EMBRY-RIDDLE
AERONAUTICAL UNIVERSITY

DAYTONA BEACH, FLORIDA

1998–99 GRADUATE CATALOG

EMBRY-RIDDLE
AERONAUTICAL UNIVERSITY

Master of Aeronautical Science

Master of Aerospace Engineering

Master of Science in Aerospace Engineering

Master of Business Administration in Aviation

Executive Master of Business Administration

Master of Science in Human Factors and Systems

Master of Science in Industrial Optimization

Master of Software Engineering

Master of Science in Technical Management

Daytona Beach Campus
Embry-Riddle Aeronautical University
600 S. Clyde Morris Boulevard
Daytona Beach, FL 32114-3900
Graduate Admissions: (904) 226-6115
or (800) 388-3728
http://www.db.erau.edu
E-mail admit@db.erau.edu
Financial Aid: (800) 943-6279

Extended Campus
Embry-Riddle Aeronautical University
600 S. Clyde Morris Boulevard
Daytona Beach, FL 32114-3900
(904) 226-6910 or (800) 522-6787
http://www.ec.erau.edu
E-mail(admissions):
ecinfo@ec.db.erau.edu

In Europe Contact:
Embry-Riddle Aeronautical University
Unit 4495
APO AE 09094 4495
Telephone Number from U.S.:
011-49-631-536-7170/7152
Military Telephone: 489-7170/7152
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Designed for use during the one year period stated on the cover, this catalog gives a general description of Embry-Riddle Aeronautical University and provides detailed information regarding the departments within the institution and curricula offered by the University. The provisions of the catalog do not constitute a contract between the student and the University. The faculty and trustees of Embry-Riddle Aeronautical University reserve the right to change, without prior notice, any provision, offering, or requirement in the catalog. This includes the right to adjust tuition and fees, as necessary. The University further reserves the right at all times to require a student to withdraw for cause.

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1998-1999 CALENDAR

Fall Semester 1998 *(September 1 - December 15)*

August 26-31	Orientation and Registration
September 1	Classes begin
September 7	HOLIDAY-Labor Day
November 6	Campus Enrichment Day
November 25-27	HOLIDAY-Thanksgiving
December 8	Last day of classes
December 9	Study day
December 10-15	Final examinations
December 19	Graduation

Spring Semester 1999 *(January 11- April 22)*

January 6-8	Orientation and Registration
January 11	Classes begin
January 18	HOLIDAY-Martin Luther King Day
February 15	HOLIDAY-President's Day
February 26	Campus Enrichment Day
March 15-19	HOLIDAY-Spring Break
April 22	Last day of classes
April 23	Study day
April 24-28	Final examinations
May 1	Graduation

Summer Semester (Term A) 1999 *(May 5-June 23)*

May 3-4	Orientation and Registration
May 5	Classes begin
May 31	HOLIDAY-Memorial Day
June 23	Last day of classes
June 24	Study day
June 25-26	Final examinations

Summer Semester (Term B) 1999 *(June 28 - August 29)*

June 28-29	Orientation and Registration
June 30	Classes begin
July 5	HOLIDAY-Independence Day
August 18	Last day of classes
August 19	Study day
August 20-21	Final examinations

This 1998-1999 calendar applies to the Daytona Beach campus. It is presently under review and is subject to change. Extended Campus students should contact the local Embry-Riddle resident center director for the academic calendar applicable to their specific location.

EFFECTIVE DATE: This catalog becomes effective July 1, 1998, for the Daytona Beach campus and Extended Campus.

1998 - 1999 Graduate Program Calendar

Daytona Beach Campus

	Fall Semester 1998	Spring Semester 1999	Summer Semesters 1999
Deadlines			
Admission			
For U.S. Students	8/3/98	12/11/98	4/5/99
For International Students	6/1/98	10/12/98	2/5/99
Graduation Application	10/9/98	2/19/99	6/19/99
Thesis Defense	10/9/98	2/19/99	6/19/99
Orientation	8/31/98	1/8/99	----------

Failure to meet these deadlines may prevent admission as a regular graduate student for the semester.

To be considered a Fall or Spring graduate, thesis defense must take place by specified dates.

To be considered for a Summer A or Summer B graduate, students should check with their graduate program coordinator.

GMAT

For information on GMAT Administration, please contact ETS at (609) 771-7330.

Extended Campus

Contact local center director for appropriate dates.

MESSAGE FROM THE PRESIDENT

Choosing a path to professional development begins with a carefully planned course of post-baccalaureate study. At Embry-Riddle Aeronautical University we offer a number of challenging graduate study opportunities in aviation, engineering, business, and computer science. Our programs are designed to prepare graduates to become effective leaders of aviation professionals in a rapidly growing and ever changing environment. We are all aware that change is swift and frequent with regard to technology, policy, and practice. Embry-Riddle Aeronautical University prides itself in responding to these changes, and in many cases, leading the charge.

Graduate students attending Embry-Riddle quickly discover that they are among faculty and students who share their commitment to excellence. Many of the faculty have enjