education.

Required Undergraduate Foundation (18 Credits)

- AS 120 Principles of Aeronautical Science .............. 3
- OR-
  AS 132 Basic Aeronautics I ......................... 3
  WX 201 Survey of Meteorology ....................... 3
  AT 300 Air Traffic Management I ....................... 3
- OR-
  MSA 606 Aviation/Aerospace Communications/
       Control Systems .................................. 3
  AT 302 Air Traffic Management II ...................... 3
  AT 305 Air Traffic Management III .................... 3
  AT 401 Air Traffic Management IV ..................... 3

MSA Core Requirements (12 Credits)

Required Course

MSA 605 Research Methods and Statistics ............ 3

Core Courses (choose 3)

- MSA 602 The Air Transportation System .............. 3
- MSA 604 Human Factors in Aviation/
       Aerospace Industry ............................. 3
- MSA 606 Aviation/Aerospace Communications/
       Control Systems .................................. 3
- MSA 610 Applied Aviation Safety Programs ........... 3

Air Traffic Management Specialization (21 Credits)

BA 520 Organizational Behavior, Theory,
    and Applications in Aviation ................. 3
MSA 508 Advanced Airport Modeling ................. 3
MSA 515 Aviation/Aerospace Simulation
    Systems ............................................. 3
MSA 608 Aviation/Aerospace Accident
    Investigation and Safety Systems .......... 3
MSA 615 Applied Aviation Research Methods ..... 3
MSA 616 Air Traffic Management Leadership
    and Critical Decision Making .............. 3
MSA 617 Air Traffic Management V .................. 3
MSA 618 Air Traffic Management VI ............... 3
MSA 627 Air Traffic Management in the NAS ........ 3
MSA 636 Advanced Aviation/Aerospace
    Planning Systems .................................. 3
MSA 696 Graduate Internship in Aeronautical
    Science ............................................. 1-3

Course substitutions with approval of MSA Program
Coordinator.

Graduate Research (3 or 6 Credits)

MSA 690 Graduate Research Project ................. 3
- OR-
  MSA 700 Thesis ...................................... 6
Total Credits ........................................ 36

Air Traffic Management Specialization

Track 2: For students with an Embry-Riddle
undergraduate degree in Air Traffic Management.

MSA Core Requirements (12 Credits)

Required Course

MSA 605 Research Methods and Statistics ............ 3

Core Courses (choose 3)

- MSA 602 Air Transportation System .............. 3
- MSA 604 Human Factors in the Aviation/
       Aerospace Industry ............................. 3
- MSA 606 Aviation/Aerospace Communications/
       Control Systems .................................. 3
- MSA 610 Applied Aviation Safety Programs ........ 3

Air Traffic Management Specialization Courses
(21 Credits)

Required Courses (6 Credits)

MSA 616 Air Traffic Management Leadership
    and Critical Decision Making .............. 3
MSA 627 Air Traffic Management in the NAS ....... 3

Electives: Choose 3 if completing MSA 700, Thesis or
4 if completing MSA 690, Graduate Research Project.

BA 520 Organizational Behavior, Theory,
    and Applications in Aviation ................. 3
MSA 508 Advanced Airport Modeling ................. 3
MSA 515 Aviation/Aerospace Simulation
    Systems ............................................. 3
MSA 608 Aviation/Aerospace Investigation and
    Safety Programs .................................... 3
MSA 615 Applied Aviation Research Methods ...... 3
MSA 636 Advanced Aviation/Aerospace
    Planning Systems .................................... 3
MSA 696 Graduate Internship in
    Aeronautical Science ............................. 1-3

Course substitutions with approval of MSA Program
Coordinator.

Graduate Research Project (3 or 6 Credits)

MSA 690 Graduate Research Project ................. 3
- OR-
  MSA 700 Thesis ...................................... 6
Total Credits ........................................ 36
## Academic Programs

### Aviation/Aerospace Education Technology Specialization

**Advanced Aviation/Aerospace Science Core**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSA 602</td>
<td>The Air Transportation System</td>
<td>3</td>
</tr>
<tr>
<td>MSA 604</td>
<td>Human Factors in the Aviation/Aerospace Industry</td>
<td>3</td>
</tr>
<tr>
<td>MSA 605</td>
<td>Research Methods and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MSA 606</td>
<td>Aviation/Aerospace Communications/Controls Systems</td>
<td>3</td>
</tr>
<tr>
<td>MSA 610</td>
<td>Applied Aviation Safety Programs</td>
<td>3</td>
</tr>
</tbody>
</table>

**Education Technology Specialization**

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MSA 514</td>
<td>Computer-Based Instruction</td>
<td>3</td>
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<tr>
<td>MSA 515</td>
<td>Aviation/Aerospace Simulation Systems</td>
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<td>MSA 550</td>
<td>Aviation Education Foundations</td>
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<tr>
<td>MSA 614</td>
<td>Advanced Aviation/Aerospace Curriculum Development</td>
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<td>MSA 652</td>
<td>Continuing Education’s Role in Aviation</td>
<td>3</td>
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<tr>
<td>MSA 654</td>
<td>Adult Teaching and Learning Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MSA 663</td>
<td>Memory and Cognition</td>
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**Electives**

<table>
<thead>
<tr>
<th>Option I</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MSA/BA Electives (500-600 Level)</td>
<td>6</td>
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<tr>
<td>-AND-</td>
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</tr>
<tr>
<td>MSA 700 Thesis</td>
<td>6</td>
</tr>
<tr>
<td>-OR-</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option II</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSA 690 Graduate Research Project</td>
<td>3</td>
</tr>
<tr>
<td>-AND-</td>
<td></td>
</tr>
<tr>
<td>MSA/BA Electives (500-600 Level)</td>
<td>9</td>
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</tbody>
</table>

**Total Required**

36
(At least 18 credits must be MAS courses)

### Aviation/Aerospace Management Specialization

**Advanced Aviation/Aerospace Science Core**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
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<td>MSA 602</td>
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</tr>
<tr>
<td>MSA 605</td>
<td>Research Methods and Statistics</td>
<td>3</td>
</tr>
<tr>
<td>MSA 606</td>
<td>Aviation/Aerospace Communications/Controls Systems</td>
<td>3</td>
</tr>
<tr>
<td>MSA 610</td>
<td>Applied Aviation Safety Programs</td>
<td>3</td>
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</table>

**Management Specialization**

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 511</td>
<td>Operations Research</td>
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</tr>
<tr>
<td>BA 521</td>
<td>Global Information and Technology Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 607</td>
<td>Human Resource Development</td>
<td>3</td>
</tr>
<tr>
<td>BA 632</td>
<td>Seminar in Aviation Labor Relations</td>
<td>3</td>
</tr>
<tr>
<td>BA 645</td>
<td>Airport Operations and Management</td>
<td>3</td>
</tr>
<tr>
<td>MSA 508</td>
<td>Advanced Airport Modeling</td>
<td>3</td>
</tr>
<tr>
<td>MSA 609</td>
<td>Aircraft Maintenance Management</td>
<td>3</td>
</tr>
<tr>
<td>MSA 611</td>
<td>Aviation/Aerospace System Safety</td>
<td>3</td>
</tr>
<tr>
<td>MSA 612</td>
<td>Aviation/Aerospace Industrial Safety Management</td>
<td>3</td>
</tr>
<tr>
<td>MSA 615</td>
<td>Applied Aviation Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>MSA 616</td>
<td>Air Traffic Management Leadership and Critical Decision Making</td>
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<td>MSA 636</td>
<td>Advanced Aviation/Aerospace Planning Systems</td>
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<td>MSA 641</td>
<td>Production and Procurement Management in the Aviation/Aerospace Industry</td>
<td>3</td>
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<tr>
<td>MSA 643</td>
<td>Management of Research and Development for the Aviation/Aerospace Industry</td>
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<tr>
<td>MSA 644</td>
<td>Integrated Logistics Support in Aviation/Aerospace</td>
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</table>

**Electives**

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<td>-OR-</td>
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<table>
<thead>
<tr>
<th>Option II</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MSA 690 Graduate Research Project</td>
<td>3</td>
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<tr>
<td>-AND-</td>
<td></td>
</tr>
<tr>
<td>MSA/BA Electives (500-600 Level)</td>
<td>9</td>
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</tbody>
</table>

**Total Required**

36

### Aviation/Aerospace Operations Specialization

**Advanced Aviation/Aerospace Science Core**

<table>
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<td>MSA 602</td>
<td>The Air Transportation System</td>
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<td>Human Factors in the Aviation/Aerospace Industry</td>
<td>3</td>
</tr>
<tr>
<td>MSA 605</td>
<td>Research Methods and Statistics</td>
<td>3</td>
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<tr>
<td>MSA 606</td>
<td>Aviation/Aerospace Communications/Controls Systems</td>
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<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MSA 610</td>
<td>Applied Aviation Safety Programs</td>
<td>3</td>
</tr>
</tbody>
</table>
Academic Programs

MSA 606  Aviation/Aerospace Communications/ Controls Systems. ............... 3
MSA 610  Applied Aviation Safety Programs ... 3

Operations Specialization
Credits

Students must choose 12 credit hours from the following list:

BA 511  Operations Research. ................. 3
BA 520  Organizational Behavior, Theory, and Applications in Aviation ............. 3
MSA 508  Advanced Airport Modeling .......... 3
MSA 515  Aviation/Aerospace Simulation Systems. .......................... 3
MSA 560  Rotorcraft Operations. ................... 3
MSA 606  Aviation/Aerospace Communication/ Control Systems ...................... 3
MSA 608  Aviation/Aerospace Accident Investigation and Safety Systems .......... 3
MSA 620  Air Carrier Operations. ................. 3
MSA 622  Corporate Aviation Operations ........ 3

Electives
Credits

Option I
MSA/BA Electives (500-600 Level) .............. 6
-AND-
MSA 700  Thesis. ................................. 6
-OR-

Option II
MSA 690  Graduate Research Project ............... 3
-AND-
MSA/BA Electives (500-600 Level) .............. 9

Total Required ............................. 36

Aviation/Aerospace Safety Systems Specialization

Advanced Aviation/Aerospace Science Core
Credits
MSA 602  The Air Transportation System .............. 3
MSA 604  Human Factors in the Aviation/Aerospace Industry ......................... 3
MSA 605  Research Methods and Statistics ............... 3
MSA 606  Aviation/Aerospace Communications/ Controls Systems .................... 3
MSA 610  Applied Aviation Safety Programs ........... 3

Safety Systems Specialization
Credits

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

MSA 508  Advanced Airport Modeling .............. 3
MSA 608  Aviation/Aerospace Accident Investigation and Safety Systems .......... 3
MSA 611  Aviation/Aerospace System Safety ........... 3
MSA 612  Aviation/Aerospace Industrial Safety Management ......................... 3
MSA 613  Airport Operations Safety ................. 3
MSA 634  Aviation/Aerospace Psychology .......... 3

Electives
Credits

Option I
MSA/BA Electives .................................. 6
-AND-
MSA 700  Thesis .................................. 6
-OR-

Option II
MSA 690  Graduate Research Project ............... 3
-AND-
MSA/BA Electives (500-600 Level) .............. 9

Total Required .................................. 36
Our aim is to provide a world-class business and management education in an aviation/aerospace context. That means we have assembled a community of faculty scholars with global reputations and reach. That means we have designed curricula at the graduate and undergraduate levels that set the standard in aviation/aerospace management education. That means our faculty and students have the opportunity to focus on cutting-edge solutions to real-world problems and opportunities found in aviation, aerospace, and transportation-related industries and organizations. Our dedication to excellence is manifest by our accreditation by ACBPS (the Association of Collegiate Business Programs and Schools) for all our degree programs.

The College consists of two departments: the department of Management, Marketing, and Operations and the department of Economics, Finance and Information Systems. Both departments are responsible for designing and delivering our MBA Programs.

This degree is intended to provide the individual who already holds an undergraduate degree, often in technical areas like engineering, with the tools necessary to become a credible professional manager in aviation, aerospace, or related industries. The program of study combines common general management courses with specializations in Airline Management, Airport Management, Aviation System Management, Aviation Human Resources, and Finance.
Master of Business Administration (MBA)

College of Business - Daytona Beach Campus

Dean
Daniel Petree

Program Coordinator
Blaise Waguespack

Introduction

The Master of Business Administration degree program is designed to emphasize the application of modern management concepts, methods, and tools to the challenges of aviation and general business. The special intricacies of aviation are woven into a strong, traditional business foundation and examined in greater detail through a wide variety of specified electives. By combining these focused electives into a distinct set, students may select a unique area of specialization in the MBA program.

The demand for professional managers continues to grow in response to the increasing need to improve the efficient and effective use of scarce resources, of operating in an atmosphere of heightened national and international competition, of accommodating the expansion of emerging nations, and of responding to the call to preserve our fragile environment. The MBA curriculum is oriented toward the needs of the strategic decision-maker in the management hierarchy.

Versatility and analytical resourcefulness are two of the key aims of the MBA. For students wishing to study a wide range of aviation subject matter, the MBA allows flexibility in elective choices across a range of aviation fields and business subject matter. For those wishing to specialize in a unique area of aviation or aerospace, part of the program can be individually molded to satisfy personal interests. Residential students may select from specializations in Airport Management, Airline Management, Aviation Human Resources, Aviation System Management, and Finance. New students enrolled in the online education option via a technology mediated format are enrolled in the MBA with specialization in Aviation Management. Students are allowed to select only one specialization, and not all specializations are offered at all campus locations or through every mode of delivery.

Specific prerequisite knowledge for each graduate course in the MBA is contained in the Course Description section of this catalog. 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 BA 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.
-degree requirements

master of business administration

aviation business core  credits
BA 511 Operations Research ..................... 3
BA 514 Strategic Marketing Management in Aviation ..................... 3
BA 517 Accounting for Decision Making ..................... 3
BA 518 Managerial Finance ..................... 3
BA 520 Organizational Behavior, Theory, and Applications in Aviation ..................... 3
BA 521 Global Information and Technology Management ..................... 3
BA 522 Business Research Methods ..................... 3
BA 523 Advanced Aviation Economics ..................... 3
BA 635 Business Policy and Decision Making ..................... 3

Total Core Hours 27

specified electives  credits

Students must complete a combination of 12 hours from the courses listed below:
BA 590 Graduate Seminar ..................... 1-3
BA 603 Aerospace Production and Operations Management ..................... 3
BA 604 International Management and Aviation Policy ..................... 3
BA 607 Human Resource Development ..................... 3
BA 609 Airline Operations and Management ..................... 3
BA 610 Airline Optimization and Simulation Systems ..................... 3
BA 615 Investments ..................... 3
BA 618 Advanced Corporate Finance ..................... 3
BA 620 Organizational Theory ..................... 3
BA 625 Airline Marketing ..................... 3
BA 630 Aviation/Aerospace Systems Analysis ..................... 3
BA 632 Seminar in Aviation Labor Relations ..................... 3
BA 645 Airport Operations and Management ..................... 3
BA 646 Air-Cargo Logistics Management ..................... 3
BA 650 Airline/Airport Relations ..................... 3
BA 651 Strategic Airport Planning ..................... 3
BA 655 Aviation Law and Insurance ..................... 3
BA 696 Internship** ..................... 1-3
BA 699 Special Topics in Business Administration ..................... 1-3
BA 700 Thesis ..................... 6

Total Credits Required 39

** Students may petition for an internship credit with prior approval of the graduate program coordinator or chair as appropriate.

master of business administration specialization in airport management

aviation business core  credits
BA 511 Operations Research ..................... 3
BA 514 Strategic Marketing Management in Aviation ..................... 3
BA 517 Accounting for Decision Making ..................... 3
BA 518 Managerial Finance ..................... 3
BA 520 Organizational Behavior, Theory, and Applications in Aviation ..................... 3
BA 521 Global Information and Technology Management ..................... 3
BA 522 Business Research Methods ..................... 3
BA 523 Advanced Aviation Economics ..................... 3
BA 635 Business Policy and Decision Making ..................... 3

Core Credits Required 27

specialization required courses  credits

Students must complete these six hours.
BA 645 Airport Operations and Management ..................... 3
BA 651 Strategic Airport Planning ..................... 3

electives  credits

Students must complete a combination of six hours from the courses listed below.
BA 590 Graduate Seminar ..................... 1-3
BA 603 Aerospace Production and Operations Management ..................... 3
BA 604 International Management and Aviation Policy ..................... 3
BA 607 Human Resource Development ..................... 3
BA 609 Airline Operations and Management ..................... 3
BA 610 Airline Optimization and Simulation Systems ..................... 3
BA 615 Investments ..................... 3
BA 618 Advanced Corporate Finance ..................... 3
BA 620 Organizational Theory ..................... 3
BA 625 Airline Marketing ..................... 3
BA 630 Aviation/Aerospace Systems Analysis ..................... 3
BA 632 Seminar in Aviation Labor Relations ..................... 3
BA 645 Airport Operations and Management ..................... 3
BA 646 Air-Cargo Logistics Management ..................... 3
BA 650 Airline/Airport Relations ..................... 3
BA 655 Aviation Law and Insurance ..................... 3
BA 696 Internship** ..................... 1-3
BA 699 Special Topics in Business Administration ..................... 1-3
BA 700 Thesis ..................... 6
MSA 508 Advanced Airport Planning ..................... 3
MSA 613 Airport Operations Safety ..................... 3

Total Credits Required 39

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## Academic Programs

### Master of Business Administration

#### Specialization in Airline Management

<table>
<thead>
<tr>
<th>Aviation Business Core</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 511 Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>BA 514 Strategic Marketing Management in Aviation</td>
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</tr>
<tr>
<td>BA 517 Accounting for Decision Making</td>
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<tr>
<td>BA 518 Managerial Finance</td>
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<tr>
<td>BA 520 Organizational Behavior, Theory, and Applications in Aviation</td>
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<td>BA 521 Global Information and Technology Management</td>
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<td>BA 522 Business Research Methods</td>
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<tr>
<td>BA 523 Advanced Aviation Economics</td>
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</tr>
<tr>
<td>BA 635 Business Policy and Decision Making</td>
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</tr>
</tbody>
</table>

**Core Credits Required**  **27**

#### Specialization Required Courses

*Students must complete these six hours.*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 609 Airline Operations and Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 650 Airline/Airport Relations</td>
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</tbody>
</table>

**Electives**

*Students must complete a combination of six hours from the courses listed below.*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 590 Graduate Seminar</td>
<td>1-3</td>
</tr>
<tr>
<td>BA 603 Aerospace Production and Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 604 International Management and Aviation Policy</td>
<td>3</td>
</tr>
<tr>
<td>BA 607 Human Resource Development</td>
<td>3</td>
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<td>BA 610 Airline Optimization and Simulation Systems</td>
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</tr>
<tr>
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<td>3</td>
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<tr>
<td>BA 618 Advanced Corporate Finance</td>
<td>3</td>
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<tr>
<td>BA 620 Organizational Theory</td>
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<td>BA 625 Airline Marketing</td>
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<td>BA 630 Aviation/Aerospace Systems Analysis</td>
<td>3</td>
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<tr>
<td>BA 632 Seminar in Aviation Labor Relations</td>
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<td>BA 645 Airport Operations and Management</td>
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<td>BA 696 Internship**</td>
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<td>BA 700 Thesis</td>
<td>6</td>
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</tbody>
</table>

**Total Credits Required**  **39**

**Students may petition for an internship credit with prior approval of the graduate program coordinator or chair as appropriate.**

### Master of Business Administration

#### Specialization in Aviation Human Resources

<table>
<thead>
<tr>
<th>Aviation Business Core</th>
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</tr>
</thead>
<tbody>
<tr>
<td>BA 511 Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>BA 514 Strategic Marketing Management in Aviation</td>
<td>3</td>
</tr>
<tr>
<td>BA 517 Accounting for Decision Making</td>
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<tr>
<td>BA 518 Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>BA 520 Organizational Behavior, Theory, and Applications in Aviation</td>
<td>3</td>
</tr>
<tr>
<td>BA 521 Global Information and Technology Management</td>
<td>3</td>
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<tr>
<td>BA 522 Business Research Methods</td>
<td>3</td>
</tr>
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<td>BA 523 Advanced Aviation Economics</td>
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<td>BA 635 Business Policy and Decision Making</td>
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</tr>
</tbody>
</table>

**Core Credits Required**  **27**

#### Specialization Required Courses

*Students must complete these six hours.*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BA 607 Human Resources Development</td>
<td>3</td>
</tr>
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<td>BA 632 Seminar in Aviation Labor Relations</td>
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**Electives**

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<tr>
<td>BA 700 Thesis</td>
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<tr>
<td>MSA 516 Applications in Crew Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>MSA 604 Human Factors in Aviation/Aerospace Applications</td>
<td>3</td>
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</tbody>
</table>

**Total Credits Required**  **39**

**Students may petition for an internship credit with prior approval of the graduate program coordinator or chair as appropriate.**
## Master of Business Administration
### Specialization in Aviation System Management

<table>
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<td>3</td>
</tr>
<tr>
<td><strong>Core Credits Required</strong></td>
<td>27</td>
</tr>
</tbody>
</table>

### Specialization Required Courses

**Students must complete these six hours.**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 610 Airline Optimization and Simulation Systems</td>
<td>3</td>
</tr>
<tr>
<td>BA 630 Airline/Aerospace Systems Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

### Electives

**Students must complete a combination of six hours from the courses listed below.**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 590 Graduate Seminar</td>
<td>1-3</td>
</tr>
<tr>
<td>BA 603 Aerospace Production and Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 604 International Management and Aviation Policy</td>
<td>3</td>
</tr>
<tr>
<td>BA 607 Human Resource Development</td>
<td>3</td>
</tr>
<tr>
<td>BA 609 Airline Operations and Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 615 Investments</td>
<td>3</td>
</tr>
<tr>
<td>BA 618 Advanced Corporate Finance</td>
<td>3</td>
</tr>
<tr>
<td>BA 645 Airport Operations and Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 655 Aviation Law and Insurance</td>
<td>3</td>
</tr>
<tr>
<td>BA 696 Internship**</td>
<td>1-3</td>
</tr>
<tr>
<td>BA 699 Special Topics in Business Administration</td>
<td>1-3</td>
</tr>
<tr>
<td>BA 700 Thesis</td>
<td>6</td>
</tr>
<tr>
<td>MSA 603 Aircraft and Spacecraft Development</td>
<td>3</td>
</tr>
<tr>
<td>MSA 609 Aircraft Maintenance Management</td>
<td>3</td>
</tr>
<tr>
<td>MSA 641 Production and Procurement Management in Aviation/Aerospace Industry</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total Credits Required</strong></td>
<td>39</td>
</tr>
</tbody>
</table>

** Students may petition for an internship credit with prior approval of the graduate program coordinator or chair as appropriate.

## Master of Business Administration
### Specialization in Finance

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aviation Business Core</strong></td>
<td></td>
</tr>
<tr>
<td>BA 511 Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>BA 514 Strategic Marketing Management in Aviation</td>
<td>3</td>
</tr>
<tr>
<td>BA 517 Accounting for Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>BA 518 Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>BA 520 Organizational Behavior, Theory, and Applications in Aviation</td>
<td>3</td>
</tr>
<tr>
<td>BA 521 Global Information and Technology Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 522 Business Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>BA 523 Advanced Aviation Economics</td>
<td>3</td>
</tr>
<tr>
<td>BA 635 Business Policy and Decision Making</td>
<td>3</td>
</tr>
<tr>
<td><strong>Core Credits Required</strong></td>
<td>27</td>
</tr>
</tbody>
</table>

### Specialization Required Courses

**Students must complete these six hours.**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 615 Investments</td>
<td>3</td>
</tr>
<tr>
<td>BA 618 Advanced Corporate Finance</td>
<td>3</td>
</tr>
</tbody>
</table>

### Electives

**Students must complete a combination of six hours from the courses listed below.**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 590 Graduate Seminar</td>
<td>1-3</td>
</tr>
<tr>
<td>BA 603 Aerospace Production and Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 604 International Management and Aviation Policy</td>
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</tr>
<tr>
<td>BA 607 Human Resource Development</td>
<td>3</td>
</tr>
<tr>
<td>BA 609 Airline Operations and Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 610 Airline Optimization and Simulation Systems</td>
<td>3</td>
</tr>
<tr>
<td>BA 620 Organizational Theory</td>
<td>3</td>
</tr>
<tr>
<td>BA 625 Airline Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BA 630 Aviation/Aerospace Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>BA 632 Seminar in Aviation Labor Relations</td>
<td>3</td>
</tr>
<tr>
<td>BA 645 Airport Operations and Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 655 Aviation Law and Insurance</td>
<td>3</td>
</tr>
<tr>
<td>BA 696 Internship**</td>
<td>1-3</td>
</tr>
<tr>
<td>BA 699 Special Topics in Business Administration</td>
<td>1-3</td>
</tr>
<tr>
<td>BA 700 Thesis</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total Credits Required</strong></td>
<td>39</td>
</tr>
</tbody>
</table>

** Students may petition for an internship credit with prior approval of the graduate program coordinator or chair as appropriate.
Academic Programs

Master of Business Administration
Specialization in Aviation Management*

<table>
<thead>
<tr>
<th>Aviation Business Core</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA 511 Operations Research</td>
<td>3</td>
</tr>
<tr>
<td>BA 514 Strategic Marketing Management in Aviation</td>
<td>3</td>
</tr>
<tr>
<td>BA 517 Accounting for Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>BA 518 Managerial Finance</td>
<td>3</td>
</tr>
<tr>
<td>BA 520 Organizational Behavior, Theory, and Applications in Aviation</td>
<td>3</td>
</tr>
<tr>
<td>BA 521 Global Information and Technology Management</td>
<td>3</td>
</tr>
<tr>
<td>BA 522 Business Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>BA 523 Advanced Aviation Economics</td>
<td>3</td>
</tr>
<tr>
<td>BA 635 Business Policy and Decision Making</td>
<td>3</td>
</tr>
</tbody>
</table>

**Core Credits Required** 27

**Specialization Aviation Management Courses**

| BA 604 International Management and Aviation Policy | 3 |
| BA 609 Airline Operations and Management | 3 |
| BA 645 Airport Operations and Management | 3 |
| BA 646 Air Cargo & Logistics Management | 3 |

**Total Credits Required** 39

* This specialization is only for students enrolled in the technology mediated delivery format. All classes are located within the Embry-Riddle electronic portal and do not meet on the residential campus.
INTRODUCTION

The Executive MBA is a 14-month program designed to accelerate career progression and to prepare promising executives to assume leadership roles in their organizations. The program is conducted in large part on Embry-Riddle’s Daytona Beach campus. The program includes a series of six two-week residency sessions, held approximately every 10 weeks. Between these residency sessions, participants are expected to complete course-related reading, individual and group assignments, and the comprehensive Executive Project. During these interim periods, participants remain in contact with professors and one another via phone, fax, and email, and through discussion forums and chat rooms on course Web pages.

Prior to each module, EMBA participants receive a packet of instructional materials, giving them sufficient time to prepare for the classes. During residency sessions, classes meet during the normal business day so that evenings can be devoted to individual study and group projects.

The curriculum of the EMBA embodies the goals of the University’s MBA in Aviation by providing a solid foundation of knowledge in such areas as strategic management, leadership, communication, and teamwork, as well as other mainstream executive disciplines, all presented in the context of the aviation and aerospace industry. Four specific areas of focus drive the curriculum: Organizational Evolution, Cross-Functional Competencies, Leadership and Entrepreneurship, and Global Strategic Thinking.

The Executive Project, as the program’s capstone activity, is designed to benefit both the participant and the sponsoring organization by giving the participant the opportunity to apply the knowledge and diagnostic competencies learned throughout the program to a specific business issue of the sponsor. Issues are selected by the sponsor and participant and are approved by the faculty project advisor in module #3. Working from the perspective of a consultant, the participant thoroughly investigates the issue and proposes specific actions, using the analysis, planning, and management tools developed during each course. Continuous guidance and feedback are provided by the faculty advisor and sponsor during the project. The completed project requires a comprehensive written report, as well as a formal oral presentation.
## Degree Requirements

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Module #1</strong></td>
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<tr>
<td>EMBA 540 Organizational Communication and Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 544 Quantitative Analysis for Management Decision Making I</td>
<td>2</td>
</tr>
<tr>
<td>EMBA 662 Personal Communication and Teamwork</td>
<td>3</td>
</tr>
<tr>
<td><strong>Module #2</strong></td>
<td></td>
</tr>
<tr>
<td>EMBA 542 Accounting for Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 545 Quantitative Analysis for Management Decision Making II</td>
<td>2</td>
</tr>
<tr>
<td>EMBA 548 Global Economic Analysis for Managers</td>
<td>3</td>
</tr>
<tr>
<td><strong>Module #3</strong></td>
<td></td>
</tr>
<tr>
<td>EMBA 546 Production/Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 550 Global Marketing Management</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 552 Managerial Finance I</td>
<td>2</td>
</tr>
<tr>
<td>EMBA 700 Executive Project</td>
<td>3</td>
</tr>
<tr>
<td><strong>Module #4</strong></td>
<td></td>
</tr>
<tr>
<td>EMBA 553 Managerial Finance II</td>
<td>2</td>
</tr>
<tr>
<td>EMBA 660 Applications of Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 664 Global Market Forces and Ethical Responsibility</td>
<td>3</td>
</tr>
<tr>
<td><strong>Module #5</strong></td>
<td></td>
</tr>
<tr>
<td>EMBA 554 Leadership and Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 668 Culture and the Diverse Workforce</td>
<td>3</td>
</tr>
<tr>
<td>EMBA 674 Strategic Management I</td>
<td>2</td>
</tr>
<tr>
<td><strong>Module #6</strong></td>
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</tr>
<tr>
<td>EMBA 670 Technology and Innovation Management</td>
<td>3</td>
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<tr>
<td>EMBA 672 Designing the High Performance Organization</td>
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</tr>
<tr>
<td>EMBA 675 Strategic Management II</td>
<td>2</td>
</tr>
<tr>
<td>Total Required</td>
<td>51</td>
</tr>
</tbody>
</table>
College of Engineering

The College of Engineering at Embry-Riddle offers master degrees in Aerospace Engineering and Software Engineering. The College emphasizes high-quality education and research activities that bring to the students the latest developments in the field. Students are continually encouraged and supported by faculty to strive for ingenious and creative solutions to today’s technological problems through research projects.

Students acquire valuable hands-on experience using cutting-edge technology in several areas of concentration, such as safety-critical software development, computational aerospace propulsion and aerodynamics, astronautical engineering, and aeronautical structures and materials. The College also holds many seminars and workshops for engineering students with academic and industry speakers. This interaction with industry enables students to stay abreast of current industry conditions and advancements. College of Engineering graduates are regarded as some of the most knowledgeable and best-trained professionals entering their chosen fields.
Academic Programs

Master of Science in Aerospace Engineering (MSAE)
Master of Aerospace Engineering (MAE)

Daytona Beach Campus College Of Engineering

DEPARTMENT CHAIR
Habib Eslami

INTRODUCTION

The Master of Science in Aerospace Engineering (MSAE) and the Master of Aerospace Engineering (MAE) provide formal advanced study, preparing students for careers in the aerospace industry and in research and development. Both degree programs are planned to augment the individual student’s engineering and science background with adequate depth in areas of aeroacoustics, nondestructive testing, aerodynamics, design and optimization, propulsion, aerospace structures, composites, computational fluid dynamics, or other areas of aerospace engineering. Candidates for both degree programs can select courses that prepare them for the aerospace engineering profession or that prepare them to continue on to doctoral studies.

Both degree programs require a minimum of 30 credit hours of graduate-level work.

DEGREE REQUIREMENTS

<table>
<thead>
<tr>
<th>MSAE (Thesis option)</th>
<th>MAE (Nonthesis option)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 hours</td>
<td>3 hours</td>
</tr>
<tr>
<td>MA 502 or equivalent</td>
<td>MA 502 or equivalent</td>
</tr>
<tr>
<td>18 hours</td>
<td>27 hours</td>
</tr>
<tr>
<td>Electives</td>
<td>Electives</td>
</tr>
<tr>
<td>9 hours</td>
<td>(at least six hours should be 600-level)</td>
</tr>
<tr>
<td>Thesis</td>
<td></td>
</tr>
<tr>
<td>30 hours</td>
<td>30 hours</td>
</tr>
</tbody>
</table>
Academic Programs

Areas of Concentration

Aerospace Structures
This area includes Structural Analysis, Vibration, Nondestructive Testing, Composite Materials, Elasticity, Flight Dynamics, Controls, and Design Optimization.

Electives for Structures Concentration
AE 502 Strength and Fatigue of Materials
AE 506 Airplane Dynamic Stability
AE 510 Aircraft Structural Dynamics
AE 514 Introduction to the Finite Element Method
AE 518 Acoustic Emission Nondestructive Testing
AE 520 Perturbation Methods in Engineering
AE 522 Analysis of Aircraft Composite Materials
AE 526 Engineering Optimization
AE 606 Finite Element Aerospace Applications
AE 612 Analysis of Aircraft Plate and Shell Structures
AE 616 Advanced Aircraft Structural Dynamics
AE 646 Nonlinear Dynamical Systems and Chaos
AE 648 Thermal Stresses in Aerospace Engineering
AE 699 Special Topics in Aerospace Engineering

Aerodynamics and Propulsion
This area includes Aerodynamics, Propulsion, Computational Aero and Fluid Dynamics, Transition and Turbulence, Aeroacoustics, Heat Transfer, and Combustion.

Electives for Aerodynamics and Propulsion Concentration
AE 504 Advanced Compressible Flow
AE 508 Heat Transfer
AE 512 Combustion
AE 516 Computational Aeronautical Fluid Dynamics
AE 524 Rocket Engine Propulsion Systems
AE 528 Advanced Incompressible Aerodynamics
AE 530 Aeroacoustics
AE 610 Advanced Computational Fluid Dynamics
AE 620 Boundary Layer Theory
AE 640 Turbine Engine Propulsion Systems
AE 650 Special Topics in Aerodynamics and Propulsion Engineering
AE 652 Turbulent Flows
Academic Programs

Master of Software Engineering (MSE)*

Daytona Beach Campus College of Engineering

DEPARTMENT CHAIR
Massood Towhidnejad

PROGRAM COORDINATOR
Massood Towhidnejad

INTRODUCTION

The Master of Software Engineering (MSE) degree program is designed to give recent college graduates, or college graduates who have had several years of professional life, an opportunity to enhance their careers and work on the cutting-edge of modern software development. Software engineers who complete the program can rapidly assume positions of substantial responsibility in a software development organization.

The MSE degree program achieves its purpose by providing students not only with the technical tools and techniques of the field but also with skills in communication, group interaction, management, and planning. The program emphasizes a process-centered quantitative approach to the engineering of software systems. The goal of the program is to give graduates an in-depth understanding of the tools, techniques, and appropriate processes for the management of software development, elicitation and analysis of requirements, architecture and design, implementation, and verification and validation of software systems. In addition, the program pays special attention to the issues related to communication and teamwork.

A special emphasis is on real-time embedded software systems encountered in such applications as the FAA air traffic control computer system, aircraft avionics, NASA’s space station, and others. In addition, the MSE curriculum takes full notice of the Software Engineering Institute’s (SEI) capability maturity model (CMM) by incorporating the key practices throughout the coursework.

The curriculum is structured into two groups of courses: core (18 credits) and specified electives (12 credits). As part of the core, each MSE student must complete a “capstone experience,” which entails a major project that involves applications of the theory, practices, and technology studied in the other core courses. Typically students will take SE 69X to satisfy the capstone experience. In special cases, the capstone experience can be satisfied by completing a Graduate Research Project (SE 690). In such cases and prior to registering for SE 690, a faculty member must agree to be a GRP advisor and the student must obtain approval of a GRP research area.

Courses available as specified electives include metrics and statistical methods for software engineering, performance analysis of software systems, concurrent and distributed systems, software safety, and formal methods for software engineering.

* A five-year Computer Engineering/Master of Software Engineering program and a five-year Software Engineering/Master of Software Engineering program are available. See the undergraduate catalog for details.
## Degree Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE 500</td>
<td>Software Engineering Discipline</td>
<td>3</td>
</tr>
<tr>
<td>SE 510</td>
<td>Software Project Management</td>
<td>3</td>
</tr>
<tr>
<td>SE 530</td>
<td>Software Requirements Engineering</td>
<td>3</td>
</tr>
<tr>
<td>SE 555</td>
<td>Object-Oriented Software Construction</td>
<td>3</td>
</tr>
<tr>
<td>SE 610</td>
<td>Software Systems Architecture and Design</td>
<td>3</td>
</tr>
<tr>
<td>SE 697</td>
<td>Software Engineering Practicum</td>
<td>3</td>
</tr>
<tr>
<td>SE 690</td>
<td>Graduate Research Project</td>
<td>3</td>
</tr>
<tr>
<td>Specified Electives</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

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

- SE 505 Model-Based Verification of Software
- SE 520 Formal Methods for Software Engineering
- SE 535 Graphical User Interface Design and Evaluation
- SE 565 Concurrent and Distributed Systems
- SE 675 Software Safety
- SE 545 Specification and Design of Real-Time Systems
- SE 550 Current Trends in Software Engineering
- SE 580 Software Process Definition and Modeling
- SE 585 Metrics and Statistical Methods for Software Engineering
- SE 590 Graduate Seminar
- SE 625 Software Quality Engineering and Assurance
- SE 655 Performance Analysis of Real-Time Systems
- SE 660 Formal Methods for Concurrent and Real-Time Systems
- SE 699 Special Topics in Software Engineering

Note: Other electives may be authorized based on the student's background, program of study, performance during the MSE, and approval of the MSE program coordinator.
The College of Aviation is composed of the departments of Aeronautical Science, Meteorology, Safety Science, and Flight. The College offers the Master of Science in Safety Science. This degree program provides the graduate with experiences to enhance the practice of occupational health and safety. The MSSS degree program prepares graduates for several job settings, such as director of safety in industry and government, operational and maintenance safety personnel, and aircraft accident investigator.

The college has an enrollment of approximately 700 students and a fleet of 38 aircraft, including Cessna 172s, Cessna 182s, Piper Seminoles, and American Champion Decathlons. The College also has state-of-the-art Level 6 Cessna 172 and PA-44 Flight Training Devices and an Airbus A-320 simulator.

Embry-Riddle has positioned the College of Aviation to serve its students with distinction while investigating and developing new education and programs for pilots and safety and security professionals.
Academic Programs

Master of Science in Safety Science (MSSS)

Prescott Campus College of Aviation

DEPARTMENT CHAIR

Gary Northam

PROGRAM COORDINATOR

Max Fogleman

INTRODUCTION

The Master of Science in Safety Science (MSSS) degree program is designed to provide students with a practical course of study in occupational health and safety. The degree will produce safety professionals who are skilled in providing safety management expertise in a variety of industries. Graduates will be able to provide leadership and guidance in compliance issues involving EPA, OSHA, DOD, FAA, DOE, NTSB and state health, hygiene, and workplace standards, and will be prepared for service in numerous industries, including but not limited to the aviation/aerospace industry and the military.

The MSSS degree prepares graduates for professional safety positions in a variety of industrial settings including aviation. Students will qualify for jobs such as aircraft accident investigator, aviation or general safety management, operations safety, and safety design. The degree offers the opportunity for students to explore both the theoretical and pragmatic discipline that occupational health and safety has become. Particularly in light of extensive interest by the private sector and by government entities, this degree offers occupational health and safety professionals the advanced education and credentials necessary to succeed in the practice of safety.

The MSSS is a 36 credit hour program of study composed of a General Core (15 credit hours), a Research Core (9 to 12 credit hours), and electives (9 to 12 credit hours). Elective coursework must be selected from the elective list on the following page. All elective courses may not be offered every year. Check with an advisor for a schedule of course offerings.

Preference will be given to applicants with an undergraduate background in college-level mathematics, the physical and natural sciences, computer applications, behavioral science, and statistics. Students who lack prerequisite knowledge in algebra and trigonometry, physics, and chemistry will be required to take deficiency coursework. The prerequisite knowledge for any graduate course must be satisfied before enrollment in the course is permitted.

A five-year combination Bachelor of Science in Safety Science/Master of Science in Safety Science degree program will begin in the fall 2008 semester. Please refer to the undergraduate catalog for more information.
### Degree Requirements

#### Safety Science General Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSF 580</td>
<td>Industrial Hygiene and Environmental Protection</td>
<td>...</td>
</tr>
<tr>
<td>MSF 601</td>
<td>Ergonomics</td>
<td>...</td>
</tr>
<tr>
<td>MSF 602</td>
<td>Human Factors*</td>
<td>...</td>
</tr>
<tr>
<td>MSF 603</td>
<td>Occupational Safety</td>
<td>...</td>
</tr>
<tr>
<td>MSF 613</td>
<td>Aviation Safety</td>
<td>...</td>
</tr>
</tbody>
</table>

**Total Credits**: 15

*Prerequisite MSF 600*

#### Safety Science Research Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSF 600</td>
<td>Quantitative Methods</td>
<td>...</td>
</tr>
<tr>
<td>MSF 612</td>
<td>Research Methods*</td>
<td>...</td>
</tr>
</tbody>
</table>

**Option I**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSF 700</td>
<td>Thesis*</td>
<td>...</td>
</tr>
</tbody>
</table>

*Prerequisite MSF 600 and MSF 612

**Option II**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSF 690</td>
<td>Graduate Research Project*</td>
<td>...</td>
</tr>
</tbody>
</table>

*Prerequisite MSF 600 and MSF 612

**Total Credits**: 9-12

*Prerequisite MSF 600*

#### Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSA 602</td>
<td>The Air Transportation System</td>
<td>...</td>
</tr>
<tr>
<td>MSA 613</td>
<td>Airport Operations Safety</td>
<td>...</td>
</tr>
<tr>
<td>MSF 530</td>
<td>Aircraft Accident Investigation</td>
<td>...</td>
</tr>
<tr>
<td>MSF 605</td>
<td>Industrial Hygiene Measurement**</td>
<td>...</td>
</tr>
<tr>
<td>MSF 607</td>
<td>Epidemiology*</td>
<td>...</td>
</tr>
<tr>
<td>MSF 609</td>
<td>System Safety*</td>
<td>...</td>
</tr>
<tr>
<td>MSF 610</td>
<td>Industrial Security</td>
<td>...</td>
</tr>
<tr>
<td>MSF 611</td>
<td>Case Studies in Safety*</td>
<td>...</td>
</tr>
<tr>
<td>MSF 614</td>
<td>Safety Ethics</td>
<td>...</td>
</tr>
<tr>
<td>MSF 630</td>
<td>Aircraft Accident Analysis</td>
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<tr>
<td>MSF 635</td>
<td>Advanced Aircraft Survivability Analysis and Design***</td>
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<tr>
<td>MSF 655</td>
<td>Airline and Operations Safety Management</td>
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<td>MSF 675</td>
<td>Aviation Maintenance Safety</td>
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<td>MSF 685</td>
<td>Aviation Security</td>
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<td>MSF 696</td>
<td>Graduate Internship in Safety Science</td>
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<td>MSF 699</td>
<td>Special Topics in Safety Science</td>
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<tr>
<td>TM 621</td>
<td>Regulations, Ethics, and the Legal System</td>
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**Total Credits**: 9 – 12

*Prerequisite MSF 600

**Prerequisite MSF 580

***Prerequisite MSF 530
Recognizing the unquestionable benefits of international exposure in today's increasing globalization, Embry-Riddle offers its students a wealth of opportunities to study abroad in more than 50 destinations spanning five continents worldwide. Whether it’s as short as a one-month summer venture or a two-year dual-degree program, we feel these programs provide students with the experience that will greatly enhance not only their academic and professional lives, but their personal lives.

Motivated students in good academic standing (participation requires a minimum GPA of 2.5 for summer programs and 3.0 for exchange programs except under special circumstances) from the residential and Worldwide campuses have the unique opportunity to take courses through our partner schools that will be directly applicable to their degree programs at Embry-Riddle while traveling and participating in numerous cultural activities abroad. Foreign language classes are an essential part of every program, and students at all levels of language experience – from absolute beginners to native speakers – are encouraged to take part. In fact, all of our summer programs are designed to accommodate students who have had no prior foreign language experience. We offer many opportunities to take classes taught in English abroad, including specialized semester-long programs. For the more avid travelers, we offer dual-degree opportunities, where students may obtain both an Embry-Riddle undergraduate degree as well as a master-level degree from a foreign institution, simultaneously. Qualified exchange program participants could also have the opportunity to be placed in paid internships with companies or research labs abroad.

**Summer Study Abroad**

Embry-Riddle offers four to six week summer programs at half-price tuition, providing an additional incentive for students to explore other continents and advance their education. Living expenses in many of our destinations can be substantially lower than in the United States allowing students to save even more. Students who qualify for financial aid will receive an equivalent amount when enrolled in one of our international programs; there are also additional scholarship and grant opportunities available to students who choose to study abroad.
Special Academic Programs and Opportunities

**AVIATION MAINTENANCE SCIENCE (AMS)**

**Airframe & Powerplant Technician Certification Program**
The Airframe & Powerplant Technician Certification program provides the student with the training required to qualify for Federal Aviation Administration (FAA) Airframe and Powerplant Technician Certification. The 16-month program, offered only at the Daytona Beach campus, presents a carefully selected blend of theory and practical applications that qualifies the student to take the FAA certification examinations.

Students perform repairs and overhaul engines and accessories, including those used in the Embry-Riddle pilot training fleet. The curriculum, facilities, equipment, and instructional staff are fully approved under the Code of Federal Regulations (CFR) Title 14 Part 147. Embry-Riddle holds Air Agency Certificate No. NX4T404M and FAA Repair Station Certificate No. NX42404M.

**Avionics Line Maintenance Specialization Program**
The Avionics Line Maintenance program provides the student with training needed to successfully obtain the FCC General Radiotelephone Operators License (GROL) and with advanced avionics training using current industry standards and procedures. Students will learn basic wiring and electronics concepts, system installations, and advanced avionics line maintenance troubleshooting.

**Sources of Information**
For general academic and admissions information regarding the Aviation Maintenance programs:

Aviation Maintenance Science Dept.
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114
(386) 323-5086 - or - (877) 904-3746
fax: (386) 226-6778
http://www.embryriddle.edu/amt

Note: For the purpose of calculating Veterans Affairs training time for both programs, break times are excluded.
Embry-Riddle course offerings are listed in alphabetical order, according to the following course designations:

AE    Master of Aerospace Engineering/Master of Science in Aerospace Engineering
AED   Aviation Education
BA    Master of Business Administration
EMBA  Executive Master of Business Administration
EP    Engineering Physics
HFS   Master of Science in Human Factors and Systems
MA    Mathematics
MAAF  USAF Safety Education
MSA   Master of Aeronautical Science
MSF   Master of Science in Safety Science
SE    Software Engineering
TM    Technical Management

The following courses are not necessarily offered every term, nor are they necessarily offered at all campus locations.
## AE - Aerospace Engineering

### AE 501
**Numerical Methods for Engineers and Scientists**
3 Credits
Numerical methods for the solution of engineering physics problems; systems of linear equations, ordinary differential equations, including one-dimensional initial value problems and boundary value problems; partial differential equations (PDEs), including elliptic, parabolic, and hyperbolic PDEs; finite difference method. Application to problems such as diffusion, transport, remote sensing, inversion, and plasma waves. Emphasis will be on computer implementation of numerical solutions.

### AE 502
**Strength and Fatigue of Materials**
3 Credits
Analysis of stress and deformation in rods, beams, plates, shells, and solids using the elementary theories of elasticity and plasticity. Theories of strength, impact fatigue, and creep. Computer methods and applications.

**Prerequisite:** Consent of the department.

### AE 504
**Advanced Compressible Flow**
3 Credits

**Prerequisite:** Consent of the department.

### AE 506
**Airplane Dynamic Stability**
3 Credits

**Prerequisite:** Consent of the department.

### AE 508
**Heat Transfer**
3 Credits
One- and two-dimensional steady and unsteady-state conduction heat transfer including an introduction to finite difference and finite element methods of analysis. Free and forced convection heat transfer. Radiation heat transfer.

**Prerequisite:** Consent of the department.

### AE 510
**Aircraft Structural Dynamics**
3 Credits
Vibrations of deformable elastic structures using the assumed modes method. Analysis of a continuous system for specialized cases. Undamped and damped free and forced vibration of single-degree-of-freedom and multiple-degree-of-freedom system. Computer programming skills are necessary.

**Prerequisite:** Consent of the department.

### AE 512
**Combustion**
3 Credits

**Prerequisite:** Consent of the department.

### AE 514
**Introduction to the Finite Element Method**
3 Credits

### AE 516
**Computational Aeronautical Fluid Dynamics**
3 Credits
Potential flow theory. Panel methods. Applications of numerical methods and the digital computer to inviscid flow analysis. Lifting line, vortex lattice fundamentals. Use of computer codes.

**Prerequisite:** Graduate standing.
AE 518
Acoustic Emission Nondestructive Testing
3 Credits

AE 520
Perturbation Methods in Engineering
3 Credits
Investigation of gauge functions, asymptotic expansions and singular perturbation problems. Use is made of the method of straining parameters and method of multiple scales along with the evaluation of self-excited systems. The Duffing equation. The Mathieu equation. Boundary-layer problems and gyroscopic problems are reviewed.

AE 522
Analysis of Aircraft Composite Materials
3 Credits
Prerequisite: Graduate standing.

AE 524
Rocket Engine Propulsion Systems
3 Credits
Prerequisite: Graduate standing.

AE 526
Engineering Optimization
3 Credits

AE 528
Advanced Incompressible Aerodynamics
3 Credits
Kinematics and dynamics, thin airfoil theory, finite wing theory, bluff body flow, the Panel Method, numerical techniques, unsteady loads, vortex flows.

AE 530
Aeroacoustics
3 Credits
Sound and wave characteristics, levels and directives, hearing and physiological effects of noise, noise control criteria and regulations, instrumentation, acoustic materials and structures, aircraft components, acoustic analogy, computational aeroacoustics.

AE 590
Graduate Seminar
1-3 Credits
A study of the most current advancements in a particular field of study as determined by the instructor of the course. The course will have a different topic each term depending on the varied interests of the students, the graduate faculty, or the research requirements of the Aerospace Engineering department.
Prerequisite: Consent of the department.

AE 606
Finite Element Aerospace Applications
3 Credits
Prerequisite: Graduate standing.

AE 610
Advanced Computational Fluid Dynamics
3 Credits
Application of vortex lattice, panel element, and boundary element methods to incompressible and compressible three-dimensional aerodynam-
Course Descriptions

ics flow problems. Wing and wing-body analysis. Incorporation of boundary integration for more complete modeling.

Prerequisite: Graduate standing.

AE 612
Analysis of Aircraft Plate and Shell Structures
3 Credits

Prerequisite: Graduate standing.

AE 616
Advanced Aircraft Structural Dynamics
3 Credits

Prerequisite: Graduate standing.

AE 620
Boundary Layer Theory
3 Credits

Prerequisite: Graduate standing.

AE 640
Turbine Engine Propulsion Systems
3 Credits
Advanced theory of turbojet, multispool fan jet, variable cycle engines, and bypass air-breathing propulsion systems. Design and off-design performance analysis, theory and design of inlets, compressors, burners, and turbines. Component matching, cooling, regenerative systems, test methods, and corrections. Engine post-stall behavior.

Prerequisite: Graduate standing.

AE 646
Nonlinear Dynamical Systems and Chaos
3 Credits
Mathematical and experimental methods for the study of bifurcation and chaos in dynamical systems are described. Systems described by difference equations. Bifurcations of equilibrium points. Systems described by ordinary differential equations. Phase plane analysis. Limit cycles, nonlinear oscillations, and chaotic vibrations. Chaotic transitions, period doubling, and intermittency. Examples of chaos in mechanical, electrical, magnetic, fluid, chemical, and biological systems.

AE 648
Thermal Stresses in Aerospace Engineering
3 Credits

AE 650
Special Topics in Aerodynamics and Propulsion Engineering
3 Credits
Guided independent study of selected topics not offered in regularly scheduled classes. Arrangements and work requirements established by prior agreement of the instructor and students. Students should expect to spend at least 60 hours of reading and studying for each credit hour. May be repeated.

AE 652
Turbulent Flows
3 Credits
AE 696
Graduate Internship in Aerospace Engineering
1-3 Credits
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.
Prerequisite: Graduate standing.

AE 699
Special Topics in Aerospace Engineering
1-3 Credits
Guided independent study of selected topics not offered in regularly scheduled classes. Arrangements and work requirements established by prior agreement of instructor and students. Students should expect to spend at least 60 hours of research for each credit hour.
Prerequisite: Graduate standing.

AE 700
M.S.A.E. Thesis
9 Credits
A master-level research project in Aerospace Engineering conducted under the supervision of the student’s advisor and thesis committee. Submission of a final report, approved by the thesis committee, and an oral defense of the research work are required for thesis credits to be earned.

AED - Aviation Education
The University recognizes that certified elementary and secondary school educators interested in incorporating aviation/aerospace concepts into their existing curricula may not have the necessary background or resources to fulfill this desire. Courses developed and offered as summer workshops address these deficiencies during a time that is compatible with educators’ schedules. The course length of two weeks fulfills the requirements of the Florida Department of Education for earning three graduate course credits, or 60 in-service points. These courses may not fulfill other states’ Department of Education requirements.

AED 501
Aviation/Aerospace Foundations for the Elementary Curriculum
3 Credits
A foundations course that provides elementary teachers who have little background in integrating aerospace and aeronautical concepts into the classroom curriculum with an opportunity to enhance their knowledge in these areas. This course includes such subjects as engineering, space sciences, historical aviation/aerospace applications, meteorology, astronomy, environmental sciences, aviation literature, and human physiology. This course also provides a survey of methods and demonstrations to adapt materials to the educators’ respective grade level. Credit for this course is not applicable to the requirements of any Embry-Riddle degree.

AED 502
Aviation/Aerospace/Earth Science Foundations for the Secondary Curriculum
3 Credits
A foundations course that provides a comprehensive examination of aviation/aerospace teaching concepts using state-of-the-art simulator applications, emphasizing the classroom organizational skills needed in today’s high-technology environment. Topics from engineering, space sciences, historical aviation/aerospace applications, meteorology, geography, environmental sciences, geology, and human physiology are examined in detail. Each student has the opportunity to become familiar with a specific area of aviation by developing a sample curriculum that is presented to the rest of the class at the end of the course. Each student uses simulators, videos, computers, and other resources to supplement his/her academic instruction. Credit for this course is not applicable to the requirements of any Embry-Riddle degree.

AED 503
Natural Sciences with Aviation Applications
3 Credits
An applications course providing educators who have a background in science with the opportunity to experience real-world applications using aviation and aerospace concepts. This applications course also provides strategies and techniques to facilitate the use of aviation/aerospace applications in natural science instruction in the classroom.
Prerequisite: Basic algebra and trigonometry. Credit for this course is not applicable to the requirements of any Embry-Riddle degree.
Course Descriptions

AED 504
Introduction to Space Flight
3 Credits
A study of the concepts, development, and application of space flight technology, emphasizing the U.S. role in current and future space operations. Topics covered include history of space flight, space shuttle operations and crew training, commercial space applications, spacecraft systems, and the outlook for the future. Credit for this course is not applicable to the requirements of any Embry-Riddle degree.

AED 601
Advanced Pedagogical Applications of Aviation/Aerospace Concepts
3 Credits
An advanced course that provides educators with background in mathematical, meteorological, engineering, psychological, and physiological principles as applied to the aviation and aerospace fields. The course also provides educators with techniques and strategies used to implement aviation and aerospace concepts in the classroom.

Prerequisites: AED 501 and/or AED 502, or Flight Training. Credit for this course is not applicable to the requirements of any Embry-Riddle degree.

BA - Business Administration

BA 503
1 Credit Each
This course examines in depth the major competencies that have been identified as essential prerequisite knowledge for a graduate student enrolled in the MBA/A degree program to successfully complete the coursework. The course is broken down into six stand-alone modules in the discipline areas of management, quantitative methods, marketing, accounting, economics, and finance. Each student will take only those modules 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.

BA 511
Operations Research
3 Credits
An advanced 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 and aviation-related industries. Topics include linear programming, probabilistic dynamic programming, game theory, forecasting, queuing theory, transportation, decision making under uncertainty, network models, and Markov Chains.

Prerequisites: Satisfactory completion of Business Foundation courses and/or permission of the graduate program chair.

BA 514
Strategic Marketing Management in Aviation
3 Credits
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 in the aviation industry.

Prerequisites: Satisfactory completion of Business Foundation courses and/or permission of the graduate program chair.

BA 517
Accounting for Decision Making
3 Credits
A study of management’s use of accounting information to make decisions related to planning, controlling, and evaluating the organization’s operations. Using electronic spreadsheets, the budgeting function and use of performance reports is demonstrated. The behavior and management of costs, as well as techniques used to evaluate and control results of operations, are discussed. Topics include cost-volume-profit analysis, activity-based costing in production and service companies, decentralized operations, and differential analysis techniques. Through the use of case studies, current readings,
Course Descriptions

and course projects, emphasis is placed on aviation and aviation-related industries.

**Prerequisites:** Satisfactory completion of Business Foundation courses and/or permission of the graduate program chair.

**BA 518**
Managerial Finance
3 Credits
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.

**Prerequisites:** Satisfactory completion of Business Foundation courses and/or permission of the graduate program chair.

**BA 520**
Organizational Behavior, Theory, and Applications in Aviation
3 Credits
This course focuses on current organizational issues that 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 that must be resolved for successful leadership. Topics will provide insights into behavior, structure, authority, motivation, leadership, organizational development, and social responsibility.

**Prerequisites:** Satisfactory completion of Business Foundation courses and/or permission of the graduate program chair.

**BA 522**
Business Research Methods
3 Credits
An introduction to the art and science of solving aviation business research problems and making students 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. The application of statistics, sampling surveys, decision analysis, management science techniques, and the use of statistical/operations research computer software are studied. An introduction of a style manual for the preparation of a research proposal. Weekly lab session required.

**Prerequisites:** Satisfactory completion of Business Foundation courses and/or permission of the graduate program chair.

**BA 523**
Advanced Aviation Economics
3 Credits
A study of economic applications to the aviation and aerospace industry. Students will examine the evolution of market forces in the industry with particular emphasis on airlines, airports, and manufacturing. Concepts of yield management, air passenger demand forecasting, price and cost study, airport economics, air and land space optimization strategies, government’s role in aviation, international implications of competition and government regulation, economic analysis of safety, and other relevant industry issues are examined. Emphasis is placed on an increasingly international air transportation environment.

**Prerequisites:** Satisfactory completion of Business Foundation courses and/or permission of the graduate program chair.
BA 590
Graduate Seminar
1-3 Credits
A study of the most current advancements in a particular field of study as determined by the instructor. The course will have a different topic each term depending on the varied interests of the students, the graduate faculty, or the research requirements of the Aviation Business Administration department.
Prerequisites: As announced by the instructor conducting the seminar.

BA 603
Aerospace Production and Operations Management
3 Credits
An advanced study of production and operations management as it relates to the planning, coordinating, and executing of all activities that create goods and services in a global aeronautic/aerospace environment. Special quantitative and qualitative emphasis is placed on the blending of the concepts of industrial engineering, cost accounting, reliability and availability, and general management in the context of core production and control decision activities, such as capacity planning, product design, layout of facilities, selecting of locations for facilities, quality assurance, fleet planning, scheduling, inventory management, and project management. Special emphasis is placed on the examination of recent trends in global competition, increased reliance of quality for competitive technology transfer into production systems, and the increased value added by worker involvement in problem solving and decision making.
Prerequisites: Satisfactory completion of Business Foundation courses and/or permission of the graduate program chair.

BA 607
Human Resource Development
3 Credits
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: Successful completion of Business Foundation courses and/or permission of the graduate program chair.

BA 609
Airline Operations and Management
3 Credits
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.
Prerequisites: Satisfactory completion of Business Foundation courses and/or permission of the graduate program chair.

BA 610
Airline Optimization and Simulation Systems
3 Credits
The airline industry provides an application-rich environment for the field of optimization and simulation systems. This course explores a variety of optimization models and simulation techniques commonly adopted by and integrated into airline decision making for the solution of multiple scheduling

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and planning problems. This course examines the technical aspects of modeling in network transportation systems, including issues involved in optimizing scheduling, fleet assignment, aircraft routing, crew pairing, gate assignment, and irregular operations. Discrete-event simulation models will be explored to determine their applications in the schedule-planning process. The course explores how airline companies handle their short, medium, and long-term schedule planning using these methodologies.

**Prerequisite:** Successful completion of BA 511.

**BA 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 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.

**Prerequisite:** Successful completion of BA 518.

**BA 618**  
**Advanced Corporate Finance**  
**3 Credits**  
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.

**Prerequisite:** Successful completion of BA 518.

**BA 620**  
**Organizational Theory**  
**3 Credits**  
This course is an advanced study of the history, theory, and principles behind organizational design, and the role of structure in organizational effectiveness. Other topics include the impact of reengineering and organizational changes on employee and firm performance, and designing for a global and electronic environment.

**Prerequisites:** Satisfactory completion of the Business Foundation courses and/or permission of the Graduate Program Chair.

**BA 625**  
**Airline Marketing**  
**3 Credits**  
A study of the functions and basic concepts of marketing air transportation services. Discussion includes passenger and cargo markets, determinants of travel demand, seasonality, and cargo traffic categories characteristics. Product and service elements, roles of advertising and travel agents, marketing unit structure, pricing and cost environment, and schedule planning are also among the topics examined.

**Prerequisites:** Demonstrated completion of Business Foundation courses and/or permission of the graduate program chair.

**BA 630**  
**Aviation/Aerospace Systems Analysis**  
**3 Credits**  
This course is a study of systems theory and its relationship to aviation/aerospace systems management. The course covers a brief history of systems theory and the system life cycle concept, and explains the major activities in each phase of a system’s life cycle. Also examined are specific topics related to system design and support, including reliability, maintainability, availability, customer support, product improvement, and the role of data collection and analysis. Related topics covered are cost effectiveness analysis and sensitivity analysis. The course examines applications and case studies specific to aviation/aerospace, including military applications and computer simulation models.
Course Descriptions

BA 632
Seminar in Aviation Labor Relations
3 Credits
A study of union movement, labor legislation, representation elections, the collective bargaining process, contract administration, and conflict resolution. The focus of the course will be on current issues in labor relations, and the evolution of private and public sector bargaining practices in the aviation industry. The impact on human resource management is analyzed.

Prerequisites: Satisfactory completion of Business Foundation courses and/or permission of the graduate program chair.

BA 635
Business Policy and Decision Making
3 Credits
A capstone course in the MBA/A program that expands on the skills, knowledge, and abilities the students have achieved in their core courses. Students will examine applications of long-term planning and management tools in aviation-related industries and will be able to formulate strategic vision and policies to achieve such a perspective. Concepts of strategic management, total quality management, continuous quality improvement, reengineering, customer-driven management, and other evolving management methodologies will be examined. Applications of the concepts will be applied to the domestic and international activities of airlines, airports, manufacturing, and government to sustain a long-term competitive advantage.

Prerequisites: Completion of all MBA/A core courses.

BA 645
Airport Operations and Management
3 Credits
A study of the management and operation of public-use airports. Specifically, 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 will be covered.

Prerequisites: Successful completion of either BA 645 or BA 609.

BA 646
Air Cargo Logistics Management
3 Credits
This course provides an introduction to different topics related to the planning and operations of air cargo systems. These topics includes identifying the main components of air cargo system, the competition between air cargo and other surface-transportation modes, network and capacity planning, demand analysis and trends in the domestic and international markets, air cargo revenue management, cargo strategic alliances, revenue proration agreements, supply chain in air cargo management, shipper and forwarder interaction, ground/sorting operations, airport relations, e-commerce in air cargo management, marketing air cargo service, and air cargo security. The course also introduces students to several air cargo management and logistics computer software and applications It also presents several study cases in air cargo management and market analysis.

BA 650
Airline/Airport Relations
3 Credits
A comprehensive examination and analysis of the symbiotic and often volatile relationship between airline management and airport management is provided. This course focuses on the varying perspectives toward issues that airline and airport management must address in order to effectively operate. The student will develop an understanding of current global issues impacting the relationship between airlines and airports. Airline scheduling, fleet management, finance agreements, contracts and negotiation, service agreements, marketing issues, passenger and baggage handling, ground transportation, labor relations, public/media relations, and strategic management are studied.

Prerequisite: Successful completion of either BA 645 or BA 609.

BA 651
Strategic Airport Planning
3 Credits
An advanced study of airport operations and management designed from a strategic management perspective. In the course, a number of management
tools emphasizing computer software applications used in strategic airport planning will be introduced.

**Prerequisite:** Successful completion of either BA 645, BA 609, or BA 650.

### BA 655

**Aviation Law and Insurance**

3 Credits

Examination of the governmental regulatory functions affecting statutory and administrative law pertaining to aviation. The national and international impact of these laws on aviation policies and operations are studied. The legal aspects of business contracts, negotiable instruments, and commercial code as they relate to aviation are analyzed. The course concludes with an overview of the principles of insurance and risk applied to aviation.

**Prerequisites:** Satisfactory completion of Business Foundation courses and/or permission of the graduate program chair.

### BA 690

**Graduate Research Project**

3 Credits

A written document on an aviation/aerospace topic that exposes the student to the technical aspects of writing. This course is included in the MBA/A curriculum to provide the student with the opportunity to pursue a project of special interest, but not to the level of a thesis. This is an elective course for those students who want the opportunity to research in-depth a topic in consultation with a project advisor. The Graduate Research Project is not offered at the Daytona Beach campus.

**Prerequisites:** Successful completion of BA 522 and permission of the graduate program chair.

### BA 696

**Graduate Internship in Aviation Business Administration**

1-3 Credits

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.

### BA 699

**Special Topics in Business Administration**

1-3 Credits

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.

**Prerequisites:** Satisfactory completion of Business Foundation courses and/or permission of the graduate program chair.

### BA 700

**Thesis Research**

6 Credits

A written document on an aviation/aerospace 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.

**Prerequisites:** Successful completion of BA 522 and permission of the graduate program chair.

### EMBA - Business Administration

### EMBA 540

**Organizational Communication and Information Systems**

3 Credits

The information age is vastly different from the industrial age, and information is rapidly being accepted as a key economic resource alongside traditional factors of industrial production. Course participants undertake an advanced study of information management trends and technologies and their strategic uses in aviation and aerospace industry settings. The case method is used to investigate rapidly emerging topics such as cyberspace and the Internet, as well as more traditional subjects such as the use of state-of-the-art hardware and software suites to find and sustain a competitive edge. Complete information systems, and the structures, dynamics, and linkages of global, information-based organizations, are afforded special attention.
EMBA 542
Accounting for Decision Making
3 Credits
This course examines the role of accounting in the information flow of the organization and emphasizes the needs and requirements of aviation and aerospace executives in their efforts to measure and control performance. The focus is on understanding how information is generated, assessed for reliability, and used for performance assessment and resource allocation in an aviation/aerospace context. Participants cover the basic concepts, standards, and practices of financial reporting from the point of view of an executive user. The impact of managerial decisions on financial statements, as well as the impact of accounting policy on corporate strategy, are addressed. Topics include analysis of basic financial statements, valuation problems, cost analysis, activity-based costing, the use of budgets, and the design of management control systems. Specific aviation applications are emphasized throughout the course.

EMBA 544 and 545
Quantitative Analysis for Management Decision Making I & II
4 Credits
This course develops the theory and methods of business decision making, including intelligence, design, and choice, with special emphasis on aviation and aerospace applications. Participants will master the conceptual application of statistical methods and reasoning in the context of an aviation business environment. This course is designed to improve the industry managers’ decision-making skills as they encounter uncertainty and competing decisions. Topics include statistical sampling and estimation, regression analysis and forecasting, decision theory, game theory, linear programming, and queuing theory.

EMBA 546
Production/Operations Management
3 Credits
Aviation industry trends point to the re-emerging importance of finding ways to add value in the technologies and techniques that transform basic resources into marketable products and services. This course is an advanced study of production and operations management as it relates to the planning, coordination, and execution of all activities that create goods and services in the global aviation/aero-space industry. A strategic perspective of operations is maintained throughout. Case analysis and group participation are used to investigate topics such as manufacturing, capacity planning, facility layout, location planning, services scheduling, inventory management, aircraft maintenance, and the quality imperative.

EMBA 548
Global Economic Analysis for Executives
3 Credits
This course defines the importance of the global external economic constraints in which business decisions are made. Participants will develop an awareness of the broad implications of market mechanisms as the guiding force in the world economy. Participants will use quantitative tools and techniques to solve a variety of global economic problems faced by today’s managers. The unique economic challenges facing aviation and aerospace executives will be emphasized. Topics to be examined include profit maximization and cost minimization, input and output pricing, price determination under different market structures, national economic measures, monetary and fiscal policy, interest rates, international economics, stabilization policies, and labor economics.

EMBA 550
Global Marketing Management
3 Credits
As global competition becomes the norm in the aviation and aerospace industry, it is increasingly important for firms to focus on building and maintaining successful customer relationships. This course examines how firms respond to internal and external forces that impact global marketplace behavior, meet increasing customer expectations, and manage competitive pressures. Strategic models and frameworks are examined for their usefulness in aiding the aviation or aerospace executive to meet the demands of the global customer. Topics to be covered include environmental scanning, market research, consumer and organizational markets, segmentation and database marketing using the computer reservation system, marketing communications, building a global image, and product positioning and pricing.
EMBA 552 and 553
Managerial Finance I & II
4 Credits
This course explores the principal challenges faced by corporate finance managers in their quest to maximize shareholder value. Participants develop an analytical framework using the fundamental building blocks of financial theory, including the concepts of risk, return, and the time value of money. Course content focuses on investment and financing decision making in areas such as capital budgeting, capital structure, dividend policy, and working capital management. Additional topics include the costs and benefits of using financial instruments to manage risk, the impact of financial markets, financial institutions, and government policy on strategic decisions such as corporate restructuring, mergers and acquisitions, and joint ventures in the international marketplace. Specific industry-related topics, such as aircraft and airport financing, are also covered.

EMBA 554
Leadership and Entrepreneurship
3 Credits
Leadership and entrepreneurship require creating organizational direction, setting strategy, and developing new ventures. In the increasingly competitive global economy, aviation and aerospace managers must develop the necessary skills to lead organizational development and change and to motivate their employees to innovate. This course explores the interpersonal competencies necessary for effective leadership in situations requiring motivation of both individuals and teams. In addition, the course examines how these competencies enhance a positive environment for organizational change and entrepreneurship. Through case analysis and application, concepts such as managerial leadership, individual and team motivation, venture capital, global partnerships, innovation venture, formation of wealth among venture founders and investors, and the entrepreneurial act will be applied to aviation and aerospace industry problems.

EMBA 662
Personal Communication and Teamwork
3 Credits
As aviation and aerospace organizations continue to evolve, executives who want to lead their organization must understand and appreciate the role of effective personal communication. Teamwork is becoming increasingly important for global organizations as hierarchical management structures are replaced by cross-functional teams composed of multicultural employees selected from varying organizational departments. This course examines the role of communication in managing teams and its impact on team dynamics. How a manager/coach/team leader communicates with team members and the effect of that leader’s communication on group participation and performance is investigated. Topics include interpersonal communication skills in a global organization, communication skills in a group setting, team building, group dynamics, and role incongruity.

EMBA 664
Global Market Forces and Ethical Responsibility
3 Credits
Aviation and aerospace executives face a new set of global market challenges at an ever-increasing pace. Managers must address many legal, ethical, technological, and competitive issues. These global forces must be dealt with, while at the same time recognizing the increased burden placed on organizations to conduct their activities in a legal and responsible manner. This course leads the participant in an examination of societal, government, and legal forces and their impact on the formulation of global strategy. Participants will analyze how to recognize and respond to these forces. Topics include governments and the law, demographic trends, telecommunica-
Course Descriptions

- The growth of satellite communications, the growth of the Internet as a global marketplace, and societal and ethical responsibility.

**EMBA 668**

*Culture and the Diverse Workplace*

3 Credits

Today’s workforce is more diverse than in the past. In the increasingly global aviation/aerospace industry, this workforce spans continents and cultures. Managing this new workforce creates new problems and new opportunities for organizations and the people who run them. This course examines the issues of national and organizational culture in the context of the modern workplace. Executives will investigate cultural differences that affect perception, motivation, performance, and team effectiveness in the global workplace. They will also develop an in-depth portrait of the organizational culture of selected firms. These portraits will be used to illustrate the role of organizational culture, as well as to demonstrate ways to maintain, strengthen, and change culture. Other topics include communicating in a diverse environment, the global transfer of organizational culture and practices, and conflict management and negotiation strategies.

**EMBA 670**

*Technology and Innovation Management*

3 Credits

Technology is a ubiquitous global force that must be understood to be managed well. This course examines strategic and tactical problems found in aviation/aerospace industry scenarios where innovation in products and processes is critical, and where the technical performance of products and services is a main criteria of success in time-constrained projects. The strategic view emphasizes evolutionary models of technological evolution and revolution, and addresses issues such as paradoxical management, technology transfer, intellectual property protection, and the productivity dilemma. The tactical view emphasizes contemporary tools and techniques for managing projects and addresses issues such as project selection, concept-to-commercialization product development, organizational forms and processes, monitoring and auditing, and project termination.

**EMBA 672**

*Designing the High Performance Organization*

3 Credits

This course is an advanced study of the theory and principles behind organizational design. An examination of real-world organizational structures will be used to illustrate the role of structure in effective internal and external communications, information gathering, service delivery, and financial and managerial control. Executives will investigate the impact of reengineering and organizational change on employee and firm performance. There will be an in-depth study of transformations in the constraints and opportunities facing firms in the aviation/aerospace industry that necessitate change, and the signs of dysfunctional structures. Other topics include designing the global corporation, designing for innovation, and designing for a networked organization. There will be a special focus on the role of strategic alliances, including partner selection, desired outcomes, and alliance stability.

**EMBA 674 and 675**

*Strategic Management I & II*

4 Credits

This is an integrative course that promotes the development of a cross-functional management perspective. Participants focus on the analysis of the firm’s external and internal environments to identify and create competitive advantage in a global context. Aviation and aerospace business case studies will be used to explore the issues of defining corporate objectives, evaluating opportunities and threats, and formulating strategies and tactics. The course content emphasizes the cultural, ethical, political, and regulatory facets of the global business environment, and highlights the need for leadership and organizational evolution in the successful management of strategic change. Topics include total quality management, continuous quality improvement, reengineering, and other evolving management methodologies.

**EMBA 700**

*Executive Project*

3 Credits

As the program’s capstone activity, the executive project is designed to benefit both the participant and the sponsoring organization by giving the participant the opportunity to apply the knowledge and diagnostic competencies learned throughout the program to a specific business issue of the sponsor. Issues are selected by the sponsor and participant.
and approved by a faculty project advisor in module #3. Working from the perspective of a consultant, the participant thoroughly investigates the issue and proposes specific actions, using the analysis, planning, and management tools developed during each course. Continuous guidance and feedback are provided by the faculty project advisor and sponsor during the project. The completed project will require a comprehensive written report as well as a formal oral presentation.

**EP - Engineering Physics**

**EP 501**

Numerical Methods for Engineers and Scientists  
3 Credits  
Numerical methods for the solution of engineering physics problems; systems of linear equations, ordinary differential equations including one-dimensional initial value problems and boundary value problems; partial differential equations (PDEs) including elliptic, parabolic, and hyperbolic PDEs; finite difference method. Application to problems such as diffusion, transport, remote sensing, inversion, and plasma waves. Emphasis will be on computer implementation of numerical solutions.

**EP 505**

Advanced Spacecraft Dynamics and Control  
3 Credits  
Review of dynamic systems modeling, analysis, and control; orbital dynamics, orbital maneuvers, and control. Attitude sensors and sensing techniques are especially emphasized. Techniques for limb sensing, lunar and solar sensing, and ultra high accuracy stellar imaging techniques are explored. Passive attitude control techniques including spin, dual-spin, gravity-gradient, and magnetic stabilization. Active control using cold and hot gas jet thrusters, momentum wheels, reaction wheels, and control moment gyros. Robust optimal attitude control maneuvers of a complex spacecraft required for scientific instruments and the requirements of the measurements that they are performing, such as velocity vector alignment, limb scanning, and image stabilization, are emphasized.

**EP 509**

Advanced Space Physics  
3 Credits  

**EP 600**

Experimental Methods in Space Science  
3 Credits  
Measurement techniques for ground-based, rocket, and satellite-borne experiments are explored. Advantages, disadvantages, and limitations are quantitatively developed. In situ atmospheric composition measurements, charged particle detection for plasma characterization, optical remote sensing, and imaging techniques are included.

**EP 605**

Spacecraft Power and Thermal Design  
3 Credits  
Spacecraft power and thermal energy management. Spacecraft power systems; sources of power; power subsystem function and design; energy storage devices; future concepts in spacecraft power systems. Review of the modes of heat transfer: conduction, radiation, and convection. Space environment, heating fluxes. Spacecraft thermal analysis. Thermal control hardware and design; active and passive thermal control. Emphasis on the design needs of instruments and their detector systems’ power and thermal requirements.

**EP 696**

Graduate Internship in Engineering Physics  
1-3 Credits  
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
Course Descriptions

offering organizations and the graduate student. Prior approval of the graduate program coordinator is required.

**EP 699**
Special Topics in Engineering Physics
1-3 Credits
Guided independent study of selected topics not offered in regularly scheduled classes. Arrangements and work requirements established by prior agreement of the instructor and students, subject to approval of the program committee and department chairman.

**EP 700**
Master of Science in Space Science Thesis
1-9 Credits
A master-level research project in Space Science/Engineering Physics including an oral thesis defense and a written report satisfying all graduate school guidelines. The work is supervised by the student’s advisor and thesis committee. The approval of the thesis committee is required to receive final thesis credit.

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**HFS - Human Factors and Systems**

**HFS 500**
Systems Concepts, Theory, and Tools
3 Credits
The ability to think at a systems level will be developed. Formal systems principles; systems requirements analysis; knowledge acquisition techniques; information modeling; information management; decision support; systems evaluation.

**HFS 505**
Systems Engineering I
3 Credits
Practical application of design, build, and test processes applied to systems that incorporate hardware, software, and human components. Focus is on the integration of system components throughout the product life cycle. Lab is a required part of this course.

**HFS 510**
Research Design and Analysis I
3 Credits
Foundation and procedures of research techniques, tools, and methods. Course reviews the principal concepts of research design and evaluation. The application of experimental, case-study, survey, and nonexperimental techniques are explored. Identification, isolation, and treatment of dependent and independent variables is covered. Use of existing published research or data is used to highlight principles. Lab is a required part of this course.

**Prerequisite:** Completion of an undergraduate course in statistics. (This course is the same as MSA 665.)

**HFS 515**
Ergonomics
3 Credits
This class will address the basic concepts of ergonomics and their application to the design of human-machine systems and products. Consideration of human physiological, biomechanical, and biological capabilities and limitations in design for human efficiency, safety, and comfort; anthropometry. Ergonomic issues related to the design of control and display systems, instrument panels, workplaces, seating, and tools will be addressed.

**Prerequisites:** HFS 500, and completion of an undergraduate course in human factors.

**HFS 520**
Team Resource Management
3 Credits
This course addresses the social-psychology underpinnings of what is commonly referred to as team resource management and cockpit resource management (CRM). The class will review and discuss the basic theoretical concepts from social psychology and relate them to the effective operation of aviation teams. It will identify and discuss the basic issues associated with the effective evaluation of CRM-type programs.

**HFS 525**
Human and Organizational Factors in Technological Systems
3 Credits
Theoretical paradigms in human computer interaction and their application to interface design; advanced interface technologies such as multimodal input/output, hypertext, and knowledge-based systems.
HFS 530  
Systems Psychology  
3 Credits  
This course will be designed to provide the student with a very level view of human factors and ergonomics and how they fit into the overall system design and evaluation process. This class will address the human’s role and effectiveness as a system constituent. It will take a very high level, systemic, and theoretical approach, rather than a detailed empirical one. It will provide an overview of the system science and the time-phased, iterative systems approach. It will also review the assumptions and limitations of the analytic tools used to incorporate people into complex systems including systems test and evaluation tools.

HFS 590  
Graduate Seminar  
3 Credits  
A study of current topics and advancements in human factors, aviation psychology, and related areas as determined by the instructor of the course. The course will have a different topic each time it is offered depending on the varied interests of the faculty, students, or availability of visiting professors.  
Prerequisite: As announced by the instructor conducting the seminar.

HFS 600  
Human Factors in Systems  
3 Credits  
Survey of human factors literature. Introduction to topics including human capabilities and human interfaces with human-machine systems, workload, anthropometrics, perception, workspace design, visual momentum. The course will study human limitations in the light of human engineering, human reliability, stress, and human physiology. The course will discuss human behavior as it relates to the aviator’s adaptation to flight, air traffic, and maintenance environments.

HFS 605  
Systems Engineering II  
3 Credits  
Studies on the value of prototyping in the application of design, build, and test processes. In-depth focus on the innovation of conceptual designs in short time-cycle engineering. Lab is a required part of this course.  
Prerequisites: HFS 500 and HFS 505.

HFS 610  
Research Design and Analysis II  
3 Credits  
This course is the advanced program in experimental design and analysis. The focus is the design, planning, and considerations involved in complex, multivariate experiments. Major areas of examination will include factorial designs, nested variables, linear models, multiple regression, measures of covariance, and Latin square designs. Considerations in selecting the appropriate experimental design is the focus of this course. Examination of appropriate statistical techniques is integrated with the theoretical and practical concepts of experimental design. Lab is a required part of this course.  
Prerequisite: HFS 510.

HFS 611  
Work Physiology  
3 Credits  
This course will focus on the human as a biomechanical entity and evaluate the physiological loads and stresses of which we are capable. Topics include anthropometric applications, muscle and strength exertions, metabolism and work, the redesign of deteriorated and artificial body parts, and circadian rhythms in work design. The student will gain knowledge of the architecture, functioning, and biomechanics of bones, joints, muscles, tendons, and ligaments and the forces and torques that move the body at work or sports. The course will examine energy extraction from food and drink, and how human ability depends on the cooperation of the respiratory, circulatory, and metabolic systems. The effects of environmental conditions (lighting, noise, heat, cold, humidity, air movement) and shift work (day, evening, and night work; shift schedules) on task performance will be discussed in practical terms.  
Prerequisite: HFS 600.

HFS 615  
Sensation and Perception  
3 Credits  
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. Attention will be paid to all the human sensors, with particular focus on perceptual issues related to system design, evaluation, and certification. While all the senses will be covered, special attention will be paid to the
visual and auditory senses. Lab is a required part of this course.

**Prerequisite:** Completion of an undergraduate course in the area of sensation and perception. (This course is the same as MSA 660.)

**HFS 620**
Memory and Cognition
3 Credits
This course will examine the tremendous gains 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, timesharing, reaction time, action, manual control, and the impact of automation. Lab is a required part of this course.

**Prerequisite:** Completion of an undergraduate course in the area of memory and cognition. (This course is the same as MSA 663.)

**HFS 625**
Applied Testing and Selection
3 Credits
Issues in selecting and testing applicants for a broad range of positions in aviation and related industries are the focus of this course. An examination of the methodologies used since World War I through the present is covered. The change in methodologies used and the level of sophistication of assessment techniques involved is examined across pilot, air traffic controller, maintenance, and aviation security screener personnel. A significant portion of this course is devoted to an understanding of the performance assessment techniques used to evaluate selection systems as well as the personnel selection instruments used. Problems in both criterion and assessment measurement are discussed in detail.

**Prerequisites:** HFS 510 and HFS 610.

**HFS 630**
Cognitive Systems
3 Credits
The course addresses applied cognitive science, which draws on the knowledge and techniques of cognitive psychology and related disciplines to provide the basis for principle-driven design. Specifically it addresses human cognitive behavior in complex worlds that exist without the artificial boundaries of the laboratory. It specifically addresses those domains where there are multiple agents (that is, cognitive systems) and that are problem-driven and tool-constrained. The course also addresses the impact of mismatches between the models of the designers, their software, and the users.

**Prerequisite:** Completion of an undergraduate course in the area of aviation/aerospace psychology.

**HFS 635**
Human-Computer Interaction
3 Credits
This course stresses the importance of good interfaces and the relationship of user interface design to human-computer interaction. Other 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 iterative design cycle; user interface implementation; prototyping tools and environments; I/O devices; basic computer graphics; color and sound. A lab is a required part of this course.

**Prerequisite:** Completion of an undergraduate course in human factors or human/computer interaction. (This course is the same as MSA 661.)

**HFS 640**
Aviation/Aerospace Psychology
3 Credits
This survey course covers the primary areas of work in the aviation psychology specialization. Topic areas may include the effects of alcohol on performance, aviation safety and accident investigation, cockpit and air traffic control automation, display and control issues and design, personnel selection, task analysis, workload assessment, training research and development, scale development methodologies, and crew resource management. The topic areas change from semester to semester depending on the focus of the current research environment. This course has a strong emphasis on methodological issues, problematic research concerns, and statistical issues. The majority of coursework involves extensive readings in the specialization from conference proceedings, journal articles, and training manuals. A critical analysis of research is the focal point for this course.

**Prerequisite:** Completion of an undergraduate course in the area of aviation/aerospace psychology.
Course Descriptions

HFS 645
Underpinnings of Human Factors and Ergonomics
3 Credits
Survey of historic human factors literature, particularly those papers considered classics. The class will review the key personalities, papers, theories, and research programs that provide the basis of current theory and best practice. The key historic papers addressing human capabilities, human-machine systems, workload, anthropometrics, perception, workspace design, and visual momentum will be read and critically discussed. The course pays particular attention to the key research addressing aviation psychology, cockpit design, cognitive engineering, and human physiology.

HFS 650
Human Factors of Aviation/Aerospace Applications
3 Credits
This class will address the basic concepts of the application of human factors principles and theories to the effective design and operation of various aviation/aerospace applications. It will address these areas from a historical perspective and in relation to the future operational concepts of the applications. Issues to be addressed could include function allocation between human and machine, human computer interface, work environment (for example, stress circadian rhythms), person-to-person communications, performance measurement, and research and development needed.

Prerequisite: Completion of an undergraduate course in human factors.

HFS 660
Human Factors and Aircraft Safety and Airworthiness I
3 Credits
Aircraft safety and airworthiness will be considered as a coherent process running from the design of the aircraft to the monitoring of its condition in airline service. This class covers the technical aspects of certification along with the legal and economic implications. This class will specifically address the human factors of air transport safety and quality approval and concept. This class is offered only at the Ecole Nationale de l’Aviation Civile.

Prerequisites: HFS 500, HFS 590, HFS 600, HFS 660.

HFS 665
Human Factors and Aircraft Safety and Airworthiness II
3 Credits
Aircraft safety and airworthiness will be considered as a coherent process running from the design of the aircraft to the monitoring of its condition in airline service. This class covers the technical aspects of certification along with the legal and economic implications. This class will specifically address the human factors of air transport safety and quality approval and concept. This class is offered only at the Ecole Nationale de l’Aviation Civile.

Prerequisites: HFS 500, HFS 590, HFS 600, HFS 660, HFS 665.

HFS 670
Human Factors and Aircraft Safety and Airworthiness III
3 Credits
Aircraft safety and airworthiness will be considered as a coherent process running from the design of the aircraft to the monitoring of its condition in airline service. This class covers the technical aspects of certification along with the legal and economic implications. This class will specifically address operational procedures, maintenance procedures, and continuing airworthiness. This class is offered only at the Ecole Nationale de l’Aviation Civile.

Prerequisites: HFS 500, HFS 590, HFS 600, HFS 660, HFS 665.

HFS 696
Graduate Internship in Human Factors and Systems
3 Credits
Supervised placement in an industrial, governmental, or consulting setting. The student completes a specific project under the supervision of an organizational sponsor and a faculty member.

Prerequisite: As announced by the instructor.

HFS 699
Special Topics in Human Factors and Systems
3 Credits
Completion of an area of study under the direct supervision of a faculty member. The course requirements and area of study are negotiated between the faculty member and the student with the approval of the department chair.
Course Descriptions

HFS 700
Thesis
1-6 Credits
The performance and a written description of a master-level research project. The topic of the thesis will be approved and supervised throughout its preparation by the student’s major professor and thesis committee. This project will provide evidence of the student’s ability to perform applied research at the graduate level.

*Prerequisites:* Completion of all core courses in the Human Factors Engineering track or the Systems Engineering track.

MA - Mathematics

MA 502
Boundary Value Problems
3 Credits
Basic techniques of solving boundary-value problems of partial differential equations by employing the methods of Fourier series orthogonal functions, operational calculus including Laplace transforms, other integral transforms, and Cauchy’s residue calculus. Applications to heat transfer, fluid mechanics, elasticity, and mechanical vibrations. Computer applications.

*Prerequisite:* MA 441 or equivalent.

MA 504
Theory of the Potential
3 Credits

*Prerequisite:* MA 502.

MA 505
Statistics
3 Credits
Descriptive statistics and graphical depiction of data; confidence intervals and hypothesis testing for the mean, difference between two means, variance, ratio of two variances, proportion, and difference between two proportions; simple and multiple regression, including model development, inferences, residual analysis, outlier identification, and verification of assumptions; fundamental concepts of design of experiments; justification of linear models; construction and analysis of basic designs including one-way, block designs, and Latin squares; multiple comparisons.

*Corequisite:* MA 503 or MA 441.

MA 506
Probability for Engineers
3 Credits

*Prerequisite:* MA 441 or equivalent.

MA 510
Fundamentals of Optimization
3 Credits
Overview of several important general types of optimization problems; development of mathematical models; linear programming; the simplex method; introduction to sensitivity analysis, networks; applications involving Maple and Excel.

*Prerequisite:* MA 345.

MA 520
Mathematical Programming and Decision-Making
3 Credits
A continuation of MA 510. Development of mathematical modeling techniques with an emphasis on integer programming, nonlinear programming, and multiple-criteria decision-making techniques; case studies from aviation/aerospace involving mathematical programming and decision-making.

*Prerequisite:* MA 510.

MA 605
Statistical Quality Analysis
3 Credits
Fundamental concepts of statistical quality control, including Shewhart charts, cusum charts, EWMA charts, multivariate charts, tolerance limits, and capability analysis. Further development of concepts in statistical design of experiments including use of factorial designs, fractional factorial designs, and use of central composite designs. Several nonparametric
statistical techniques, including sign test, signed-rank test, rank-sum test, Kruskal-Wallis test, runs test, and Kendall’s Tau. Advanced regression topics, including the use of transformations, weighted least squares regression, and detection of influential points. Throughout the course, industrial applications will be emphasized, including the use of several case studies.

Prerequisite: MA 505.

MA 610
Multivariate Optimization
3 Credits
Multiple objective optimization with an emphasis on response surface methodologies and goal programming; inclusion of group decision-making techniques in model development; case studies from aviation/aerospace emphasizing multivariate model development, and determination of optimal solutions.

Prerequisites: MA 520 and MA 605.

MA 690
Graduate Research Project
3 Credits
An applied problem on an aviation/aerospace topic that requires the use of optimization and/or quality-improvement skills.

MA 699
Special Topics in Mathematics
1-3 Credits
Students may elect to perform a special, directed analysis and/or independent study in an aviation area of particular interest. A detailed proposal of the desired project must be developed and presented to the department chair or center director for faculty review and recommendation, three weeks prior to the end of registration for the term.

MA 700
Thesis
6 Credits
Written and defended documentation of a research project conducted under the supervision of a faculty committee. The research must be at the level of a published paper in an appropriate journal, as determined by the faculty committee.

MAAF - USAF Safety Education

MAAF 608
Aircraft Mishap Investigation
3 Credits
This course is an overview of aircraft mishap investigation and the management of a mishap investigation. The course will enable the student to understand and to apply aircraft mishap investigation techniques and procedures, including the collection, preservation, and analysis of mishap site data. The course will familiarize the student with aircraft structures, aircraft systems, records and performance, and their associated involvement in aircraft mishaps. The course will equip the student with knowledge of human factors, human performance, physiological, and psychological limitations that apply to mishap investigation. The course prepares the student needed to analyze evidence collected and to develop findings, causes, and recommendations required from an aircraft mishap. Use of a site laboratory will provide practical field experience. Equivalent to MSA 608.

MAAF 611
Aviation/Aerospace Mishap Prevention Management
3 Credits
This course is an overview of aviation/aerospace safety management and the application of safety management principles and techniques to the management of aviation/aerospace operations. Topics include hazard identification, risk analysis and management, flight safety programs, cabin safety, ground and maintenance safety, safety cultures in organizations, and emergency response programs. The course emphasizes accident prevention through systems engineering and safety management in all phases of a system’s life-cycle. Equivalent to MSA 611.

MSA - Aeronautical Science

MSA 508
Advanced Airport Modeling
3 Credits
A study of advanced airport and airspace planning to support day-to-day operations, resource allocation, and strategic analysis. Emphasis is put on the use of computer software to create working airport
and airspace models to solve common airport and airspace operational problems. Airport and airspace background material and procedures will be covered in supplemental lectures. The Total Airport and Airspace Modeler (TAAM) software will be used as the primary planning and analysis tool. TAAM is the most advanced and comprehensive interactive software available for this type of analysis. Students are taught how to use the TAAM software on a UNIX-based SUN workstation. To accomplish this task, students will be divided into research teams for purposes of developing a simulation and conducting the group object portion of the course. Each team will be assigned a project of completing a realistic working simulation model of an actual airport, which they will then use to solve an operational problem.

**Prerequisites:** Demonstrated knowledge of flight rules and regulations and basic knowledge of the aviation industry, airports, and commercial aircraft used in the national air transportation system.

**MSA 514**
Computer-Based Instruction
3 Credits
This course addresses the design, development, and evaluation of instructional software as it applies to the aviation/aerospace industry. The course offers 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.

**Prerequisite:** Demonstrated knowledge of basic computer operations.

**MSA 515**
Aviation/Aerospace Simulation Systems
3 Credits
A comprehensive examination of simulation in modern aviation/aerospace that includes history, state-of-the-art, and current research and development. Discussion focuses on the extent and impact of simulator applications throughout the industry and the effects on training costs and safety. Topics include the flight crew being checked out, updated, evaluated, or retrained in aircraft and systems simulators to the simulation models used in management, flight operations, scheduling, or air traffic control.

**MSA 516**
Applications in Crew Resource Management
3 Credits
This course examines the common concepts of crew resource management (CRM) as developed by major air carriers and explores the theoretical basis of such training. Topics such as supervision of crewmembers, counseling, manner and style, accountability, and role management are 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. Additionally, each student uses simulators and computer-based instruction to supplement their academic instruction.

**MSA 550**
Aviation Education Foundations
3 Credits
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.

**MSA 590**
Graduate Seminar
1-3 Credits
A study of the most current advancements in a particular field of study as determined by the instructor of the course. The course has a different topic each term depending on the varied interests of the students, the graduate faculty, or the research requirements of the Aeronautical Science department.

**Prerequisites:** As announced by the instructor conducting the seminar.

**MSA 601**
Applications in Space: Commerce, Defense, and Exploration
3 Credits
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 the 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.

**Prerequisite:** Demonstrated knowledge of spacecraft or satellite technology.
Course Descriptions

MSA 602
The Air Transportation System
3 Credits
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 20th century. The long-term and short-term effects of deregulation, energy shortages, governmental restraints, and national and international issues are examined. Passenger and cargo transportation as well as military and private aircraft modes are studied in relation to the ever-changing transportation requirements.

Prerequisite: Demonstrated knowledge of aviation rules and regulations and economics.

MSA 603
Aircraft and Spacecraft Development
3 Credits
This course is an overview of aircraft and spacecraft development. Included are vehicle mission, the requirements directed by economics, military and defense considerations, and research and developmental processes needed to meet vehicle requirements. Aviation and aerospace manufacturing organizations and techniques are addressed, including planning, scheduling, production, procurement, supply, and distribution systems. The course studies the aviation and aerospace maintenance systems from the built-in test equipment to the latest product-support activities.

Prerequisite: Demonstrated knowledge of college-level mathematics and economics.

MSA 604
Human Factors in the Aviation/Aerospace Industry
3 Credits
This course presents an overview of the importance of the human role in all aspects of the aviation and aerospace industries. It emphasizes the 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. The course will study human limitations in the light of human engineering, human reliability, stress, medical standards, drug abuse, and human physiology. The course will discuss 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.

Prerequisite: Demonstrated knowledge of behavioral science.

MSA 605
Research Methods and Statistics
3 Credits
A study of current aviation research methods that includes techniques of problem identification, hypothesis formulation, design and use of data-gathering instruments, and data analysis. Research reports that appear in professional publications are examined through the use of statistical terminology and computations. A formal research proposal 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.

MSA 606
Aviation/Aerospace Communications/Control Systems
3 Credits
A detailed analysis of current and future developments and trends in the control of air traffic, including the evolution of current national policies and plans and their objectives. The most recent planned improvements for each major component of the ATC system are examined individually and as part of the system as a whole.

Prerequisites: Demonstrated knowledge of flight rules and regulations and basic navigation.

MSA 607
Advanced Aircraft/Spacecraft Systems
3 Credits
State-of-the-art aircraft/spacecraft systems and projections of research trends for future air vehicle requirements and applications are studied. Topics include the development, capabilities, and limitations of current aircraft/spacecraft propulsion, electrical, environmental, control, hydraulic systems, and subsystems. The total aircraft design, and the interdependence of aircraft system design constraints are emphasized, as well as current problems and solutions.

Prerequisites: Demonstrated knowledge of college-level mathematics, aircraft systems, and components.
Course Descriptions

**MSA 608**  
Aviation/Aerospace Accident Investigation and Safety Systems  
3 Credits  
A critical analysis of selected aircraft accidents and an evaluation of causal factors. Particular emphasis is placed on the study of human factors connected with flight and support crew activities in aviation operations. Identification and implementation of accident prevention measures are stressed as integral parts of the development of a complete safety program.

**MSA 609**  
Aircraft Maintenance Management  
3 Credits  
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 used. A major course objective is to heighten awareness of the critical interface of maintenance with flight, supply, and training activities.  
*Prerequisite:* Demonstrated knowledge of management principles.

**MSA 610**  
Applied Aviation Safety Programs (3,0)  
3 Credits  
This course treats the U.S. proactive voluntary programs that are part of the FAA-NASA integrated safety research plan, as well as the voluntary aviation safety information sharing in the air carrier industry. ATC performance monitoring review complements that for FOQA and ASAP carrier data.Carrier practices that address discovered threats (AQP and LOSA) add to the synoptic review. Organizational safety includes the IEP and the VDRP. Confidentiality and protection of the data, as codified in Part 91 for ASRS and later in Part 193, are integral to the success of the programs. Practical significance of both quantitative and qualitative data analyses generated by all the programs pertains to hazard and risk identification. Student synopses and analyses also address the IOSA and the ICAO safety SARPs.  
*Prerequisite:* MSA 605.

**MSA 611**  
Aviation/Aerospace System Safety  
3 Credits  
This course emphasizes the specialized integration of safety skills and resources into all phases of a system’s 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.

**MSA 612**  
Aviation/Aerospace Industrial Safety Management  
3 Credits  
This course examines the modern work setting from an aviation and aerospace safety and health point of view. Examination 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.

**MSA 613**  
Airport Operations Safety  
3 Credits  
A study of airport operations safety as applied to day-to-day operations. A review and analysis of all federal regulations applicable to operations and safety are conducted.  
*Prerequisites:* Demonstrated knowledge of performance of airports and airline operations management or related field.

**MSA 614**  
Advanced Aviation/Aerospace Curriculum Development  
3 Credits  
This course will investigate the traditional manner of curriculum development and then proceed to prepare an instructional framework for a variety of aviation and aerospace instructional programs.
Course Descriptions

MSA 615
Applied Aviation Research Methods (3,0)
3 Credits
This course addresses the study of phenomena in aviation using quantitative, qualitative, and mixed methods designs. A review of descriptive and inferential statistics precedes the introduction of power analyses and a multivariate statistical procedure. The course will focus on advancing tools available for the research methods and procedures, the analysis and interpretation of the vast quantities of data currently available within the industry, and setting the results into practice are the foci of the course. Although the primary emphasis is on aviation research, the information and skills learned in this course will be applicable to most careers.

Prerequisites: MSA 605 and approval of the instructor.

MSA 616
Air Traffic Management Leadership and Critical Decision Making (3,0)
3 Credits
This course is designed to give students in the Air Traffic Management and other related specializations a practical and comprehensive understanding of leadership theories and practice as well as critical decision-making processes that can be applied in government, FAA, organizations, and the aviation/aerospace industry. The primary purpose is to examine practical leadership skills and applications about what aviation leaders including Air Traffic Management leaders do and how they do it in order to be more effective. Students will understand the complexity of effective leadership, the source of knowledge about leadership in aviation organizations, and the limitations of this knowledge. Through the use of case studies in Air Traffic Management, Aviation Logistics, Aviation Maintenance, and Aviation Production and Procurement, students will analyze leadership in aviation, study critical decision-making concepts, and apply learned concepts to resolve problems in the industry.

MSA 617
Air Traffic Management V (3,0)
3 Credits
This course expands on the skills, knowledge, and abilities the student has acquired in previous ATC classes. This course presents more demanding and complex traffic scenarios that require higher level performance and decision-making skills and prepares the student for initial training in any ATC specialization. Students will also gain an appreciation for the challenges of implementing large-scale changes in the National Airspace System. Upon successful completion of this course, students will demonstrate the knowledge and technical aptitude required for entry-level qualification as an air traffic control specialist. Students will demonstrate their ability to research, analyze, prepare, and present a paper in class that addresses a problem or question derived from the FAA’s National Airspace System Capital Investment Plan. Problems will be analyzed through assignments and discussion.

Prerequisite: Air Traffic Management IV.

MSA 618
Air Traffic Management VI (3,0)
3 Credits
This course introduces students to the non-radar procedures and minima prescribed in FAAH 7110.65 and builds upon knowledge gained in prerequisite courses, all in a simulated environment. Training includes the vertical, lateral, and longitudinal separation of aircraft in the departure, en route, and arrival phases of flight. Phraseology, strip marking, instrument and visual approaches and the coordination procedures necessary to complete these functions are included in the simulated ATC scenarios. Students will demonstrate their ability to research, analyze, prepare, and present a paper in class that addresses a problem or question derived from the FAA’s Next Generation Air Transportation System (NGATS).

Prerequisite: Air Traffic Management IV.

MSA 620
Air Carrier Operations
3 Credits
A study of air carrier flight operations systems from the viewpoints of the ground-based dispatcher, operations specialists, managers, and the cockpit flight crew. Topics include advanced flight planning, aircraft performance and loading considerations, impact of weather conditions, and routing priorities.

Prerequisites: Demonstrated knowledge of flight rules and regulations, basic meteorology, basic navigation, and basic aircraft performance.
Course Descriptions

MSA 622
Corporate Aviation Operations
3 Credits
The establishment and operations of a corporate flight department are 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.

MSA 627
Air Traffic Management in the NAS (3,0)
3 Credits
This course gives students an understanding of the political, economic, social, technical, and environmental importance of the air traffic control system in the National Airspace System. The course develops content knowledge in the following areas: the Federal Aviation Administration, its mission, organization, and operation; management and leadership concepts as they relate to a federal bureaucracy; safety management systems and culture; quality control; and air traffic facility management objectives and policies. Labor-management relations in the federal sector will also be covered, including statutes, regulations, and contracts; management rights and responsibilities; union and employee rights and responsibilities; grievances and unfair labor practices; the bargaining process; memoranda of understanding, facility directives, and past practices; participative management; supervisory notes; equal employment opportunities and model workforce issues; employee assistance programs; interpersonal skills; performance management and constructive discipline; employee ethics on and off the job; and development from an organizational perspective and technical training administration.

MSA 634
Aviation/Aerospace Psychology
3 Credits
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.

MSA 636
Advanced Aviation/Aerospace Planning Systems
3 Credits
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, heuristic, value theory, and payoff tables are studied. The limitations and problems associated with strategic planning are discussed.

Prerequisites: Demonstrated knowledge of management principles and economics.

MSA 641
Production and Procurement Management in the Aviation/Aerospace Industry
3 Credits
The evolution of an air carrier aircraft from design concept to delivery is examined from the perspectives of the purchaser, manufacturer, component manufacturer, operator, and certificator/regulator. The study of the process begins with demand analysis and continues through purchase contracting, manufacturing, marketing, certification, predelivery activities, and introduction into service.

Prerequisites: Demonstrated knowledge of management principles and economics.

MSA 643
Management of Research and Development for the Aviation/Aerospace Industry
3 Credits
The types and sources of aviation/aerospace research and development are analyzed through study of 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.

Prerequisites: Demonstrated knowledge of management principles and economics.
MSA 644
Integrated Logistics Support in Aviation/Aerospace
3 Credits
This course is a study of the 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. The economic feasibility of a logistics system, including a life-cycle cost analysis, is explored. 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.
Prerequisite: Demonstrated knowledge of management principles and economics.

MSA 660
Sensation and Perception
3 Credits
This course examines how the human senses transform stimulus patterns of physical energy into the neural codes that become our perceptions of the world. Topics include vision, audition, smell, taste, touch, balance; and phenomena common to all sensory modalities: feature enhancement, inhibition, adaptation, and stages of neural coding.
Prerequisite: Demonstrated knowledge of basic psychology or completion of an undergraduate course in psychology. (This course is the same as HFS 615.)

MSA 652
Continuing Education’s Role in Aviation
3 Credits
Emphasis on assessing community needs relative to developing programs in continuing education for the adult learner, evaluation of existing programs, and the processes used in developing curricula for an adult continuing education program related to aviation.

MSA 661
Human-Computer Interaction
3 Credits
This course discusses the importance of good interfaces and the relationship of user interface design to human-computer interaction (HCI). 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 iterative design cycle; user interface implementation; prototyping tools and environments; I/O devices; basic computer graphics; and color and sound.
Prerequisite: Demonstrated knowledge of the use of computers, including programming familiarity with a high-level language.

MSA 663
Memory and Cognition
3 Credits
This course examines 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 such as 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.
Prerequisite: Demonstrated knowledge of basic psychology or completion of an undergraduate course in psychology. (This course is the same as HFS 620.)
Course Descriptions

**MSA 665**
Applied Experimental Design
3 Credits
The design, conduct, statistical analysis, and interpretation of common behavioral science research designs are covered in the context of aviation science topics. Students learn to differentiate research designs along dimensions of experimental/non-experimental approaches, questions of group differences, and questions of relationships between variables, adequacy of statistical power, statistical significance, and practical importance. Student projects include conducting statistical analyses and writing research results sections based on standard American Psychological Association format.

*Prerequisite:* MSA 605 or completion of an undergraduate experimental psychology course. (This course is the same as HFS 510.)

**MSA 690**
Graduate Research Project
3 Credits
A written document on an aviation/aerospace topic that exposes the student to the technical aspects of writing. This course is included in the MSA curriculum to provide the student with the opportunity to pursue a project of special interest, but not to the level of a thesis. This is a required course for those students who choose not to write a thesis.

*Prerequisite:* MSA 605.

**MSA 696**
Graduate Internship in Aeronautical Science
1-3 Credits
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 a graduate student.

**MSA 699**
Special Topics in Aeronautical Science
1-3 Credits
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 center director or department chair for faculty review and recommendation at least three weeks prior to the end of registration for a term.

**MSA 700**
Thesis
6 Credits
A written document on an aviation/aerospace 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.

*Prerequisite:* MSA 605.

**MSF - Safety Science**

**MSF 500**
Safety Science Foundations
1-6 Credits
Provided for students who may need to resolve deficiencies from undergraduate studies to be properly prepared for the advanced level courses. A review of algebra and trigonometry, basic calculus, statistics, physics, chemistry, and biological science as they relate to the safety profession. (Credit not applicable to any degree.)

2. Basic Calculus. Differentiation and integration of algebraic functions; applications to velocity, accelerations, area, curve sketching, and computation of extreme values.
3. Statistics. Descriptive statistics; populations and samples; measures of central tendency and dispersion; elementary probability; binomial and normal distributions and their interrelationship; random variables; one- and two-sample hypothesis testing involving proportions and means for large and small samples; estimation and confidence intervals; Chi square distribution; correlation coefficient; least squares line.
4. Physics. Survey course in physics. Stress will be placed on basic concepts and principles of physics. Presentation will include selected topics in mechanics, heat, light, sound, electricity and magnetism, and modern physics.
5. Chemistry. Covers basic atomic theory, elements, compounds, and mixtures, calculation of weight and weight volume relationships, basic descriptive chemistry. An overview of the current applications of chemistry and its future potential in human affairs. Applications to scientific decision-making in the business and industrial environment.

6. Biological Science. A survey course in general biological science, with emphasis on human biology. Includes basic cellular anatomy, biology, and biochemistry; viruses, bacteria, and protista; aerobic respiration and photosynthesis; mitosis and meiosis; genetics and inheritance, hereditary disorders in humans; and human tissues, organs, and organ systems.

**MSF 530**  
**Aircraft Accident Investigation**  
3 Credits  
An examination of investigation as it pertains to aircraft accidents from the perspectives of the administrative, regulatory, and practical field investigation aspects. Emphasis will be on the evidence-gathering, preservation, and processing phases of accident investigation. An overview of organizations that conduct and participate in investigations, and an analysis of their roles in those investigations will be completed. Use of a laboratory will provide practical field experience. Research into investigative concepts and techniques will be an integral part of the course.

**MSF 580**  
**Industrial Hygiene and Environmental Protection**  
3 Credits  
A study of the role and responsibilities of an industrial hygienist employed in technical industries. The course reviews the application of methods for the identification, evaluation, and control of industrial hygiene and environmental hazards encountered in the aviation and other workplaces. Specific hazards to be addressed include noise, vibration, ionizing and nonionizing radiation, thermal conditions, pressure, chemicals, airborne contaminants, and biological substances. Engineering and nonengineering controls as well as regulatory requirements will also be covered.

**MSF 601**  
**Ergonomics**  
3 Credits  
This course studies the most common source of musculoskeletal injuries in the American workplace. These injuries, commonly labeled as overexertion or repetitive stress, are found in various forms in all workplaces. The course begins with a study of work physiology and its implications for workplace design and workplace safety. It covers biomechanics and its implications for workplace design, low back pain, and other overexertion injuries. It covers the various cumulative trauma disorders, including the importance of risk factors such as force, frequency, and posture. Setting up and managing an ergonomics program are discussed.

**MSF 602**  
**Human Factors**  
3 Credits  
This course studies the role of human factors in workplace and work task design with emphasis on complex technical industries including aviation/aerospace. This study of human factors includes 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. It also includes the human role as it relates to unsafe acts, attitudes, errors, and deliberate actions. Finally, the course studies the interface between human factors in workplace design and human error.  
**Prerequisites:** Demonstrated knowledge of behavioral science, college-level mathematics, including introductory statistics, and basic computer operations.

**MSF 603**  
**Occupational Safety**  
3 Credits  
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 a series of specific hazards. These hazards include machine guarding, material handling equipment, fall protection, fire protection, building design, and lighting. The application of safety and health management principles to the management of complex technical industries including aviation/aerospace are covered using scenario evaluations to determine OSHA compliance, accident/injury data evaluation and analysis, and OSHA log completion.
Course Descriptions

**MSF 604**
Quantitative Methods in Occupational Safety and Health
3 Credits
This course is a survey of quantitative methods pertinent to occupational safety and health. Topics include descriptive statistics, probability distributions, the idea of statistical significance, the distinction between parametric and nonparametric statistics, confidence intervals and hypothesis testing, correlation, regression, analysis of variance (ANOVA), and epidemiology. A formal research proposal may 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.

**MSF 605**
Industrial Hygiene Measurement
3 Credits
This course provides students with the knowledge and skills necessary to conduct basic industrial hygiene surveys. Hands-on laboratory experience is provided for the students, starting with equipment calibration and ending with completing a field-sampling project. Particulate sampling for both total and respirable, gravimetric analysis, gas/vapor sampling with tubes and impingers, dosimeters, use of direct reading instruments and detector tubes, are all covered. The fundamentals of sample analysis are presented. Case studies are presented to emphasize the strategies used to select sampling locations, times, and individuals.

**MSF 606**
Control Methods in Occupational Safety and Health
3 Credits
This course studies the methods commonly used by OSH professionals to control aviation and industrial workplace exposures to health and safety hazards. The most commonly used control for industrial health hazards is industrial ventilation, so this control method is studied in detail, with students learning to complete basic ventilation system designs and to evaluate moderately complex designs. Students may also learn to use ventilation system testing equipment to verify a system is working as designed and to troubleshoot a system that is not working properly. The proper use of and the potential failure modes associated with personal protective equipment are evaluated. In addition, measurement and control methods for noise and vibration are examined through a series of lectures and class projects.

**MSF 607**
Epidemiology
3 Credits
Epidemiology is the basic science underlying all public health programs, whether implemented privately in industry or publicly by government organizations. This course will deal with the distribution and causes of diseases (including all forms of illness, injury, and accidents) in specified populations. This will be applied to the control of health problems through the understanding of the causes of those problems.

**MSF 608**
Toxicology
3 Credits
Toxicology is the study of the adverse effects of chemicals on living organisms. Its relevance to OSH is that most occupational diseases are the result of workplace exposures to chemicals. Our job as OSH professionals is to prevent the adverse effects of these exposures, and to do this we must understand the toxic effects and their mechanisms. This introduction to toxicology will provide students with the basic knowledge needed to interpret the toxicological aspects of the OSH literature, including OSHA/NIOSH/EPA reports; to discuss toxicological issues with toxicologists and understand them; and to provide elementary explanations of toxicological issues to the people they serve.

**MSF 609**
System Safety
3 Credits
An in-depth review of system safety management principles and system safety engineering techniques are combined in this course to enable students to fully comprehend their vital roles in preventing accidents. This course emphasizes the specialized integration of system safety analytical techniques and risk management into all phases of a system’s life-cycle using a system safety program that is tailored to an organization’s mission. System safety’s relationship with other disciplines such as reliability, maintainability, human factors, and product liability will be examined in the context of government, military, and general industry.

*Prerequisite:* Demonstrated knowledge of college-level mathematics, including introductory statistics.
MSF 610
Industrial Security
3 Credits
This course will intensively focus on the various aspects of business intelligence and industrial security as they apply to complex and technical industries. Of prime concern are risks, threats, and countermeasures. Topics include intelligence theory and intelligence operations; foreign and domestic organized crime; industrial espionage; riots and disasters; terrorism; sabotage; hijacking; internal security; cybercrime; legal and ethical issues; de facto and regulatory roles of local, regional, and national governments, international agencies, and nongovernmental organizations; social and cultural factors; strategic planning and investment vulnerabilities; physical, operations, communications, and personnel securities.

MSF 615
Aerospace Occupational Safety and Health Program Management
3 Credits
Addresses the application of management principles and techniques to the management of aviation safety and health programs. Topics include planning, organizing, budgeting, resourcing, training, operating, and evaluating management processes as they relate to aviation safety and health programs. Regulatory requirements and other standards along with the measurement and evaluation of safety performance and loss control accountability are included throughout the course.

MSF 630
Aircraft Accident Analysis
3 Credits
A critical analysis of selected aircraft accidents that involves extensive field work, teaming, a thorough investigation, detailed examination, group-process discussions, and decision making. Each team of student investigators will produce a professional report that includes the facts, the scenario, and an analysis of all potential factors, findings, and recommendations. Identification of accident prevention measures as a product of the analysis process is stressed. Identification and analysis of available and future loss-prevention technologies will be completed.

MSF 635
Advanced Aircraft Survivability Analysis and Design
3 Credits
Entails a detailed analysis of the aircraft accident environment with particular emphasis on survivability factors. Explores factors and forces that cause injury and examines the injury-role played by impact forces and occupiable space compromises. Examines crashworthiness and delethalization technologies and concepts with a focus on the best ways to protect occupants during a crash. Selected aircraft accidents will be used as case studies. An in-depth review of basic kinematics and development of injury-related information will be completed.

MSF 645
Aircraft Fire Survivability Analysis and Design
3 Credits
Involves a detailed examination of basic fire science and the relationship of fire to aircraft accident survival. Examines current fire crashworthiness factors including fire development and propagation, injury and fatality mechanisms related to fire, and current evacuation systems in use. The focus will be on the configurational, procedural, environmental, and biobehavioral factors that influence survival in a fire situation. Case studies of accidents involving both in-flight and crash-related fires will be used. Identification and analysis of available and future fire-protection technologies will be completed.

MSF 655
Airline and Operations Safety Management
3 Credits
This course addresses the application of safety management principles and techniques to the management of airline operations and safety. Topics include hazard identification, accident/incident investigation, flight safety, cabin safety, ground safety, and emergency response programs. Regulatory requirements and airline standards as well as accident prevention strategies are included throughout the course.

Prerequisite: MSF 615.

MSF 675
Aviation Maintenance Safety
3 Credits
A study of the aviation maintenance safety practices, procedures, and policies in use throughout the
Course Descriptions

aviation industry. Includes the role of maintenance safety in relation to the overall safety management program in the organization. Case studies of maintenance-related accident prevention and loss control scenarios. The influence and role of the regulatory and compliance agencies in aviation maintenance safety.

MSF 680
Integrated Safety Operations - Capstone
3 Credits
Study of management theory, integrated arrangements, common constraints, developmental level, essential guidelines, staff liaison, project improvement, effectiveness audits, and collaboration needed to ensure success of the safety function. May include a written document on a safety topic, which exposes the student to the technical aspects of writing. This course is included in the MSSS curriculum to provide the student with the opportunity to study how the various domains of the safety and health occupation are integrated into a single program.

MSF 685
Aviation Security
3 Credits
This course will intensively focus on the various aspects of business intelligence and industrial security as they apply to aviation and to aviation safety. Of prime concern are risks, threats, and countermeasures. Topics include intelligence theory and intelligence operations; foreign and domestic organized crime; industrial espionage; riots and disasters; terrorism; sabotage; hijacking; internal security; cybercrime; legal and ethical issues; de facto and regulatory roles of local, regional, and national governments, international agencies, and nongovernmental organizations; social and cultural factors; strategic planning and investment vulnerabilities; and physical, operations, communications, and personnel securities. Readings, lectures, discussions, and case studies will be supplemented by team exercises resulting in security plans addressing risks, threats, countermeasures, and evaluative mechanisms.

MSF 686
Emergency Preparedness and Preplanning
3 Credits
This course is designed to increase the student’s knowledge of emergency response procedures, safety and health hazards, and enforcement issues for industry. Topics include a thorough discussion of scope, application, definitions, and other related standards; elements of an emergency response plan; training requirements; the incident command system; medical surveillance; and postemergency response. Major elements involved in disasters and emergencies, preparedness planning, systems use, and attention to essential human services, with emphasis on community action and the development of successful, cost-effective strategies for implementing emergency and mitigation plans.

MSF 690
Graduate Research Project
3 Credits
A written document on a safety topic, which exposes the student to the technical aspects of writing. This course is included in the MSSS curriculum to provide students with the opportunity to pursue a project of special interest, but not to the level of a thesis. This is a required course for those students who choose not to write a thesis.
Prerequisite: MSF 604.

MSF 696
Graduate Internship in Safety Science
1-3 Credits
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 a graduate student.

MSF 699
Special Topics in Safety Science
1-3 Credits
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 center director or department chair for faculty review and recommendation at least three weeks prior to the end of registration for a term.
### MSF 700
**Thesis**
3 Credits
A written document on a safety 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.

*Prerequisite:* MSF 604.

### SE - Software Engineering

#### SE 500
**Software Engineering Discipline**
3 Credits
This course introduces students to the concepts and methods for disciplined software engineering processes. Students learn about and practice individual planning, tracking, analyzing, and managing of their time and defects, to fit the needs of small-scale program development. Students also study and use a team project process. The course provides a framework for the application and analysis of managed software engineering practices. Also discussed are the latest common and practical processes used in industry. Students will work individually and as a team to complete the course assignments.

*Prerequisite:* Practical knowledge of a modern programming language such as Ada, C, C++, or Java.

#### SE 505
**Model-Based Verification of Software**
3 Credits
This course is concerned with engineering practices that use formalized models as a basis for analyzing software artifacts. The course covers the key software engineering skills required, surveys a variety of techniques for model building and analysis, and includes sample problems and real-world systems for discussion and analysis. Applications of the techniques in the requirements, design, and coding phases of software development are investigated.

*Corequisite:* SE 500 or consent of instructor.

#### SE 510
**Software Project Management**
3 Credits
This course addresses management considerations in software systems development. It provides advanced material in software planning mechanisms for monitoring and controlling projects, and leadership and team building.

*Corequisite:* SE 500 or consent of instructor.

#### SE 520
**Formal Methods for Software Engineering**
3 Credits
A study of mathematical logic and proof techniques, discrete structures, and other mathematical topics that are used in software engineering; the use of formal methods in software specification; and an overview of the use of formal methods throughout the software life-cycle.

*Prerequisite:* Course in discrete mathematics or consent of instructor.

#### SE 530
**Software Requirements Engineering**
3 Credits
This course is concerned with the development, definition, and management of requirements for a software system or product. Topics include the software requirements process, requirements elicitation, requirements analysis, requirements specification, requirements verification and validation, requirements management, and requirements standards and tools. Students will participate in individual and group exercises related to software requirements engineering tasks.

*Corequisite:* SE 500.

#### SE 535
**User Interface Design and Evaluation**
3 Credits
This course provides an introduction to designing, implementing, and evaluating human-computer interfaces of various types. The theoretical foundation for designing interfaces is complemented by practical classroom exercises and the design and development of a prototype in a team-based setting using previously learned software engineering principles. Students will become acquainted with the literature related to user interface design and with the design of experiments for evaluating user interfaces.

#### SE 545
**Specification and Design of Real-Time Systems**
3 Credits
This course addresses basic concepts and methods used in software specification and design of real-
time systems. The characteristics of real-time systems and the role of software design in software development are explored. The course reviews software design methods specifically suited for real-time systems. Selected methods are analyzed and case studies are used to illustrate the design process. The course material may require research in real-time aspects of software design, laboratory experiments with software development tools and real-time development environment, and producing appropriate reports.

**Prerequisite:** SE 500.

**SE 550**

Current Trends in Software Engineering

3 Credits

Current techniques, methods, procedures, and paradigms of software engineering are studied. Students perform literature searches, collect data from software development experiments, and prepare written and oral reports on current software engineering practices.

**Prerequisite:** SE 500.

**SE 555**

Object-Oriented Software Construction

3 Credits

This course addresses the basic concepts of object-oriented software development. It provides an integrated view of subjects related to the different phases of software development using object-oriented techniques. The course covers object-oriented analysis and design (OOA/OOD), object-oriented programming (OOP), and object-oriented testing (OOT) techniques. Also covered in the course are object-oriented metrics and case studies in object-oriented software development.

**Prerequisites:** SE 500, proficiency in use of modern OO programming languages such as Ada, C++, or Java.

**SE 565**

Concurrent and Distributed Systems

3 Credits

The objective of this course is to teach principles of software development for concurrent and distributed systems. Specification, design, implementation, and performance evaluation techniques for concurrent and distributed applications will be presented and complemented by examples and practical exercises. The various paradigms used for concurrent and distributed systems, including high performance clusters, along with the implementation issues for each will be discussed. A survey of languages suitable for implementing concurrent solutions will also be covered.

**Prerequisite:** SE 500 or consent of instructor.

**SE 575**

Software Safety

3 Credits

The objective of this course is to teach principles of software development for safety and mission critical systems. Safety-related specification, design, and implementation techniques are described and illustrated by examples and practical exercises. Principles and practices of safe software development, including a survey of programming language and operating system level issues for implementing safety related software are discussed. The course discusses the safety requirements, hazard and risk analyses, fault tolerance, basics of software reliability, and issues of verification, validation, and certification. Various safety standards and guidelines across application domain and selected tools supporting safety assurance of software products are introduced. The course material may require research in development of safe systems, laboratory experiments with tools, and producing appropriate reports.

**Prerequisite:** SE 500 or consent of instructor.

**SE 580**

Software Process Definition and Modeling

3 Credits

This course provides students with the fundamental knowledge for software process definition and modeling. Software process content includes a framework for process definition and modeling, process evaluation, enactment of processes, process tailoring, and description of the process properties. Course projects include analysis of existing process and design and modeling of new processes.

**Prerequisite:** SE 500 or consent of the instructor.

**SE 585**

Metrics and Statistical Methods for Software Engineering

3 Credits

This course is concerned with the topics of software measurement, statistical tools and methods, and applied experimental design in software engineering. Students will be introduced to the principles and concepts relevant to measurement in software
Course Descriptions

engineering, including the representational theory of measurement, collection, analysis, and validation of data. Also studied are frameworks such as Goal-Question-Metric and Quality Function Deployment paradigms for guiding measurement efforts. Also explored are the concepts of experimental design, analysis of experiments, model building, ethics, and presentation of experiments.

**Prerequisite:** SE 500 or consent of instructor.

**SE 590**
Graduate Seminar
3 Credits
This course is a study of the current advancements in a particular field of software engineering, as determined by the instructor of the course. The course will focus on a different topic each term, depending on the varied interests of students, the graduate faculty, and the existing departmental research requirements.

**SE 610**
Software Systems Architecture and Design
3 Credits
This course is concerned with the principles and concepts of engineering of large software systems and programs. Software architecture is an abstraction of system details that helps in managing the inherent complexity of software systems development. Software architecture provides opportunities for early evaluation of user needs, analysis of requirements and design, and prediction of system properties. Architectural styles, views, notations, and description languages provide systematic frameworks for engineering decisions and design practices. The focus of the course is on advanced topics related to software architecture practices, technologies, and artifacts. Students participate in individual or group projects related to developing architectural representations of software systems.

**Prerequisite:** SE 530.

**SE 625**
Software Quality Engineering and Assurance
3 Credits
This course describes the overall approach to specifying software quality, achieving quality, and mapping a quality specification into a set of engineering activities. This course provides a framework for understanding the application of software verification and validation (V&V) processes and techniques throughout the software development life cycle. The course covers the economics of software quality and provides a guide to organizing a project to achieve quality both in terms of the software product and the software process.

**Prerequisite:** SE 530 or consent of instructor.

**SE 655**
Performance Analysis of Real-Time Systems
3 Credits
The objective of this course is to teach principles of performance analysis of computer systems, with a focus on real-time applications. Performance modeling and analysis techniques are described and illustrated by examples and practical exercises using elements of mathematical statistics. Principles and practices of software development to achieve required or optimal performance, including design analysis and assessment of the implementation in terms of works case execution time and schedulability, will be addressed. An actual project in instrumentation of software for performance evaluation is an essential element of this course.

**Prerequisites:** SE 530 or consent of instructor, plus knowledge of basic statistics.

**SE 660**
Formal Methods for Concurrent and Real-Time Systems
3 Credits
The course includes study of the formal specification of reactive systems, temporal logic, and current research in the specification of concurrent and real-time systems. There is also discussion of verifying software designs based on formal specifications.

**Prerequisite:** SE 520 or consent of instructor.

**SE 690**
Graduate Research Project
3 Credits
This course provides the student with an opportunity to pursue a topic area of special interest. The graduate research project is an individual investigation or software development effort culminating in a formal written report, requisite artifacts, and an oral presentation to the faculty. The focus is on an advanced topic in software engineering that may be theoretical or practical.

**Prerequisite:** Consent of instructor.
Course Descriptions

SE 696
Graduate Internship in Software Engineering
1-3 Credits
This course involves 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. Internships are academic/professional activities coordinated by the University between participating organizations and a graduate student.

SE 697
Software Engineering Practicum
3 Credits
The practicum is a capstone course that builds on the other core MSE courses. It consists of a faculty-mentored team software development project that extends from concept to delivery. All phases of the development life-cycle are included: requirements, architecture, detailed design, implementation, and verification and validation. Disciplined software engineering practices are used (for example, PSP, TSP, project management). Deliverables for the course are a validated functioning system, a comprehensive set of development artifacts, a final report, and a formal presentation.

Prerequisites: SE 510, SE 555, and SE 610, or permission of instructor.

SE 699
Special Topics in Software Engineering
1-3 Credits
Students may elect to perform a special, directed analysis and/or independent study in an area of particular interest. The student should submit to the department chair and graduate committee a detailed proposal of the desired project and identify a faculty sponsor.

TM - Technical Management

TM 501
Computer Skills for a Technical Environment
3 Credits
Introductory graduate-level skills in computers are developed through application to current business-related problems. Computer techniques are used to solve problems and enhance technical communications. Computer techniques will be covered as an efficient method to achieve higher-level analytical and communicative skills. Emphasis is placed on supporting and enhancing technical communications with computer technology. Computer presentation graphics will be explored as a tool to develop and augment high-impact presentations. Successful completion is necessary in order to proceed in the MSTM program.

TM 502
Communication Skills in a Technical Environment
3 Credits
Introductory graduate-level skills in business communications are explained through the development of solutions applied to a series of interconnected management science problems. Students learn to communicate results in a clear and understandable fashion. Emphasis is placed on communicating conclusions in concise and persuasive writing and speaking. Written assignments will involve reports, business letters, memoranda, and resumes. Successful completion is necessary in order to proceed in the MSTM program.

TM 503
Quantitative Methods and Statistics
3 Credits
The integration of graduate-level skills in quantitative management methods through the development of solutions applied to a series of interconnected management science problems. Computer techniques are also used to solve problems and to communicate the results in a clear and understandable fashion. Emphasis is placed on understanding analytical methodologies, interpreting quantitative results, and communicating conclusions. Descriptive and inferential statistical applications will be explored. Successful completion is necessary in order to proceed in the MSTM program.

TM 605
Organizational Theory in a Technical Environment
3 Credits
Effectively using the organization to build a technical management team. Leadership versus management; conflict between functional management; matrix versus hierarchical organizations; organizational alternatives; human response in the organization; influence and authority in the technical setting; par-


ticipation; 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; industry perspective.

**TM 610**  
Managing Effective Technical Work Teams  
3 Credits  
This course encompasses the study of managing work teams in the technical environment. Specific topics include two-way communications and feedback; participative management techniques pertaining to motivation; small-group processes and group decision support systems; attraction and retention of quality personnel; skills in writing employee evaluations, responsibility, authority, accountability; conflict resolution; initiative; creativity; horizontal and vertical communication; personality/temperament; logic versus heuristic/detail versus holistic; management strategies; motivation, recognition, and reward.

**TM 616**  
Production Operations Management  
3 Credits  
An in-depth analysis of production/operations concepts, methods, and techniques from a systems perspective.

**TM 621**  
Regulations, Ethics, and the Legal System  
3 Credits  
Understanding the complex regulatory and legal setting surrounding management. The Federal Acquisition Regulations and how they affect all projects’ legal responsibility and accountability, ethical considerations in and external to the organization, the international environment and how it may affect projects.

**TM 625**  
Marketing in the Technical Environment  
3 Credits  
Effective use of communications to describe and/or market projects, programs, or products to a hostile or friendly audience. Understanding products and the marketplace; collecting data to accurately reflect the situation; the use of accurate, clear, and meaningful presentations; highlighting the positive; reporting the negative; internal versus external presentations; dealing with the media; video and computer techniques; analyzing your audience; communications level; public relations. Students will be required to develop a marketing plan and, working as a team, conduct a marketing research project based on the needs of their organization.

**TM 630**  
Technical Management Information Systems  
3 Credits  
This course provides an end-user orientation to management information systems with both managerial and technical components. The course will develop managerial skills in using information systems to conduct daily operations, to plan business strategies, and to solve business problems. A systems approach to planning, scheduling, and controlling will provide the student with effective decision-making resources. In addition, the course will provide hands-on experience with laptop computer exercises in computerized MIS to develop the information management proficiency required by the corporate environment. The emphasis of this course is on data resource management; electronic commerce; enterprise collaboration systems; telecommunications (Internet, intranet, extranet, and client/server systems); decision support systems (DSS); executive support systems (ESS); and security, control, and ethical issues.

**TM 635**  
Financial and Managerial Accounting and Control for Technical Managers  
3 Credits  
Financial control procedures for a systems approach to program management are presented. Cost elements in manufacturing, research and development, and 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; using spreadsheets for budget and overhead analysis; pricing, capital budgeting, and investment decisions.

**TM 641**  
Project Management: Concepts and Practices  
3 Credits  
This course encompasses the study of project management, paying particular attention to the nine knowledge areas: scope, time, cost, risk, quality, procurement, human resources, communication, and integration, as they relate to the process areas of ini-
Course Descriptions

Tication, planning, execution, control, and closure of projects. Examples and student-initiated projects and project simulations are used to emphasize the integrated relationships. Project management software is used throughout the course, particularly to demonstrate the usefulness of automated calculations, record keeping, and reporting as related to planning and controlling projects. Throughout, the merger of technical skills, general management skills, and project management skills for the successful project 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 Project Management Body of Knowledge.

TM 646
Operations Research and Management Science
3 Credits
Quantitative methods for program management. Forecasting and probability distributions; decision theory and decision-making under conditions of risk and uncertainty; marginal analysis; linear programming applications including problems of minimization and maximization, transportation and warehousing, assignment and scheduling and ingredient blending; queueing theory and waiting lines; network models such as minimum spanning tree, maximal flow, and shortest route techniques; simulation and modeling; regression analysis; and time series analysis.

TM 660
Project Development Techniques
2 Credits
A study of current scientific research methods that includes techniques of problem identification, hypothesis formulation, literature search strategies of libraries and online databases, design and use of data-gathering instruments, formulation of a research model and plan, and appropriate statistical data analysis. The TMRP Guidelines format and American Psychological Association (APA) style will be introduced and followed. A formal Technical Management Research Project proposal will be developed and presented by each student as a basic course requirement.
Prerequisite: TM 646.

TM 660L
Technical Management Research Project
1 Credit
A written document on a technical management topic that exposes the graduate student to the technical aspects of writing. This course is included in the MSTM curriculum to provide the graduate student with the opportunity to pursue a project of special interest, but not to the level of a thesis.
Prerequisite: TM 660.

TM 651
Quality Management and Quality Control
3 Credits
Instilling quality concepts in a project. Continuous improvement; quality management; designing for and cost of quality; organizing for QM; alternative approaches to quality; understanding the corporate culture; developing the quality plan; implementing QM; introducing the concept; work meetings and project teams; informing; motivating; recording; using technology; key approaches and when to use them; reward and recognition; and follow up, evaluation, and feedback.
Contact/Information Sources

Worldwide students should contact their campus or Advising Enrollment and Recruitment Office (AERO), or any of the offices listed below for more information and guidance:

**General Information:**
Telephone: (386) 226-6910
-OR-
(800) 522-6787
Email: ecinfo@erau.edu

**STUDENT SERVICES**

**ENROLLMENT MANAGEMENT OFFICE**
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900

Admissions:
(866) 509-0743
Email: ecssc@erau.edu

Financial Aid:
(386) 226-6300
-OR- (800) 943-6279

Registrar:
(866) 393-9046
Email: eceregist@erau.edu

Portfolio Assessment:
(877) 362-7970
Fax: (386) 226-6984

**STUDENT AFFAIRS DEPARTMENT**

Disability Support Services:
Student Affairs/Student and Technology Services
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900
Telephone: (386) 226-6944

**Student Financial Services:**
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900

**Career Services:**
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900
Telephone: (386) 226-6054
Email: eccareer@erau.edu

**Veterans Affairs:**
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900
Telephone: (386) 226-6350

**CENTER FOR PROFESSIONAL EDUCATION**

Worldwide:
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900
Telephone: (386) 323-8669
Fax: (386) 323-8692
Toll Free: 1-866-574-9125

**WORLDWIDE ONLINE ADVISING ENROLLMENT AND RECRUITMENT OFFICE (AERO)**
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900
Telephone: (800) 359-3728
Worldwide: (386) 226-6397
Fax: (386) 226-7627
Worldwide

Embry-Riddle Aeronautical University
Worldwide Campus Listing by State / Country

<table>
<thead>
<tr>
<th>State</th>
<th>City</th>
<th>Address</th>
<th>Phone</th>
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<tbody>
<tr>
<td>ALABAMA</td>
<td>FORT RUCKER</td>
<td>Enterprise</td>
<td>(334) 598-6232</td>
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<td>Teaching Sites:</td>
<td>Mobile, AL (out of Keesler, MS)</td>
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<tr>
<td></td>
<td>HUNTSVILLE</td>
<td>Huntsville</td>
<td>(256) 876-9763</td>
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<tr>
<td>ALASKA</td>
<td>ANCHORAGE</td>
<td>Anchorage</td>
<td>(907) 753-9367</td>
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<td>FAIRBANKS</td>
<td>Fairbanks</td>
<td>(907) 356-7773</td>
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<td>Teaching Site:</td>
<td>Eielson AFB</td>
<td>(907) 377-2977</td>
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<tr>
<td>ARIZONA</td>
<td>LUKE</td>
<td>Glendale</td>
<td>(623) 935-4000</td>
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<td>Classroom Locations:</td>
<td>Glendale Municipal Airport</td>
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<td>Lockheed-Martin Goodyear (MSTM ONLY)</td>
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<td></td>
<td>SKY HARBOR</td>
<td>Phoenix</td>
<td>(602) 275-5533</td>
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<td></td>
<td>TUCSON</td>
<td>Tucson</td>
<td>(520) 747-5540</td>
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<td>WILLIAMS GATEWAY</td>
<td>Mesa</td>
<td>(480) 279-1150</td>
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<tr>
<td>ARKANSAS</td>
<td>LITTLE ROCK</td>
<td>Little Rock AFB</td>
<td>(501) 983-9300</td>
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<tr>
<td>CALIFORNIA</td>
<td>BEALE</td>
<td>Marysville</td>
<td>(530) 788-0900</td>
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<td>Classroom Location:</td>
<td>McClellan AFB</td>
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<td></td>
<td>CAMP PENDLETON</td>
<td>Oceanside</td>
<td>(760) 385-4423</td>
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<td>CHINA LAKE</td>
<td>Ridgecrest</td>
<td>(760) 939-4557</td>
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<td>EDWARDS</td>
<td>Edwards</td>
<td>(661) 258-1264</td>
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<td>FORT IRWIN</td>
<td>Fort Irwin</td>
<td>(760) 386-7997</td>
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<td>Classroom Location:</td>
<td>MCLB Barstow</td>
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<td>INLAND EMPIRE</td>
<td>Riverside</td>
<td>(951) 653-4074</td>
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<td>Riverside Airport</td>
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<td></td>
<td>LEMOORE</td>
<td>Lemoore</td>
<td>(559) 998-6026</td>
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<td></td>
<td>LOS ANGELES</td>
<td>Los Angeles (Metro Center)</td>
<td>(562) 627-5870</td>
</tr>
<tr>
<td></td>
<td>NORTH ISLAND</td>
<td>San Diego</td>
<td>(619) 435-1293</td>
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**Worldwide**

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<tr>
<td>OAKLAND</td>
<td>Oakland</td>
<td>(510) 636-2424</td>
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<tr>
<td><strong>Classroom Locations:</strong></td>
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<tr>
<td>Hayward, Livermore, Oakland, and San Carlos Airports</td>
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<tr>
<td>PALMDALE</td>
<td>Palmdale</td>
<td>(661) 947-4025</td>
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<tr>
<td>SAN DIEGO</td>
<td>San Diego</td>
<td>(858) 576-4375</td>
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<tr>
<td>TRAVIS</td>
<td>Fairfield</td>
<td>(707) 437-5464</td>
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<tr>
<td>VANDENBERG</td>
<td>Lompoc</td>
<td>(805) 734-4076</td>
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<td>VENTURA</td>
<td>NAS Point Mugu</td>
<td>(805) 271-9691</td>
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<td><strong>COLORADO</strong></td>
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<tr>
<td>COLORADO SPRINGS</td>
<td>Ft. Carson</td>
<td>(719) 576-6858</td>
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<td><strong>FLORIDA</strong></td>
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<tr>
<td>FT. LAUDERDALE</td>
<td>Pompano Beach</td>
<td>(954) 497-3774</td>
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<tr>
<td>Palm Beach Lakes H.S.</td>
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<td>Signature Flight Support, FLL/HWY International Airport</td>
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<tr>
<td>U.S. Coast Guard Air Station, Opa Locka</td>
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<td>Pratt &amp; Whitney, West Palm Beach</td>
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<tr>
<td>FORT WALTON BEACH</td>
<td>Fort Walton Beach</td>
<td>(850) 678-3137</td>
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<tr>
<td>HURLBURT FIELD</td>
<td>Jacksonville</td>
<td>(850) 581-2106</td>
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<td>JACKSONVILLE</td>
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<td>(904) 645-0333</td>
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<tr>
<td>Mayport</td>
<td>(904) 249-6700</td>
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<tr>
<td>Craig Airfield</td>
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<td>Jacksonville Int'l Airport</td>
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<tr>
<td>MIAMI</td>
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<td>(305) 871-3855</td>
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<tr>
<td>Key West</td>
<td>(305) 871-3855</td>
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<td>ORLANDO Metro</td>
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<td>(407) 352-7575</td>
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<td>PENSACOLA</td>
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<td>(850) 458-1098</td>
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<tr>
<td>NAS Whiting Field</td>
<td>Milton</td>
<td>(850) 623-7787</td>
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<td>Mobile (see Alabama)</td>
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<tr>
<td>SPACE COAST</td>
<td>Cocoa</td>
<td>(321) 783-5020</td>
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<td><strong>MSTM Teaching Site:</strong></td>
<td>Barry University</td>
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# Worldwide

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<td>United Space Alliance</td>
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<td>Brevard County Adult Ed. Center</td>
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<td>Tampa</td>
<td>Tampa (813) 828-3772</td>
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<td>Panama City</td>
<td>(850) 283-4557</td>
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## GEORGIA

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<td>(770) 671-9888</td>
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<td></td>
<td>Delta Airlines</td>
<td>(404) 714-3248</td>
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<td>NAS Atlanta</td>
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<td>MOODY</td>
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<td>Warner Robins</td>
<td>(478) 926-1727</td>
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## HAWAII

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<tr>
<td></td>
<td>Honolulu Airport Training Center</td>
<td>(808) 838-1435</td>
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<tr>
<td>KANCOHE</td>
<td>Schofield Barracks</td>
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<td>Barbers Point</td>
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## IDAHO

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## KANSAS

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<tr>
<td><strong>KENTUCKY</strong></td>
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<tr>
<td>FORT CAMPBELL</td>
<td>Clarksville</td>
<td>(270) 798-2775</td>
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<tr>
<td>LOUISVILLE</td>
<td>Louisville</td>
<td>(502) 964-9204</td>
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<tr>
<td>BARKSDALE</td>
<td>Shreveport</td>
<td>(318) 747-4508</td>
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<tr>
<td>NEW ORLEANS</td>
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<td>(504) 361-0335</td>
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<tr>
<td><strong>MAINE</strong></td>
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<tr>
<td>BRUNSWICK</td>
<td>Brunswick</td>
<td>(207) 721-0664</td>
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<tr>
<td><strong>MARYLAND</strong></td>
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<tr>
<td>ANDREWS</td>
<td>Andrews</td>
<td>(301) 735-6340</td>
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<tr>
<td>PATUXENT RIVER</td>
<td>Lexington Park</td>
<td>(301) 863-8776</td>
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<td>MINNEAPOLIS</td>
<td>Eagan</td>
<td>(651) 905-9595</td>
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<td><strong>MISSISSIPPI</strong></td>
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<tr>
<td>KEESLER</td>
<td>Biloxi</td>
<td>(228) 432-5312</td>
</tr>
<tr>
<td>MOBILE, AL (out of Keesler, MS)</td>
<td></td>
<td>(251) 441-6737</td>
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<tr>
<td><strong>MONTANA</strong></td>
<td></td>
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<tr>
<td>GREAT FALLS</td>
<td>Great Falls</td>
<td>(406) 727-9901</td>
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<tr>
<td>Classroom Location:</td>
<td>Helena</td>
<td>(406) 439-9060</td>
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<td><strong>NEBRASKA</strong></td>
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<tr>
<td>OFFUTT</td>
<td>Omaha</td>
<td>(402) 292-6655</td>
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<td><strong>NEVADA</strong></td>
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<tr>
<td>FALLON</td>
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<td>(775) 423-4018</td>
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<tr>
<td>LAS VEGAS</td>
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<td>(702) 643-0762</td>
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<td><strong>NEW JERSEY</strong></td>
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<tr>
<td>MCGUIRE</td>
<td>Trenton</td>
<td>(609) 723-1337</td>
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<td><strong>NEW MEXICO</strong></td>
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<tr>
<td>ALBUQUERQUE</td>
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<td>CANNON</td>
<td>Clovis</td>
<td>(505) 784-8763</td>
</tr>
<tr>
<td>HOLLOMAN</td>
<td>Alamagordo</td>
<td>(505) 479-6892</td>
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# Worldwide

## NORTH CAROLINA

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<thead>
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<tbody>
<tr>
<td>Elizabeth City</td>
<td>Elizabeth City</td>
<td>(252) 331-2225</td>
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<tr>
<td>Fayetteville</td>
<td>Fayetteville</td>
<td>(910) 436-5005</td>
</tr>
<tr>
<td>Greensboro</td>
<td></td>
<td>(336) 605-3030</td>
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<tr>
<td>Pope AFB</td>
<td>Goldsboro</td>
<td>(910) 436-3188</td>
</tr>
<tr>
<td>Seymour Johnson</td>
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<td>(919) 734-9211</td>
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## NORTH DAKOTA

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<td>Grand Forks</td>
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<td>(701) 594-5324</td>
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<tr>
<td>Minot</td>
<td>Minot</td>
<td>(701) 727-9007</td>
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## OHIO

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<tbody>
<tr>
<td>Cincinnati</td>
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<td>(513) 733-3728</td>
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<tr>
<td>Dayton Area</td>
<td>Fairborn</td>
<td>(937) 878-3728</td>
</tr>
<tr>
<td></td>
<td>Wright-Patterson</td>
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## OKLAHOMA

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<td>(580) 481-5991</td>
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<td>Oklahoma City</td>
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<td>(405) 739-0397</td>
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<tr>
<td>Vance</td>
<td>Enid</td>
<td>(580) 213-7320</td>
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## OREGON

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<td>(503) 288-8690</td>
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## SOUTH CAROLINA

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<td>Charleston</td>
<td>Charleston</td>
<td>(843) 767-8912</td>
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<tr>
<td>Greenville</td>
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<td>(864) 233-5288</td>
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<tr>
<td>MCAS Beaufort</td>
<td>MCAS Beaufort</td>
<td>(843) 228-7585</td>
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<tr>
<td>McEntire ANGB</td>
<td>Sumter</td>
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## TENNESSEE

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<tbody>
<tr>
<td>Memphis</td>
<td>Memphis Airport</td>
<td>(901) 507-9969</td>
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## TEXAS

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<tbody>
<tr>
<td>Corpus Christi</td>
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<td>(361) 937-4951</td>
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<td>Dyess</td>
<td>Abilene</td>
<td>(325) 692-2007</td>
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<tr>
<td>Fort Worth</td>
<td>Dallas/Fort Worth</td>
<td>(817) 737-8180</td>
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**MSTM Teaching Site:** Lockheed-Martin
# Worldwide

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<th>Location</th>
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<td>HOUSTON</td>
<td>Houston</td>
<td>(281) 244-9456</td>
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<td>SAN ANTONIO</td>
<td>San Antonio</td>
<td>(210) 659-0801</td>
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## UTAH

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<td>NORTHERN UTAH</td>
<td>Ogden</td>
<td>(801) 777-0952</td>
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*Classroom Locations:*
- Ogden Airport
- Clearfield Town Square

## VIRGINIA

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<td>FORT EUSTIS</td>
<td>Newport News</td>
<td>(757) 887-0980</td>
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<td>LANGLEY</td>
<td>Hampton</td>
<td>(757) 764-2662</td>
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<tr>
<td>NORFOLK</td>
<td>Norfolk</td>
<td>(757) 440-5078</td>
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*Teaching Site:*
- Oceana

## WASHINGTON

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<tr>
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<td>Everett</td>
<td>(425) 514-0220</td>
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<td>(426) 226-2484</td>
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<td>SPOKANE</td>
<td>Spokane</td>
<td>(509) 244-3832</td>
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<td>TACOMA</td>
<td>Tacoma</td>
<td>(253) 589-1728</td>
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<tr>
<td>WHIDBEY ISLAND</td>
<td>Oak Harbor</td>
<td>(360) 279-0959</td>
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## WYOMING

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<td>(307) 634-9693</td>
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*Classroom Location:*
- Aims Community College

## INTERNATIONAL

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<td>Regional Office</td>
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<tr>
<td>DSN: 483-7811</td>
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<tr>
<td>Civilian: 011-49-631-303-27811</td>
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<tr>
<td>Fax: 011-49-631-303-27810</td>
<td></td>
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</tr>
<tr>
<td>Email: <a href="mailto:europe.rdo@erau.edu">europe.rdo@erau.edu</a></td>
<td></td>
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</tr>
<tr>
<td>Website: <a href="http://www.erau.edu/eu/">www.erau.edu/eu/</a></td>
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Embry-Riddle Aeronautical University
International Regional Office
Europaallee 6
D-67657 Kaiserslautern
Germany
Civilian: 011-49-631-303-27811
Worldwide

Worldwide Locations (International-Civilian)

LUXEMBOURG
Luxemborug City 011-49-631-303-27811

Worldwide Locations (International - U.S. Military)

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<td>Lakenheath</td>
<td>011-44-1638-522464</td>
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<tr>
<td>GERMANY</td>
<td>Bamberg</td>
<td>011-49-951-3009279</td>
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<tr>
<td></td>
<td>Katterbach</td>
<td>011-49-9802-832379</td>
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<tr>
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<td>Ramstein</td>
<td>011-49-6371-44204</td>
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<tr>
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<td>Spangdahlem</td>
<td>011-49-6565-7297</td>
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<td>Wiesbaden</td>
<td>011-49-611-411-8032</td>
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<tr>
<td>ITALY</td>
<td>Aviano</td>
<td>011-39-0434-66-0631</td>
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<td>Vincenza</td>
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<td>Naples</td>
<td>011-39-081-568-4364</td>
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<td>Portugal</td>
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<td>TURKEY</td>
<td>Incirlik</td>
<td>011-90-322-316-1098</td>
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<td>LUXEMBOURG</td>
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Deployed Classroom Locations

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<td>KUWAIT</td>
<td>Camp Arifjan</td>
<td>011-49-631-303-27816</td>
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<td>Camp Buehring</td>
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<td>Bagram Airfield</td>
<td>011-49-631-303-27816</td>
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<td>Salerno</td>
<td>011-49-631-303-27816</td>
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</table>
The administration and faculty of Embry-Riddle are listed below. Where applicable, the numeral one (1) denotes the Daytona Beach Campus; the numeral two (2) denotes the Prescott Campus; the numeral (3) denotes the Worldwide Campuses. All others are assigned to the University administration.

**Legend**

Letter designations for aviation qualifications are as follows:

- **A** – Airplane
- **C** – Commercial Pilot
- **G** – Glider
- **H** – Helicopter
- **I** – Instrument
- **L** – Land
- **P** – Private Pilot
- **S** – Seaplane
- **AD** – Aircraft Dispatcher
- **IA** – Inspection Authorization
- **ME** – Multi-Engine
- **SE** – Single-Engine
- **A&P** – Airframe and Powerplant
- **AGI** – Advanced Ground Instructor
- **ATP** – Airline Transport Pilot
- **BGI** – Basic Ground Instructor
- **CFI** – Certified Flight Instructor
- **CTO** – Control Tower Operations
- **DME** – Designated Mechanic Examiner
- **DWE** – Designated Written Examiner
- **HTA** – Heavier Than Air
- **IGI** – Instrument Ground Instructor
- **LTA** – Lighter Than Air
- **SME** – Single- and Multi-Engine
- **FCC** – Federal Communication Commission
- **FE** – Flight Engineer
- **AC** – Advanced Graduate Credit

**Officials of the University**

**Johnson, John P.**
President; Professor, College of Arts and Sciences.
B.A. and M.S., Florida State University; Ph.D., Kent State University.

**Connolly, Thomas J.**
Chancellor, Daytona Beach Campus; Endowed Chair in Aviation; Professor of Aeronautical Science. Ed.D., Nova University; ATP-MEL; CE-500; C-SEL; CFI-ASME & IA; AGI; IGI.

**Heist, Richard H.**
Provost and Senior Vice President; Professor of Engineering. B.A., Catawba College; Ph.D., Purdue University.

**McReynolds, Irene**
Vice President, Human Resources. B.S., Bryant College; M.B.A./A., Embry-Riddle Aeronautical University.

**Montplaisir, Daniel E.**
Vice President, Institutional Advancement. B.A., University of Central Florida; M.S., Indiana Wesleyan University.

**Murray, Michael O.**
General Counsel, J.D. Indiana University School of Law.

**Smith, Martin**

**Weekes, Eric**
Vice President, Chief Financial Officer. B.S., New York Institute of Technology; M.B.A., New York University.

**Pohl, Norval F.**
Chancellor, Prescott Campus. B.A., California State University; M.B.A., California State University; Ph.D., Arizona State University.
Faculty and Administration

Academic Administration

ABRAMOWITZ, JEFFREY D., MAJOR, U.S. ARMY
Professor of Military Science, Army ROTC, Prescott Campus.
B.A., Beaver College; M.A., Rutgers University; J.D., Rutgers University School of Law.

AYERS, FRANCIS H. JR.
Associate Professor of Aeronautical Science and Chair, Flight Department, Daytona Beach Campus. B.A., Virginia Polytechnic Institute and State University; M.S., Embry-Riddle Aeronautical University.

BARBIE, DONNA J.
Professor of Humanities and Communications; Chair, Department of Humanities and Social Sciences, Daytona Beach Campus. B.S., Iran University of Science and Technology; M.A., North Dakota State University; Ph.D., Emory University.

BERGERON, KEITH
Associate Professor of Mathematics and Chair, Department of Mathematics and Computer Science, Prescott Campus. B.S., U.S. Air Force Academy; M.S. and Ph.D., University of New Mexico.

BLOOM, RICHARD
Professor of Psychology, Social Thought, and Global Security/Intelligence Studies; Dean, College of Arts and Sciences, Prescott Campus. B.A., Columbia University; M.A., New School for Social Research; Ph.D., Kent State University.

BOQUET, ALBERT J.
Associate Professor and Chair, Department of Human Factors and Systems, Daytona Beach Campus. B.A., Nicholls State University; M.A. and Ph.D., University of Southern Mississippi.

BRADY, TIM
Professor of Safety Science; Dean of the College of Aviation, Daytona Beach Campus. B.S., Idaho State University; M.S., Abilene Christian University; Ph.D., St. Louis University; ATP-MEL; C-SEL.

CONE, MILTON L.
Associate Professor of Electrical Engineering; Chair, Department of Electrical and Computer Engineering, Prescott Campus. B.S.E.E. and M.S.E.E., University of Missouri; Ph.D., Air Force Institute of Technology.

CUNNINGHAM, JAMES M.
Professor of Humanities and Communications and Assistant Provost for Academics. B.A., University of Vermont; M.A.T. and M.A., Stetson University; Ph.D., Florida Atlantic University.

DETORE-NAKAMURA, JOANNE
Assistant Professor of Humanities and Communications and University Director of Diversity Advancement. B.S., Utica College of Syracuse University; M.A., College of St. Rose; Ph.D., Southern Illinois University.

DICKER, ARCHIE
Associate Professor of Biology; Chair, Department of Global Studies, Prescott Campus. B.A., Adams State College; M.S., Northern Arizona University; Ph.D., Arizona State University.

ESLAMI, HABIB
Professor and Chair, Department of Aerospace Engineering, Daytona Beach Campus. B.S., Iran University of Science and Technology; M.S., University of Arkansas; Ph.D., Old Dominion University.

FAIRCHILD, ANN R., COLONEL, U.S. AIR FORCE
Professor of Aerospace Studies, Air Force, ROTC, Prescott Campus.
B.S., Arizona State University; M.S., Troy State University; M.S., National Defense University.

FEITZ, RICHARD F.
Professor of Aerospace Engineering; Associate Dean, College of Engineering, Prescott Campus. B.S.M.E., West Virginia University; M.S.N.E. and Ph.D., Air Force Institute of Technology; Professional Engineer.

FREDERICK-RECASCINO, CHRISTINA
Professor of Human Factors and Systems and Associate Provost.
B.A., State University of New York; M.S. and Ph.D., University of Rochester.

FRIEND, MARK A.
Professor and Chair, Department of Applied Aviation Sciences, Daytona Beach Campus. B.S., M.S., and Ed.D., West Virginia University.

GALLY, THOMAS A.
Associate Professor and Chair, Aerospace Engineering, Prescott Campus. B.S., M.S., and Ph.D., Texas A&M University.

GRAMS, WILLIAM E.
Professor of Mathematics, Interim Dean of the College of Arts and Sciences, Daytona Beach Campus. B.A. and M.S., University of North Dakota; M.S. and Ph.D., Florida State University.

GRANT, CHRISTOPHER D.
Associate Professor of Civil Engineering; Associate Dean, College of Engineering and Chair, Freshman Program, Daytona Beach Campus. B.S. and M.E., University of Louisville; Ph.D., Georgia Institute of Technology; Professional Engineer.

HAMPSON, STEVE
Professor of Aeronautical Science and Associate Dean for Research, College of Aviation, Daytona Beach Campus. B.S. and M.B.A./A., Embry-Riddle Aeronautical University; Ed.D., Nova University; C-ASME/L; CFI-ASME/LA; AGI; A&P.

HELFRICK, ALBERT
Professor of Engineering Technology and Chair, Departments of Electrical and Systems Engineering and Mechanical, Civil, and Engineering Sciences, Daytona Beach Campus. B.S., Upsala College; M.S., New Jersey Institute of Technology; Registered Professional Engineer; FCC Radiotelephone Operators License, Radar Endorsement.

HICKEY, MICHAEL P.
Professor of Physics; Associate Dean, College of Arts and Sciences, Daytona Beach Campus. B.Sc. and Ph.D., Latrobe University.

HOLLOWAY, CASS D.
Associate Professor and Chair, Department of Aeronautical Science, Daytona Beach Campus. B.S., Troy State University; M.S., University of Northern Colorado; Ed.D., University of Southern California; C-ASME/L; CFI-ASE.

JERKINS, JOHN
Professor of Mathematics; Associate Dean for Academic Support, Prescott Campus. B.A., University of Tennessee; M.A.T., University of Florida.
Faculty and Administration

Jeralds, Sean
Assistant Professor and Chair, Flight Department, Prescott Campus.
B.S. and M.S., Embry-Riddle Aeronautical University; SEL; MEL-I; CFII; MEI; AGI.

Kain, Geoffrey
Professor of Humanities and Communications; Director of the Honors Program, Daytona Beach Campus. B.A. and M.A., Rosary College; Ph.D., Idaho State University.

Lessard, Dennis
Assistant Professor and Chair, Department of Aeronautical Science, Prescott Campus. B.A., Arizona State University; M.A., Central Michigan University; ATP-AMEL: A319/320, B737-300/500, L300, L1329; C-AMEL-I; FE: DC10

Luedtke, Jacqueline
Associate Professor of Aeronautical Science; Dean, College of Aviation, Prescott Campus. B.B.A. and M.B.A., Wichita State University; Ph.D., Oklahoma State University; CFI-I; C-AMEL-I; AGI; IGI.

McElwain, Patrick
Assistant Professor and Chair, Department of Humanities and Communications, Prescott Campus. B.A., Bryan College; M.A., Edinboro State University; Ph.D., Indiana University of Pennsylvania.

Moore, Alan R., Captain, U.S. Navy
Professor of Naval Science, Navy ROTC, Daytona Beach Campus. B.S., University of Kansas; M.A., Naval War College.

Nordstrom, Brian H.
Professor of Chemistry and Associate Dean, College of Arts and Sciences, Prescott Campus. B.A. and M.S., University of California, Berkeley; Ed.D., Northern Arizona University.

Northam, Gary
Professor and Chair, Department of Safety Science, Prescott Campus. B.A. and M.Th., Harding University; Ph.D., the University of Nebraska.

Olivero, John J.
Professor of Physics and Chair, Department of Physical Sciences, Daytona Beach Campus. B.S., Florida State University; M.S., College of William and Mary; Ph.D., University of Michigan.

Petree, Daniel L.
Professor of Management; Dean of the College of Business, Dayton Beach Campus. B.S.B.A. and M.B.A., Rockhurst College; Ph.D., University of Kansas School of Business.

Rabern, Donald
Professor of Aerospace Engineering; Dean of the College of Engineering, Prescott Campus. B.S., University of Utah; M.S. and Ph.D., University of Arizona.

Rehback, Randy
University Director of Flight Operations. B.S. and M.A.S., Embry-Riddle Aeronautical University; A&P; ATP; CE-500; CFII.

Rhoades, Dawn L.
Professor of Strategy and Chair, Department of Management, Marketing, Strategy, and Operations, Daytona Beach Campus. B.A., University of Alabama, Huntsville; M.P.A., University of Washington; Ph.D., University of Houston.

Rich, Franklin D.
Professor of Aeronautical Science, Associate Dean, College of Aviation, Daytona Beach Campus. D.B.A., Nova Southeastern University; ATP-AMEL; AGI; IGI.

Roach, Richard D.
Assistant Provost for Institutional Effectiveness. B.A., University of Houston; M.Div. and D.Min., Southwestern Baptist Theological Seminary.

Sajjadi, Shahrad
Professor and Chair, Mathematics Department, Daytona Beach Campus. B.S. and Ph.D., Coventry University.

Schafer, Michael P., Major, U.S. Army
Professor of Military Science, Army ROTC, Daytona Beach Campus. B.S., Texas Tech University; M.S., Central Michigan University; M.M.A.S., Air University.

Schraeder, Thomas J., Colonel, U.S. Air Force
Professor of Aerospace Studies, Air Force ROTC, Daytona Beach Campus. B.A., University of Southern Mississippi; M.S., Golden Gate University; Command Pilot.

Stieland, Thomas E.
Dean, College of Career Education, Dean of Academics, Extended Campus. B.S., Florida State University; M.S., University of Michigan; Ph.D., Texas A&M University.

Sinclair, Mark R.
Professor and Chair of Meteorology, Prescott Campus. B.S., Otago University, New Zealand; Ph.D., Naval Postgraduate School.

Smith, Darrel W.
Professor of Physics; Chair, Department of Physics, Prescott Campus. B.A., M.A., and Ph.D., University of California, Irvine.

Towhidnejad, Massood
Professor of Computing and Chair, Department of Computer and Software Engineering, Daytona Beach Campus. B.S.E., M.S., and Ph.D., University of Central Florida.

Waterhouse, Shirley
University Director of the Centers for Teaching and Learning Excellence. B.S., University of Georgia; M.S., University of Central Florida; Ed.D., Nova Southeastern University.

Watret, John Robert
Professor of Mathematics; Vice Chancellor, Worldwide Campus. B.Sc., Heriot-Watt University; M.S. and Ph.D., Texas A&M University; P-ASEL.

Williams, Michael J.
Professor of Management and Chair, Department of Economics, Finance, Accounting, Risk Management, and Information Systems, Daytona Beach Campus. B.S. and M.A.M., Embry-Riddle Aeronautical University; Ph.D., Nova Southeastern University; A&P; DME.
Faculty and Administration

Daytona Beach Campus Faculty

College of Arts and Sciences

ABREU, RAFAEL E., LIEUTENANT, U.S. NAVY
Assistant Professor of Naval Science, Navy ROTC. B.S., Embry-Riddle Aeronautical University.

AGGARWAL, NIRMAL
Professor of Mathematics. B.A. and M.A., Panjab University; M.S., Ohio University; M.S., University of North Carolina; Ed.D., Florida Atlantic University.

AGGARWAL, SHIV KUMAR
Professor of Physics. B.Sc., M.Sc., and M.A., Panjab University; M.S., University of North Carolina; M.S. and Ph.D., Ohio University.

AZEEM, IRFAN
Associate Professor of Engineering Physics. M.S., University of Michigan.

BALLARD, JONATHAN L., CAPTAIN, U.S. ARMY
Assistant Professor of Military Science, Army ROTC. B.S., Western Kentucky University.

BERHANE, BEREKET H.
Assistant Professor of Physics. M.S. and Ph.D., Georgia Institute of Technology.

BISHOP, CHARLES W.
Associate Professor of Physics. B.S., Stockton State University; M.S., University of Central Florida.

BLANTON, GABRIEL C., LIEUTENANT, U.S. NAVY
Assistant Professor of Naval Science, Navy ROTC. B.S., Embry-Riddle Aeronautical University.

BLICKENSDERFER, ELIZABETH L.
Associate Professor of Human Factors and Systems. B.S., University of Nebraska, Kearney; M.S. and Ph.D., University of Central Florida.

BOENER, HENRY B., COMMANDER, U.S. NAVY
Associate Professor of Naval Science, Navy ROTC. B.S., United States Naval Academy; M.A., Naval Postgraduate School.

BOGART, JESSE B., CAPTAIN, U.S. AIR FORCE
Assistant Professor of Aerospace Studies, Air Force ROTC. B.A., U.S. Air Force Academy; M.S., Embry-Riddle Aeronautical University.

BROWN, NORMAN M.
Associate Professor of Humanities, Social Sciences, and Psychology. B.A., University of California, Berkeley; M.A., Middlebury College; M.A., Sonoma State University; Ph.D., Stanford University.

CAMARA, MOHAMED S.
Assistant Professor of Social Sciences. Ph.D., Northwestern University.

CAMERON, DAVID L.
Associate Professor of Chemistry. B.A., University of Colorado; Ph.D., Colorado State University.

CARNEY, JENNIFER
Instructor of Humanities. B.A., Flagler College; M.A., Stetson University.

CHAKRABARTI, SHARMISTA
Assistant Professor of Mathematics. B.A. and M.S., University of Calcutta; M.S., Clemson University.

CHIVINGTON, KEVIN D., CAPTAIN, U.S. AIR FORCE
Assistant Professor of Aerospace Studies, Air Force ROTC. B.A., Miami University; M.B.A., Touro University.

CLARK, BRETT M., MAJOR, U.S. ARMY
Assistant Professor of Military Science, Army ROTC. B.S. and M.A.S., Embry-Riddle Aeronautical University; Senior Army Aviator; CI-AMEL; CI-HMEL.

COLLINS, JAN S.
Associate Professor of Mathematics. B.S., Embry-Riddle Aeronautical University; M.A., University of Central Florida; P-ASEL.

CRAFT, STEPHEN
Associate Professor of Social Sciences. M.A., Ohio University; Ph.D., University of Illinois, Urbana-Champaign.

DOHERTY, SHAWN M.
Associate Professor of Human Factors and Systems. B.A., Macalester College; M.A. and Ph.D., University of Illinois, Urbana-Champaign.

DORN, GLENN J.
Associate Professor of Social Sciences. B.A., Ohio Wesleyan University; M.A. and Ph.D., Ohio State University.

DRULLION, FREDERIQUE
Assistant Professor of Mathematics. B., Lycee Montaigne; M., University of Marseille; Ph.D., French National Aerospace Research Establishment.

EDSON, PAUL
Associate Professor of Humanities and Social Sciences. A.B., California State University; Ph.D., Indiana University.

ERDMAN, PETER W.
Professor of Physics. B.S., University of Colorado; Ph.D., University of Pittsburgh.

FLECK, ROBERT C. JR.
Professor of Physics. B.S., University of Florida; M.A., University of South Florida; Ph.D., University of Florida.

FOGLE, SARAH D.
Professor of Humanities and Communications. B.A. and M.A., University of Florida.

FOROUGHI, BAHRAM M.
Associate Professor of Mathematics. B.S., Embry-Riddle Aeronautical University; A&P.

FRENCH, JOHN
Associate Professor of Human Factors and Systems. B.S., M.S., and Ph.D., Colorado State University.
Faculty and Administration

Glassman, Steve
Professor of Humanities and Communication. B.A., Kansas University; M.A., University of Southwestern Louisiana; M.F.A., Vermont College.

Gregson, Christopher J., Lieutenant, U.S. Navy
Assistant Professor of Naval Science, Navy ROTC. B.S., Auburn University.

Hall, John D., Captain, U.S. Marine Corps
Assistant Professor of Naval Science, Navy ROTC. B.S., United States Naval Academy.

Holthaus, Dean M., Captain, U.S. Air Force
Assistant Professor of Aerospace Studies, Air Force ROTC. B.A., University of Cincinnati; M.S., Troy State University.

Hughes, John M.
Assistant Professor of Physical Sciences. B.S., Embry-Riddle Aeronautical University; Ph.D., Dartmouth College.

Jack, Dennis E., Captain, U.S. Air Force
Assistant Professor of Aerospace Studies, Air Force ROTC. B.A., McMurry University; M.A.S., Webster University.

Jacobs, Carol
Assistant Professor of Mathematics. B.S. and M.S., State University of New York, Stoney Brook.

Jacobs, Elliott W.
Associate Professor of Mathematics. B.S., State University of New York, Stoney Brook; M.S. and Ph.D., Adelphi University.

Jacowitz, Phillip
Instructor of Humanities. B.S., Florida State University; M.S., Nova Southeastern University.

Johnke, Barton L., Captain, U.S. Army
Assistant Professor of Military Science, Army ROTC. B.S., United States Military Academy.

Kaba, Ibrahim K.
Assistant Professor of Mathematics. B.S. and M.S., Louisiana Tech University.

Kayser, Roger
Associate Professor of Mathematics. B.S. and M.A., University of Florida.

Khanal, Harihar
Assistant Professor of Mathematics. Ph.D., University of Tennessee.

Kring, Jason P.
Assistant Professor of Human Factors and Systems. B.A., University of Colorado; M.S., Emporia State University; Ph.D., University of Central Florida.

Liu, Dahai
Assistant Professor of Human Factors and Systems. B.S. and M.S., Tsinghua University, China; Ph.D., University of Nebraska.

Liu, Hong
Associate Professor of Computing and Mathematics. B.S., Hunan Normal University; M.S., Northwest University; M.S. and Ph.D., University of Arkansas.

Lombardo, Gerard
Assistant Professor of Mathematics. B.S., State College of New York, New Paltz; M.S., University of Central Florida.

Mathis, John E.
Associate Professor of Physical Sciences. B.S., Central Michigan University; M.S., Purdue University; M.A. and Ph.D., University of Tennessee; P-ASEL.

McBride, Maranda
Assistant Professor of Human Factors and Systems. B.S., M.S., and Ph.D., North Carolina Agricultural and Technical State University.

McDonnell, Robert
Associate Professor of Humanities and Communications. B.A., M.A., and Ph.D., Ohio University.

McKisson, John E.
Assistant Professor of Engineering Physics. B.S.E.E. and M.S.E.E., University of Florida.

Michelson, Mark R., SFC, U.S. Army
Instructor, Army ROTC. A.S., Central Texas College; Airborne, Air Assault, Sniper, Drill Sergeant; U.S. Army Instructor.

Middendorf, Marilyn
Associate Professor of Humanities and Communications. B.A., University of Cincinnati; M.A. and Ph.D., University of Wisconsin, Madison.

Mishoe, Margaret
Assistant Professor of Humanities. B.A., Coastal Carolina University; M.A. and Ph.D., University of South Carolina.

Mosca, Joseph
Assistant Professor of Physics. B.S., Polytechnic Institute of Brooklyn; M.S., Manhattan College.

Murphy, Kevin J., Major, U.S. Army
Assistant Professor of Military Science, Army ROTC. B.S., Florida Institute of Technology.

Nykkyri, Katarina
Assistant Professor of Physics. M.Sci., University of Helsinki, M.Sci. and Ph.D., University of Alaska.

Oxley, Robert
Professor of Humanities and Communications. B.A., Ohio Wesleyan University; M.A. and Ph.D., University of Wisconsin.

Porter, Lynnette R.
Associate Professor of Humanities and Communications. B.A., Ball State University; M.A. and Ph.D., Bowling Green State University.

Pratt, Alan
Professor of Humanities and Communications. B.A. and M.A., University of West Florida; Ph.D., Florida State University.

Ragan, Peter H.
Associate Professor of Humanities and Communications. B.A., University of California, Berkeley; M.A., University of Hawaii; Ph.D., National University of Singapore.

Raghavan, Jayathi S.
Associate Professor of Computing and Mathematics. B.S. and M.S., University of Madras; M.S. and Ph.D., Washington State University.

Reyhanoglu, Mahmut
Professor of Engineering Physics. B.S. and M.S., Istanbul Technical University; M.S., Ohio State University; M.S. and Ph.D., University of Michigan.
Faculty and Administration

REYNOLDS, ANTHONY
Associate Professor of Physics. B.A., University of California, Santa Cruz; M.S. and Ph.D., University of California, Los Angeles.

ROBINSON, CRAIG L., CAPTAIN, U.S. ARMY
Assistant Professor of Military Science, Army ROTC. B.A., Texas College.

ROSS, DAVID
Associate Professor of Mathematics. B.S., Purdue University, West Lafayette; M.A., University of Kentucky.

ROWE, STEPHANIE
Associate Professor of Humanities and Communications. B.A., San Diego State University; M.A. and Ph.D., University of Oregon.

SALMONS, PHYLLIS A.
Associate Professor of Physics. B.S., Appalachian State University; M.A.C.T., Auburn University; BGI; P-ASEL; Dispatcher.

SANZENBACHER, RICHARD
Professor of Humanities and Communications. M.A., Eastern Michigan University; Ph.D., Bowling Green State University.

SCHLIEPER, REINHOLD
Associate Professor of Humanities and Communications. B.A., Texas Christian University; M.A. and Ph.D., Ball State University.

SEARCY, LIBBIE
Assistant Professor of Communications. B.A., Flagler College; M.F.A., Bowling Green State University; Ph.D., Western Michigan University.

SELVAGE, DOUGLAS
Assistant Professor of Social Sciences. B.A., Macalester College; Fulbright Scholar, University of Bonn; M.A., University of Wisconsin; M. Phil. and Ph.D., Yale University.

SHOOPMAN, JAMES
Instructor of Humanities and Communications. B.A., Stetson University; M.Div., New Orleans Seminary; Ph.D., Florida State University.

SIVASUNDARAM, SEENITHAMBA
Professor of Mathematics. B.S., University of Sri Lanka; M.S., University of Windsor; Ph.D., University of Texas.

SIVJEE, GULAMABAS
Professor of Physics. B.Sc., University of London; M.Sc., University of East Africa; M.A. and Ph.D., Johns Hopkins University.

SMITH, TIMOTHY
Assistant Professor of Mathematics. B.S. and M.S., University of West Florida; Ph.D., Florida Institute of Technology.

SORBO, ERIC C., MAJOR, U.S. AIR FORCE
Assistant Professor of Aerospace Studies, Air Force ROTC. B.A., Hawaii University; M.S., Bellevue University.

SPRADDIN, GREGORY S.
Associate Professor of Mathematics. B.S., Siena College; M.A. and Ph.D., University of Wisconsin, Madison.

STRAUBEL, LINDA H.
Assistant Professor of Humanities and Communication. B.A., Syracuse University; M.A. and Ph.D., University of Wisconsin, Milwaukee.

VADEN, ERIC
Assistant Professor of Human Factors and Systems. B.S., University of Florida; M.S., Embry-Riddle Aeronautical University.

VICKERS, THOMAS
Assistant Professor of Humanities and Communication. B.S. and M. Ed., University of Florida; Ed.S. and Ed.D., Florida Atlantic University.

VUILLE, CHARLES
Associate Professor of Physics. B.A. and B.S., Florida State University; M.A., Indiana University; M.S. and Ph.D., University of Florida.

WANLISS, JAMES
Associate Professor of Physics. B.Sc., University of Capetown, South Africa; M.Sc., University of Witwatersrand, South Africa; Ph.D., University of Alberta, Canada.

WELCH, SHERRY M., CAPTAIN, U.S. AIR FORCE
Assistant Professor of Aerospace Studies, Air Force ROTC. B.A., University of West Florida; M.A., Webster University.

WON, YOUNG-IN
Assistant Professor of Physical Sciences. B.S., Seoul National University; M.S. and Ph.D., University of Michigan.

YOUNG, RAYMOND
Associate Professor of Mathematics. B.S. and M.S., University of South Carolina; Ed.D., Florida Atlantic University.

ZIEGLER, STEPHEN M.
Associate Professor of Humanities and Communication. B.A., Wake Forest University; M.A., University of Alabama; Ph.D., Saint Louis University.

College of Aviation

ANDERSON, RICHARD P.
Associate Professor of Applied Aviation Sciences. B.S. and M.S., Pennsylvania State University; Ph.D., University of Central Florida; C-ASMEL&G; CFI-ASEL; I&G; BGI; FAA8710-7; Statement of Acrobatic Competency; ATP.

BARRY, RANDELL J.
Assistant Professor of Meteorology. B.S., M.S., and Ph.D., State University of New York, Albany.

BENNEIGH, TED
Professor of Aeronautical Science. B.S. and M.A.S., Embry-Riddle Aeronautical University; ATP-ASEL; CASMEL-I; CFI-ASMEL-I; AGI; IGI; ASMEL-IA.

BRICKHOUSE, ANTHONY T.
Assistant Professor of Safety Science. B.S. and M.A.S., Embry-Riddle Aeronautical University.

CLARK, JOSEPH F., III
Instructor of Aeronautical Science. B.S., University of Florida; M.A.S., Embry-Riddle Aeronautical University; C-ASMEL-IA; CFI-ASME-LA.

COLEMAN, E. NOLAN
Professor of Aerospace Electronics. B.S., Southern Illinois University; M.A., Central Michigan University; FCC General Radiotelephone Operators License with Radar Endorsement; FAA Repairman Certificate.
Faculty and Administration

**Cortes, Antonio I.**
Associate Professor of Aeronautical Science. B.A., University of North Carolina; M.A.S., Embry-Riddle Aeronautical University.

**Coyne, William B.**
Assistant Professor of Air Traffic Management. B.S., Phillips University; M.A.M., Embry-Riddle Aeronautical University.

**Cutrer, Daniel**
Assistant Professor of Safety Science. B.S., Excelsior College; M.A.S., Embry-Riddle Aeronautical University.

**Dedmon, Stephen V.**
Assistant Professor of Aeronautical Science. B.S., Embry-Riddle Aeronautical University; J.D., Nova Southeastern University.

**Donahue, Charles P.**
Associate Professor of Aeronautical Science. B.S., Marquette University; M.A.S., Embry-Riddle Aeronautical University.

**Erickson, Lance**
Professor of Space Science. B.S., Sonoma State University; Ph.D., University of Florida; C-AMEL-IA; G; CFI.

**Donahue, Charles P.**
Associate Professor of Aeronautical Science. B.S., Marquette University; M.A.S., Embry-Riddle Aeronautical University.

**Esser, David**
Professor of Aeronautical Science. A.S., B.S., and M.A.S., Embry-Riddle Aeronautical University; Ph.D., Capella University; ATP-AMEL A-319/320; C-AMEL-IA; CFI-AMEL-IA; AGI; IGI.

**Fontaine, Gregory A.**
Assistant Professor of Aeronautical Science. B.S. and M.S., Embry-Riddle Aeronautical University; C-AMEL-I; CFI-AMEL-I; AGI; AD.

**Gallup, Frederick S., III**
Assistant Professor of Aeronautical Science. B.S., Webster College; M.A., U.S. Naval Academy.

**Garrett, Donald F.**
Assistant Professor of Aeronautical Science. A.S., B.S., and M.A.S., Embry-Riddle Aeronautical University; C-AMEL-I; AGI; A&P.

**Griffin, John R.**
Associate Professor of Air Traffic Management. B.S. and M.S., Embry-Riddle Aeronautical University.

**Griffith, Randy R.**
Associate Professor of Aerospace Electronics. B.S. and M.B.A./A., Embry-Riddle Aeronautical University; FCC General Radiotelephone Operators License; A&P.

**Harmon, Glenn**
Assistant Professor of Aeronautical Science. B.S., East Carolina University; M.S., Vanderbilt University.

**Herbster, Christopher G.**
Assistant Professor of Meteorology. B.S., State University of New York, Stony Brook; M.S. and Ph.D., Florida State University.

**Kirton, Thomas M.**
Professor of Aeronautical Science. B.S., North Georgia College; M.A.S. and M.B.A./A., Embry-Riddle Aeronautical University; ATP-MEL; C-ASEL&F; CFIA-AMEL&IA; DC-3; CE500; P-G; AGI; IGI; DPE.

**Kohlruss, William A.**
Associate Professor of Aeronautical Science. B.S. and M.A.S., Embry-Riddle Aeronautical University; ATPAMEL; B-737; C-AMEL-I; CFI-AMEL-IA; AGI; IGI; AD.

**Lauth, Martin**
Assistant Professor of Air Traffic Management. B.S., Florida International University; M.A.S., Embry-Riddle Aeronautical University.

**Lanici, John M.**
Associate Professor of Applied Meteorology. B.S., Manhattan College; B.S. and M.S., Embry-Riddle Aeronautical University; ATCPAMEL; CE-500; C-H; ASEL-I; CFIA-AMEL&IA; AGI; IGI.

**Macchiarella, Nickolas D.**
Assistant Professor of Aeronautical Science. B.S., University of Central Florida; M.Ed., University of Louisville; Ph.D., Nova Southeastern University.

**Martin, William A.**
Professor of Safety Science. B.S. and M.A.S., Embry-Riddle Aeronautical University; ATPAMEL; CE-500; C-H; ASEL-I; CFIA-AMEL&IA; AGI; IGI.

**McGuirk, Gregory**
Associate Professor of Air Traffic Management. B.S. and M.A., Hood College; J.D. and L.L.M., University of Baltimore.

**McNally, Lou**
Assistant Professor of Applied Meteorology. M.S. and Ph.D., University of Maine.

**Metscher, Donald S.**
Assistant Professor of Air Traffic Management. B.S. and M.B.A./A., Embry-Riddle Aeronautical University; M.S., Troy State University; D.B.A., Nova Southeastern University.

**Moren, Charles**
Associate Professor of Aeronautical Science. B.S. and M.A.S., Embry-Riddle Aeronautical University; ATPAMEL B-737; C-AMEL-I; CFI-AMEL-IA.

**Mosher, Frederick R.**
Associate Professor of Meteorology. B.S., University of Maryland; M.S. and Ph.D., University of Wisconsin-Madison.

**Muller, Bradley M.**
Associate Professor of Meteorology. B.S., San Jose University; M.S. and Ph.D., Florida State University.

**Murphy, Leo**
Assistant Professor of Aeronautical Science, Director of Chocotawhatchee Aviation Institute. B.A., Holy Cross College; M.A.S., Embry-Riddle Aeronautical University.

**Neal, George A.**
Assistant Professor of Aerospace Electronics. B.S. and M.S., Embry-Riddle Aeronautical University; FAA Repairman Certificate, P-ASEL; FCC General Radiotelephone and Radar License.

**Nichols, Jayme**
Assistant Professor of Applied Aviation Sciences. B.S., Indiana State University; M.S., Central Missouri State University.

**Owen, Robert C.**
Professor of Aeronautical Science. B.A. and M.A., University of California, Los Angeles; M.A. and Ph.D., Duke University; Command Pilot.
Faculty and Administration

PARKMAN, KEITH A.
Associate Professor of Air Traffic Management. B.S. and M.A.S., Embry-Riddle Aeronautical University.

PLUNKETT, TIMOTHY
Assistant Professor of Aeronautical Science. B.S., University of Alabama; M.S., University of Southern California.

RAMSAY, JAMES D.
Associate Professor of Homeland Security. B.S., M.A., and Ph.D., University of Wisconsin.

RODRIGUES, CLARENCE C.
Associate Professor of Safety Science. B.E., University of Bombay; M.Tech., Indian Institute of Technology; M.E. and Ph.D., Texas A&M University.

ROGERS, RODNEY
Professor of Aeronautical Science. B.S., Massachusetts Institute of Technology; M.A. and Ph.D., University of Virginia; M.S. and Ph.D., University of Central Florida; AGI; IGI.

ROUNSEVILLE, PETE
Associate Professor of Aeronautical Science. B.S., State University of New York; M.A.S., Embry-Riddle Aeronautical University; MP-MEL; C-ASEL-H-I.

SCHAUM, DEBBIE M.
Associate Professor of Meteorology. B.S., University of Missouri; M.A., Webster University.

SHARP, SUSAN E.
Assistant Professor of Aeronautical Science. B.S. and M.Ed., Northeast Louisiana University; C-ASME-IA; CFI-ASME-LA.

SMITH, MARVIN
Professor of Air Traffic Management. B.Sc., Oregon State University; M.Ed., University of Central Oklahoma; Ed.D., Nova University; CTO.

SNOW, MARY M.
Associate Professor of Meteorology. B.A. and M.S., Western Kentucky University; Ph.D., Indiana State University; P-SEL.

SNOW, RICHARD
Assistant Professor of Meteorology. B.S. and M.S., Western Kentucky University; Ph.D., Indiana State University.

STRATECHUK, JOHN
Associate Professor of Aeronautical Science. B.S. and M.A.S., Embry-Riddle Aeronautical University; ATP; CASMEL-I; CFT-ASME-IA; AGI; IGI; AD.

SUMMERS, MICHELE
Assistant Professor of Aeronautical Science. B.S., Middle Tennessee State University; M.S., Embry-Riddle Aeronautical University.

TRIPLETT, RANDALL L.
Assistant Professor of Air Traffic Management. B.S., Embry-Riddle Aeronautical University; M.A., George Washington University.

VOSBURY, PETER A.
Professor of Aeronautical Science. B.A., Florida Technological University; M.Ed., University of Central Florida; A&P; DWE.

WEBER, ERIC C.
Assistant Professor and Director of Charlotte Aviation Institute. B.S., Southern Illinois University; M.B.A., Golden State University.

WESTBROOKS, CHARLES L.
Associate Professor of Aeronautical Science. B.S. and M.Ed., Middle Tennessee State University.

WIGGINS, MICHAEL E.
Professor of Aeronautical Science. B.S. and M.B.A./A., Embry-Riddle Aeronautical University; Ed.D., Oklahoma State University; ATP-AMEL; B757/767; C-ASEL; CFI-AMEIA; AGI; IGI.

College of Engineering

ATTIA, MAGDY S.
Associate Professor of Engineering. B.S., M.S., and Ph.D., Texas A&M University.

BARSOUM, FADY F.
Associate Professor of Engineering Sciences. B.S., Alexandria University; M.S. and Ph.D., University of Central Florida.

BAROTT, WILLIAM
Assistant Professor of Electrical Engineering. B.S. and M.S., Georgia Institute of Technology.

BEHI, FARAMZAD
Associate Professor of Computing. B.S., North Carolina State University; M.S., University of Central Florida.

BRIANUS, NICK L.
Associate Professor of Computing. B.S., University of California, Berkeley; M.Eng., Texas A&M University.

BUENO, LEONARDO
Instructor of Engineering. B.S., Embry-Riddle Aeronautical University.

BUTKA, BRIAN
Associate Professor of Electrical and Systems Engineering. B.S.E.E., Syracuse University; M.S.E.E. and Ph.D., Georgia Institute of Technology.

CRISPIN, YECHIEL
Professor of Aerospace Engineering. B.Sc., M.Sc., and D.Sc., Technion - Israel Institute of Technology.

CURTIS, HOWARD D.
Professor of Aerospace Engineering. B.S., M.S., and Ph.D., Purdue University; Registered Professional Engineer.

DAVIDS, LISA
Assistant Professor of Engineering. B.S. and M.S., Florida State University.

DEMIRKIRAN, ILTERIS
Associate Professor of Electrical Engineering. M.S., Istanbul Technical University; M.S. and Ph.D., Syracuse University.

DHAINAULT, JEAN-MICHEL
Assistant Professor of Engineering. Ph.D., Old Dominion University.

DORSETTE, CHARLES N.
Professor of Aerospace Engineering. B.A.E. and M.S., Ohio State University; P-ASEL; Registered Professional Engineer.

ENGBLOM, WILLIAM A.
Associate Professor of Engineering Sciences. B.S., Texas A&M University; M.S. and Ph.D., University of Texas, Austin.
Fugler, Mark D.  
Associate Professor of Civil Engineering. B.S., University of Colorado, Boulder; M.S., University of Colorado, Denver; Ph.D., Louisiana State University; Professional Engineer.

Gangadharan, Sathy Na.  
Professor of Engineering Technology. B.Eng., University of Madras; M.E., Memorial University of Newfoundland; Ph.D., Virginia Polytechnic Institute and State University; Registered Professional Engineer; Certified Manufacturing Engineer (C. Mfg. E.); P-ASEL.

Gluch, David P.  
Professor of Computing. B.A., California State College; M.S. and Ph.D., Florida State University.

Golubev, Vladimir V.  
Associate Professor of Aerospace Engineering. B.S., Moscow Institute of Physics and Technology; M.S. and Ph.D., University of Notre Dame.

Gupta, Tej R.  
Professor of Aerospace Engineering. M.S. and Ph.D., University of Roorkee, India; Ph.D., Virginia Polytechnic Institute and State University.

Gurjar, Ashok H.  
Assistant Professor of Civil Engineering. B.E., University of Pune; M.E., University of Bombay; M.S. and Ph.D., Texas A&M University; Professional Engineer.

Hagar, Hamilton Jr.  
Associate Professor of Engineering. Ph.D., University of Texas.

Hill, Eric V. K.  
Professor of Aerospace Engineering. B.S. and Ph.D., University of Oklahoma.

Idahosa, Uyigue  
Instructor of Freshman Engineering. B.S. and M.S., Embry-Riddle Aeronautical University.

Kindy, Matthew P.  
Instructor of Engineering. M.S., University of Central Florida.

Kornecki, Andrew J.  
Professor of Computing. B.S., M.S., and Ph.D., University of Mining and Metallurgy, Krakow, Poland.

Ladesic, James G.  
Professor of Aerospace Engineering. B.S., Embry-Riddle Aeronautical University; M.S., University of Central Florida; Ph.D., University of Florida; Registered Professional Engineer.

Lee, Yongho  
Assistant Professor of Engineering. M.S. and Ph.D., University of Illinois.

Lehr, Steven  
Associate Professor of Engineering. B.S., M.S., and M.S.E., Embry-Riddle Aeronautical University.

Liron, Caroline  
Instructor of Engineering. B.S. and M.S., Embry-Riddle Aeronautical University.

Liu, Jianhua  
Associate Professor of Electrical Engineering. Ph.D., University of Florida.

McNutt, Glenn L.  
Associate Professor of Engineering Technology. B.S., Texas A&M University; M.S., Purdue University; C-ASEMEL-I; CFI.

Mankbadi, Reda R.  
Distinguished Professor of Aerospace Engineering. B.S. and M.S., Cairo University; Ph.D., Brown University.

Nakula, Hany  
Assistant Professor of Engineering. Ph.D., Rensselaer Polytechnic Institute.

Narayanaswami, Lakshmanan L.  
Professor of Aerospace Engineering. B.Tech., Indian Institute of Technology; M.S. and Ph.D., Georgia Institute of Technology.

Novy, John R.  
Associate Professor of Aerospace Engineering. B.S. and M.S., Southern Illinois University.

Pang, Shuo  
Assistant Professor of Computer Engineering. B.S., Harbin Engineering University, China: M.S. and Ph.D., University of California.

Perrell, Eric R.  
Associate Professor of Aerospace Engineering. B.S., Virginia Polytechnic Institute and State University; M.S., University of Tennessee Space Institute; Ph.D., North Carolina State University.

Rados-Ta, Frank J.  
Professor of Aerospace Engineering. B.S., University of New Orleans; M.E. and Ph.D., University of Florida.

Rhode, Axel  
Assistant Professor of Engineering. B. and Ph.D., Florida Institute of Technology.

Schau, Harvey  
Assistant Professor of Aerospace Engineering. B.S. and M.S., Florida Atlantic University; Ph.D., University of Florida.

Skovholt, Richard L.  
Assistant Professor of Engineering Technology. B.E.E., Manhattan College; M.E.E., University of Florida.

Steinhauser, Heidi M.  
Assistant Professor of Engineering. B.S. and M.S., Embry-Riddle Aeronautical University.

Sybeck, David J.  
Associate Professor of Aerospace Engineering. B.S., University of Buffalo; M.S. and Ph.D., University of Virginia.

Wang, Zhong-Sheng  
Assistant Professor of Engineering. Ph.D., University of Cincinnati.

Weavil, Elaine  
Instructor of Engineering. B.A., University of Florida.

Weavil, John M.  
Associate Professor of Aerospace Engineering. B.S., University of Florida; M.S., University of Central Florida; Registered Professional Engineer.

White, Darris L.  
Associate Professor of Engineering Sciences. B.S. and M.A.S., Virginia Polytechnic Institute and State College; Ph.D., University of Colorado, Boulder.
Faculty and Administration

WILSON, TIMOTHY A.
Professor of Computer Engineering. S.B., S.M., and Sc.D.,
Massachusetts Institute of Technology.

YANG, THOMAS T.
Instructor of Electrical Engineering. B.S., Zhejiang University,
China; M.S. and Ph.D., University of Central Florida.

ZHAO, YI
Associate Professor of Aerospace Engineering. B.S. and M.E., East
China University of Sciences and Technology; M.S. and Ph.D.,
Louisiana State University.

College of Business

ABDELGHANY, AHMED
Assistant Professor of Operations Management. B.Sc. and M.Sc.,
Cairo University; Ph.D., University of Texas at Austin.

ARNAUD, ANKE
Assistant Professor of Management. B.A., M.B.A., and Ph.D.,
University of Central Florida.

BAZARGAN, MASSOUD
Professor of Production Operations. Ph.D., University of New
South Wales, Australia.

CHADBOURNE, BRUCE D.
Professor of Risk Management. B.S.B.A., University of Florida;
M.B.A., Stetson University; Ed.D., Florida Atlantic University.

CUNNINGHAM, CHERYL
Assistant Professor of Information Systems. B.S., University
of Central Florida; M.B.A./A., Embry-Riddle Aeronautical
University.

FEDOROVICH, SHIRLEY M.
Associate Professor of Management. B.S., University of Akron;
M.S.M., Rollins College.

GUZHVA, VITALY S.
Assistant Professor of Finance. Ph.D., University of Central
Florida.

HERRERA, JORGE M.
Assistant Professor of Management. D.B.A., Nova Southeastern
University.

KNABE, RUDOLF E. M.
Associate Professor of Air Cargo Operations. B.A., Karl Marx
University; B.S. and M.A., Middle Tennessee State University;
C-ASME-I; AD.

KORNECKI, LUCYNA
Assistant Professor of Economics. M. and Ph.D., Academy of
Economy, Krakow, Poland.

MOONEY, PETER M.
Instructor of Management. M.S. and Ed.D., University of Kansas.

QIN, ZHAOQIONG
Assistant Professor of Operations Research and Logistics. B.S.
and M.S., Southwest Jiaotong University; Ph.D., New Jersey
Institute of Technology.

RAGHAVAN, VEDAPURI
Associate Professor of Finance. Ph.D., Washington State
University.

REYNOLDS, ROSEMARIE
Assistant Professor of Management. B.B.A., University of North
Florida; M.A., University of Florida; M.A., University of South
Florida.

TACKER, THOMAS
Professor of Economics. B.S., Embry-Riddle Aeronautical
University; Ph.D., University of North Carolina.

VASIGH, BIJAN
Professor of Economics and Finance. B.A.M., National University
of Iran; M.A., University of Detroit; Ph.D., State University of
New York, Binghamton.

WAGUESPACk, BLAISE P. JR.
Professor of Marketing. B.A. and M.B.A., Nicholls State
University; Ph.D., University of North Texas.

YOUNG, SETH B.
Associate Professor of Airport Operations. B.A., State University of
New York, Buffalo; M.S. and Ph.D., University of California.

ZARB, NORBERT J.
Assistant Professor of Accounting. B.A., University of Malta;
M.B.A., University of Central Florida; C.P.A., Ph.D., Argosy
University.
Faculty and Administration

Prescott Campus Faculty

College of Arts and Sciences

ANZ-MEADOR, PHILLIP
Associate Professor of Physics. B.S., M.S., and Ph.D., Baylor University.

BAILEY, QUENTIN
Assistant Professor of Physics. B.S., University of Pittsburgh, M.S. and Ph.D., Indiana University.

BAKER, ROBERT W.
Associate Professor of Global Security and Intelligence Studies. B.S., University of Nebraska; M.A., Washington State University.

BEATTY, JAMEThA A.
Associate Professor of Humanities and Communications. B.A., University of Arizona; M.A., San Francisco State University; Ph.D., Indiana University of Pennsylvania.

BECK, ANGELA
Assistant Professor of Humanities and Communications. B.A. and M.A., San Diego State University; Ph.D., Northern Arizona University.

BUCKALEW, BRENT
Assistant Professor of Physics. B.S., Drake University; M.S. and Ph.D., Rice University.

CARRERAS, RICARDO
Associate Professor of Business and Economics. B.A., University of the Americas, Mexico; M.S. and Ph.D., Texas Tech University.

CHARBENEAU, DARRELL, CAPTAIN, U.S. AIR FORCE
Assistant Professor of Aerospace Studies, Air Force ROTC. B.S., Chapman University; M.S., University of Maryland.

CHADWICK, STEVE P.
Assistant Professor of Software Engineering. B.S., Ohio State University; B.S., University of Tennessee, Nashville; M.S., Texas A&M University; Ph.D., University of Texas, Dallas.

CHEN, LEEANN
Associate Professor of Asian Studies, Humanities, and Communications. B.A., People’s University, Beijing, China; M.A., Bradley University; Ph.D., University of Illinois.

DEVEREUX, NICHOLAS A.
Associate Professor of Physics and Astronomy. B.Sc., Leicester University, England; M.Sc. and Ph.D., University of Hawaii; CFI; P-ASEL.

EHRESMAN, MARK, SFC, U.S. ARMY
Senior Instructor, Army ROTC. Combat Infantryman.

EMBREE, MICHAEL K., CAPTAIN, U.S. AIR FORCE
Assistant Professor of Aerospace Studies, Air Force ROTC. B.S., Embry-Riddle Aeronautical University; M.S., Wright State University.

ERB, AUDREY
Assistant Professor of Humanities and Communications. B.A., Cleveland State University; M.A., Northern Arizona University.

GARRETT, SHIRLEY
Assistant Professor of Humanities and Communications. B.A., San Diego State University; M.A., University of Guam.

GORJIDOZ, JAVA
Associate Professor of Finance. B.A., Tehran College of Insurance; M.A., M.B.A., Ph.D., Indiana University.

GRETARSSON, ANDRI M.
Assistant Professor of Physics. B.S., University of Edinburgh; Ph.D., Syracuse University.

HALKA, MONICA
Associate Professor of Physics. B.S., Idaho State University; M.A., Johns Hopkins University; Ph.D., University of New Mexico.

HENNER, MURRAY
Associate Professor of Sociology. B.A. and L.L.M., Hofstra University; J.D., Western New England College.

HRILJAC, PAUL
Professor of Computer Science. B.S., University of Illinois; Ph.D., Massachusetts Institute of Technology.

HUTCHISON, DONALD, CAPTAIN, U.S. AIR FORCE
Assistant Professor of Aerospace Studies, Air Force ROTC. B.S., Southern Illinois University.

JAFFE, MATT
Assistant Professor of Software Engineering. B.A., University of California, Berkeley; M.S., University of West Florida; Ph.D., University of California, Irvine.

JAGGARD, SHARON
Assistant Professor; Director of the Center for Teaching and Learning. B.S. and M.S., Indiana State University; Ph.D., Pennsylvania State University.

JONES, PHILIP
Professor of Global Security and Intelligence. B.A., Juniata College; M.A., M.A.L.D., and Ph.D., Fletcher School of Law and Diplomacy, Tufts University.

LANDIS-GROOM, EILEEN E.
Professor of Humanities and Communications. B.A., Bucknell University; M.A., Western Washington University; D.A., Idaho State University.

LAWSON, THOMAS
Assistant Professor of Software Engineering. B.S. and M.Ed., Arizona State University; M.S., East Texas State University.

MACGREGOR, KENT, CAPTAIN, U.S. ARMY
Assistant Professor of Military Science, Army ROTC. B.S., Arizona State University, Senior Army Aviator.
Faculty and Administration

MALNAR, ALAN
Assistant Professor of Humanities and Communications. B.A., Hunter College; M.A., California State University, Dominguez Hills.

MENDOZA, MARGARET A.J.
Assistant Professor of Humanities and Communications and Director, McNair Scholars Program. B.A., California State University; M., University of Southern California.

NORDBROCK, ANITA
Associate Professor of Humanities and Communications. B.A. and M.A., University of Illinois; M.A. and Ph.D., University of Hawaii, Manoa.

PARKER, ALLENE
Assistant Professor of Humanities and Communications. B.A., Chapman College; M.A., School of Theology at Claremont; M.A., San Francisco State University; D.A., Idaho State University.

POON, EDWARD
Assistant Professor of Mathematics. B.S., University of British Columbia; M.S. and Ph.D., University of Wyoming.

RACHFORD, BRIAN L.
Assistant Professor of Physics. B.S., University of Iowa; Ph.D., University of Wisconsin.

SOFONIOU, ROBIN
Associate Professor of Business. B.S., Grand Valley State University; M.B.A./A., Embry-Riddle Aeronautical University; Ph.D., Arizona State University.

THEIS, RICHARD
Assistant Professor of Humanities. B.S., University of Pittsburgh; M.F.A., Wichita State University; Ph.D., Indiana University of Pennsylvania.

THOMAS, ROMEO
Professor of Mathematics. B.S. and M.S., University of Baghdad; Ph.D., University of Warwick, England.

TOMER, MICHAEL
Assistant Professor of Mathematics. B.A., Mount St. Mary’s College; M.A., University of Maryland, College Park.

TSUTSUI, HISAYA
Professor of Mathematics. B.S., University of Dayton; M. and Ph.D., Northern Illinois University.

VANDALEN, GORDON
Research Professor of Physics. B.S., M.S., and Ph.D., University of California, Riverside.

VUK, MELVIN
Associate Professor of Global Security and Intelligence Studies. B.A. and M.A., University of Illinois; Ph.D., University of Oregon.

WOLF, MICHAEL W.
Professor of Physics. B.S., Carroll College; M.S., Northern Illinois University; Ph.D., Oklahoma State University.

WRIGHT, JENNIFER L., CAPTAIN, U.S. AIR FORCE
Assistant Professor of Aerospace Studies, Air Force ROTC. B.S. and M.S., Valdosta State University.

ZANOLIN, MICHELE
Assistant Professor of Physics. B.S., M.S., Ph.D., University of Parma, Italy.

College of Aviation

AMEN, PAUL J.H.
Assistant Professor of Aeronautical Science. B.S., United States Air Force Academy; M.S., University of Nebraska. Master/Instructor Navigator, USAF; AD.

BEDARD, RAYNALD
Associate Professor of Aeronautical Science. B.S., Royal Military College; M.S., Naval Postgraduate School.

BURGESS, SCOTT
Assistant Professor of Aeronautical Science. B.S., Oregon State University; M.S., Embry-Riddle Aeronautical University; CFI-H; CFI-H; Senior Army Aviator.

CARRELL, DANIEL L.
Professor of Aeronautical Science, Special Assistant to the President. B.A., Northwestern State University; M.A.S., Embry-Riddle Aeronautical University; C-H.

CON, FRED
Assistant Professor of Aeronautical Science. B.S.A.E., U.S. Naval Postgraduate School; B.S.C.E., University of New Mexico; M.S.C.E.; University of Arizona; M.B.A., University of Missouri.

DRAUT, ARTHUR W.
Associate Professor of Aeronautical Science. B.S., M.S., and Ph.D., Ohio State University; M.B.A., Auburn University; C-ASMEL-I; CFI-ASEL.

FOGLEMAN, MAXWELL
Associate Professor of Safety Science. B.S., University of Arizona; M.S., Pennsylvania State University; Ph.D., Texas Technological University; M.P.H., New Jersey School of Public Health.

FROLA, RON
Assistant Professor of Aeronautical Science. B.A. and M.S., San Jose State University; ASEL.

GLENN, WANDA L.
Research Professor of Aviation Safety. M.S., University of Southern California.

IVANOVA, DOROTHEA C.
Assistant Professor of Meteorology. B.S. and M.S., Sofia University; Ph.D., University of Nevada.

JAMES, CURTIS
Associate Professor of Meteorology. B.S., University of Arizona, Tucson; Ph.D., University of Washington.

JOHNSON, JOHN C.
Associate Professor of Aeronautical Science. B.S., Embry-Riddle Aeronautical University; M.S., Central Missouri State University; A& P-1A; C-ASMEL-I; P-H-G; CFI-ASEL-I; AGI; IGI; FCC.

LAWRENCE, NANCY
Associate Professor of Safety Science. B.A. and M.A., California State University, Los Angeles; Ph.D., Walden University.

MADENFIELD, NICHOLAS
Assistant Professor of Aeronautical Science. B.S., University of Detroit; M.H.A., Washington University, St. Louis; C-ASMEL-I; BGI.
Faculty and Administration

PARSONS, KENNETH E.
Associate Professor of Meteorology. B.S., Miami University; B.S., Pennsylvania State University; M.S., Troy State University; Ph.D., Purdue University.

PEACOCK, JOHN BRIAN
Professor of Safety Science. D.A., University of Alabama at Birmingham.

REYNOLDS, RANDOLPH S.
Assistant Professor of Aeronautical Science. B.S., U.S. Air Force Academy; M.S., University of Arizona; CASMEL-I.

SABOSKI, ARTHUR
Assistant Professor of Aeronautical Science. B.S., University of North Carolina; M.S., Auburn University; ATP; FCC.

SCOTT, VINCENT
Assistant Professor of Flight. B.S., U.S. Air Force Academy.

STANFIELD, WESLEY
Assistant Professor of Aeronautical Science. B.S., U.S. Naval Academy; M.S.A.E., Naval Postgraduate School.

TOMKINS, RANDOLPH
Assistant Professor of Meteorology. B.A., University of Virginia; M.S., Naval Postgraduate School.

WALDOCK, WILLIAM
Professor of Safety Science. B.A., University of Florida; M.A.S., Embry-Riddle Aeronautical University; PASEL.

College of Engineering

ASHWORTH, JEFFREY
Associate Professor of Aerospace Engineering. B.S.A.E. and M.S.A.E., West Virginia University; Ph.D., University of Colorado, Boulder; P-ASEL.

EL DOKOR, TAREK
Assistant Professor of Electrical Engineering. B.S. and M.S., Northern Arizona University.

GALLY, THOMAS A.
Associate Professor of Aerospace Engineering. B.S., M.S., and Ph.D., Texas A&M University.

GEAR, GARY
Associate Professor of Software Engineering. B.S.E.E., Northeastern University.

HAYASHIBARA, SHIGEO
Associate Professor of Aerospace Engineering. M.S., University of Southern California; Ph.D., Wichita State University.

HELBLING, JAMES
Associate Professor of Aerospace Engineering. B.S., Purdue University; M.S., California State Polytechnic.

KAHNE, STEPHEN J.
Professor of Electrical Engineering. B.E.E., Cornell University; M.S. and Ph.D., University of Illinois.

KIM, MISCHA
Assistant Professor of Aerospace Engineering. M.S., Vienna University of Technology; M.S. and Ph.D., Virginia Polytechnic Institute and State University.

LANNING, DAVID B.
Associate Professor of Aerospace Engineering. B.S. and Ph.D., Ohio State University; M.S., University of Akron.

LYALL, JAMES R.
Associate Professor of Electrical Engineering. B.S.E.E., General Motors Institute; M.S.E.E., University of Colorado; Ph.D., University of Kansas; P-ASEL.

MADLER, RONALD A.
Associate Professor and Chair, Department of Aerospace Engineering. B.S., M.S., and Ph.D., University of Colorado.

MARRIOTT, DARIN
Assistant Professor of Aerospace Engineering. B.S. and Ph.D., Ohio State University.

NEWMAN, ALLEN R.
Assistant Professor of Computer Science. B.S., Northwestern University; M.S., University of Southern California; M.S., California State University.

POST, JOHN E.
Assistant Professor of Electrical Engineering. B.S., Texas Tech University; M.E., University of Texas; Ph.D., Stanford University.

SENSMEIER, MARK
Associate Professor of Aerospace Engineering. B.S., Purdue University; M.S. and Ph.D., Virginia Polytechnic Institute and State University.

SHAFFER, RANDALL A.
Associate Professor of Electrical Engineering. B.S., California State University, Sacramento; M.E., California Polytechnic State University; Ph.D., University of Dayton.

SIEBOLD, KARL
Assistant Professor of Aerospace Engineering. B.S., M.S., and Ph.D., Technische Universitat, Carolo-Wilhelmina Zu, Braunschweig.

ZHAO, HONG
Assistant Professor of Computer Engineering. M. and Ph.D., New Jersey Institute of Technology.
Faculty and Administration

Professors Emeriti

LEN ABBEDUTO 2
Computer Science

ANN A. APPERSON 1
Humanities/Social Sciences

RICHARD BAGBY 3
Applied Aviation Sciences

OZROW E. BAKER 3
Aviation Business Administration

RAYMOND BELLUM 2
Electrical Engineering

BISHOP BLACKWELL 1
Aeronautical Science

CARL BROWN 1
Aeronautical Science

ROBERT BROWN 1
Physical Sciences

RICHARD BRYANT 1
Aeronautical Science

MELVILLE R. BYINGTON 1
Aeronautical Science

DONALD J. CAMPBELL
Aviation Business Administration

LOWELL CHRISMAN 1
Aviation Management

CHESTER CROSBY 3
Business Administration

TRACY DORYLAND 2
Aerospace Engineering

ROBERT B. DUNMIRE 1
Mathematics/Physical Sciences

JOHN P. EBERLE 1
Aviation Business Administration

W.C. (PAT) GARRETT 2
Physics

GOVENDER S. GIARE 2
Aerospace Engineering

WILLIAM V. GRUBER 1
Aeronautical Science

MARY GURNEE 1
Physical Sciences

ROBERT HALL 3
Dean Emeritus

THOMAS HILBURN 1
Software Engineering

S. PORTLAND (PETE) HALLE 2
Aeronautical Science

JOHN HOLLEY 2
Aeronautical Science

DONALD HUNT 1
Applied Aviation Sciences

ROY JONES 2
Aeronautical Science

NORBERT KLUGA 1
Aeronautical Science

LESLIE KUMPULA 1
Aeronautical Science

LUANNE LEA 2
Humanities/Social Sciences

JAMES E. LEWIS 1
Aeronautical Science

JAMES K. LIBBEY 1
Humanities/Social Sciences

CHARLES MARTIN 1
Mathematics

HOYT MAULDEN 1
Aviation Business Administration

FIELDING M. MCGEHEE 2
Physical Sciences

MARY H. MCLEMORE 1
Humanities/Social Sciences

G. FREDERICK MIRGLE 1
Aviation Maintenance Technology

FRANK P. MORAN 1
Aviation Maintenance Technology

ELIZABETH NELSON 1
Humanities/Social Sciences

RICHARD NEWCOMB 1
Aerospace Engineering

J. ROGER OSTERHOLM 1
Humanities/Social Sciences

CHARLES OTIS 1
Aviation Maintenance Technology

H. ELLIOT PALMER 1
Physics

NANCY ELLIOT PARKER 1
Humanities/Social Sciences

JOHN L. POPE 1
Business Administration

JANET PRESTON 1
Humanities/Social Sciences

ADELBERT W. RANSOM 1
Aviation Computer Science

PHILIP REEVES 1
Aviation Maintenance Technology

CHARLES RICHARDSON 1
Aeronautical Science

DONALD E. SMITH 1
Aeronautical Science

DAVID STOUTAMIRE 3
Aeronautical Science

AGEE C. TACKER 1
Aeronautical Science

CHANDLER P. TITUS 1
Aviation Maintenance Technology

SHANNON TREBEE 1
Aeronautical Science

RICHARD ULM 1
Aeronautical Science

DAVID VIGER 2
Physics/Biology

MING HSIENT WANG 1
Aeronautical Engineering

PHILIP A. WEATHERFORD 1
Business Administration

FRANK WENCHEL 1
Aeronautical Science

JOHN WHEELER 1
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Jim Anderson  
Senior Vice President  
AGI Aviation, Inc.  
Scottsdale, AZ 85254

Tommy Littlejohn  
Director of Flight Operations  
Honeywell Aerospace  
Phoenix, AZ

Communication

Sheila Chamberlain  
Director  
We Help CDC  
Belle Glade, FL

Ashlee C. Ilg  
Communications Specialist  
ERAI Alumni Relations  
Stockbridge, GA

Elena Jarvis  
Associate Professor of Journalism  
Daytona Beach Community College  
Daytona Beach, FL

Tim Kincaid  
Manager, Public Relations  
American Airlines/AMR Corp.  
Ft. Worth, TX

Amy Laboda  
Aviation for Women, Editor  
N. Fort Myers, FL

Dan Ronan  
Senior Reporter, WFAA-TV  
Lewisville, TX

Drew Steketee  
CEO, Be A Pilot  
Washington, DC

Donald S. Tilden  
Manager, Flight Operations Publications  
Flight Training Center  
Dallas, TX

Philip Tompkins  
Organizational Communications Specialist  
Denver, CO

Benet J. Wilson  
Senior Manager, Public Relations  
Delta Air Lines  
Atlanta, GA

Computer Engineering & Software Engineering

Mary Bruno  
Director, Career, Technical, and Community Education  
Volusia County School Board  
Daytona Beach, FL

David Card  
Fellow  
Software Productivity Consortium  
Herndon, VA

Chuck Cone  
Chair, Electrical/Computer Engineering  
Embry-Riddle Aeronautical University  
Prescott, AZ

Larry Druffel  
President and Director  
SCRA  
Columbia, SC

Charles Engle  
VP Operations & CIO  
Medical Artificial Intelligence  
Orlando, FL

Carl Finney  
Executive VP, CTO/CSA  
Sonetics  
West Melbourne, FL

John Foreman  
Program Director, Dynamic Systems  
Software Engineering Institute  
Pittsburgh, PA
Industry Advisory Boards

Dennis Frailey
Principal Fellow
Raytheon Company
Plano, TX

Albert Gallo
Manager of Software Assurance
Technology Center
NASA Goddard Space Flight Center
Greenbelt, MD

Douglas Gordon
Director, Systems Integration
Naval Oceanographic Office
Stennis Space Center, MS

C. Frank Gutcher
Specialist-Engineering/Scientist
Boeing Corporation
Titusville, FL

Kevin Hightower
Systems Engineer
Lockheed Martin Air Traffic Management
Rockville, MD

John M. Hogan
Consultant
Winter Springs, FL

Watts Humphrey
Software Engineering Institute
Carnegie Mellon University
Pittsburgh, PA

David Jones
Philips Medical Systems
Andover, MA

Curt Kienast
Director of Life Sciences
QA Associates Inc.
Plymouth Meeting, PA

Wesley McDermott
Manager, Product Development
Guidant Corp.
St. Paul, MN

Deepak Mohan
Senior Director of Engineering
Veritas Software Corp.
Heathrow, FL

Peter J. Mueller
Manager
Global Quality Information Systems
Bausch & Lomb
Rochester, NY

Bill Peterson
Program Director, Software Engineering Process Management
Software Engineering Institute
Pittsburgh, PA

Del Ransom
Professor Emeritus
Embry-Riddle Aeronautical University
Satellite Beach, FL

Gregory S. Recker
Director, Software & Platform Products
Raytheon Corp.
Daytona Beach, FL

Gary E. Rivord
Deputy Director of Information Systems
Sandia National Laboratories
Albuquerque, NM

Glenn Rosander
Booz, Allen, and Hamilton
Rockville, MD

Michael Sarchet
Lieutenant Colonel
National Reconnaissance Office
Chantilly, VA

John Schmidt
Director, Software Development
Guidant Corporation
St. Paul, MN

Girish Seshagiri
CEO, Advanced Information Services
Peoria, IL

Howard L. Wood
Manager, Regulatory & Compliance Engineer
Sparton Electronics
DeLeon Springs, FL

Edward Kirchner
Technical Manager, Electromagnetics & Flight Avionics Design
Northrop Grumman
Melbourne, FL

Irving Abel
Retired
NASA Langley Research Center
Ormond Beach, FL

Jim W. Scandlin
Manager, Maintenance Programs and Reliability Engineering
ATA
Indianapolis, IN

Riaz H. Zaidi
Project Engineer/Scientist
Boeing Company
St. Louis, MO

Electrical Engineering & Computer Engineering

Jerry Davies
Senior Manager, Vehicle Managements Systems Integrated Product Team
Boeing Company
Mesa, AZ

Col. Ken Hollenbeck
Professor of Aviation Science
Embry-Riddle Aeronautical University
Prescott, AZ

Gary Kivela
Vice President (Retired)
Honeywell
Phoenix, AZ

Roman Jamrogiewicz
Vice President, Engineering, Defense, and Space
Honeywell
Phoeniix, AZ

Peter Johnston
Technology Department Leader
Arizona Public Service
Phoenix, AZ

Electrical Engineering/ Mechanical Engineering

Diarmuid R. Strasser
Senior Systems Engineer A&P Mechanic Systems Engineering
Rockwell Collins
Cedar Rapids, IA

Brian Lojko
Air Vehicle Integration PDT Lead
Gulfstream Aerospace Corp.
Savannah, GA
### Engineering Physics

- **Richard Bevilacqua**
  Chief, Remote Sensing Physics Branch
  Naval Research Laboratory
  Washington, DC

- **David Butler**
  President, Limit Point Systems Inc.
  Livermore, CA

- **Herbert C. Carlson**
  Air Force Office of Scientific Research
  Chief Scientist
  Arlington, VA

- **Douglas P. Drob**
  Research Physicist
  Naval Research Laboratory
  Washington, DC

- **Sam Durrance**
  Director, Florida Space Research Institute
  Director, Florida Space Grant Consortium
  Kennedy Space Center, FL

- **Larry Hughes**
  Florida Space Research Institute
  Florida Space Grant Consortium
  Center for Space Education
  Kennedy Space Center, FL

- **Hussein Jirdeh Hussein**
  Director, University Relations
  Universities Space Research Association
  Columbia, MD

- **Dennis McCarthy**
  Vice President, Swales Aerospace
  Director, Engineering Services
  Beltsville, MD

- **Carl A. Nardell**
  Senior Manager, Physics
  Raytheon Santa Barbara Remote Sensing
  Goleta, CA

- **Andrew Nicholas**
  Naval Research Laboratory
  Washington, DC

- **Larry Paxton**
  Applied Physics Laboratory
  Johns Hopkins University
  Laurel, MD

- **Oscar Toledo**
  Chief Engineer & Director of System Management
  NASA

### Global Security and Intelligence Studies - Prescott

- **Anthony J. Buchla**
  Logistics Management
  Lockheed Martin
  Palmdale, CA

- **Katie Colberg**
  Manager of Strategic Services
  ASI Group
  Houston, TX

- **Donald Fleming**
  TWA (Retired)
  Independent Consultant
  New Milford, CT

- **Dr. Ronald D. Garst**
  Provost Emeritus
  National Defense Intelligence College
  Washington, DC

- **David S. Komendat**
  Director, Enterprise Security Integration
  Boeing Corporation
  Redmond, WA

- **Phillip B. Pounds**
  Director, SouthWest Operations, SNVC, L.C.
  Phoenix, AZ

- **Owen Pulliam**
  Director, Chief Security Officer
  Honeywell International (Aerospace)
  Phoenix, AZ

- **Ray Rhodes**
  International Security
  ExxonMobil Exploration Corporation
  Houston, TX

- **James Shilling**
  Director, Commercial IRCM
  Business Development
  Northrop Grumman Corporation
  Rolling Meadows, IL

### Human Factors

- **Paul Joly**
  FAA Flight Standards District Office
  Las Vegas, NV

- **Georgann Lucariello**
  Lockheed Martin Missiles and Fire Control
  Orlando, FL

- **Russell P. Milham**
  Users Experience Researcher
  Microsoft Corporation
  Redmond, WA

- **Fred Lupton**
  Manager Human Factors Group
  Toyota Technical Center
  Ann Arbor, MI

- **Joseph P. Notaro**
  Crew Systems Engineer
  Naval Air Systems Command
  Bensalem, PA

- **Robert Osgood**
  Lockheed Martin Aeronautics Co.
  Aledo, TX

- **David L. Post**
  Supervisory Principal Industrial Engineer
  Air Force Research Laboratory, Human Effectiveness Directorate
  Wright-Patterson Air Force Base, OH

- **Eric L. Snyder**
  Vice President
  Advance Development
  Raydon Corp.
  Daytona Beach, FL

- **Joseph V. Vandervelde**
  Northrop Grumman Corp.
  Engineering Process Group
  Melbourne, FL

- **Ed Winkler**
  Technical Fellow
  Human Systems
  St. Peters, MO
Center for Aerospace Safety Education

John Allen  
Deputy Director, Flight Standards  
Federal Aviation Administration  
Washington, DC

Greg Alston  
USAF Deputy Chief of Safety  
Executive Director of Air Force Safety Center  
Kirtland AFB, NM

Jim Anderson  
IOSA Project Manager  
International Air Transport Association  
Ponce Inlet, FL

Bob Blouin  
Vice President  
Phaneuf

James “Jack” Cole  
Air Transport Association  
Associate, Burdeshaw Associates, Ltd.  
Springfield, VA

Jerry Davis  
Airbus Industries  
Daytona Beach Shores, FL

Tracy Dillinger, Lt. Col., USAF  
Chief, Air Force Aviation Psychology  
Kirtland AFB, NM

Jay Evans  
Director of Operations  
NBAA  
Washington, DC

Greg Feith  
Aviation Safety Consultant  
Golden, CO

Brian Finnegan  
President  
Professional Aviation Maintenance Association  
Alexandria, VA

Peggy Gilligan  
Deputy Associate Administrator  
For Regulation and Certification  
Federal Aviation Administration  
Washington, DC

Jeff Grenier  
Manager Flight Safety Response  
Southwest Airlines  
Dallas TX

Bill Hendricks  
Air Safety Consultant  
Hendricks Associates  
Potomac, MD

Ralph Hicks  
Manager, Safety Investigations  
Delta Air Lines  
Atlanta, GA

Jim Hobart  
Manager, Flight Safety Programs  
ABX Air Inc.  
Wilmington, OH

Agnes Huff  
President and CEO,  
Agnes Huff Communications Group, LLC  
Los Angeles, CA

Dan Izard  
Executive Vice President  
Endorsement Specialty Insurance, Ltd.  
Pembroke, Bermuda

Ken Johnson  
Ottawa, Ontario, Canada

Bruce Landsberg  
Executive Director  
AOPA Air Safety Foundation  
Frederick, MD

Curt Lewis  
Curt Lewis Engineering & Associates, LLC

Dick McAdoo  
Senior Subject Matter Expert  
JPDO

Sean McHugh  
Manager, Ground Operations Safety  
JetBlue Airways Corp.  
Forest Hills, NY

Margaret Napolitan  
Attorney at Law  
Melbourne, FL

John O’Brien  
Chairman, CASE Advisory Council  
Millboro, VA

Hank Reed  
Aviation System Safety  
Boeing Commercial Airplanes  
Seattle, WA

David Robertson  
Spirit Airlines  
Ray, MI

Harry Robertson  
President, CEO  
Robertson Research Group Inc.  
Tempe, AZ

Paul Russell  
Chief Engineer  
Boeing Commercial Airplanes  
Aviation System Safety  
Commercial Airplanes Group  
Seattle, WA

Brig. Gen. Bill Spruance  
Las Vegas, NV

Dave Thomas  
Director of Safety  
Willis Group  
Springfield, VA

Steve Wallace  
Director, Office of Accident Investigation,  
Federal Aviation Administration  
Washington, DC

Buck Welch  
Section Supervisor, Product Safety  
Cessna Aircraft Company  
Wichita, KS

Ron Wojnar  
Deputy Director  
Aircraft Certification, AIR-2  
Federal Aviation Administration  
Washington, DC

Agnes Huff Communications Group, LLC
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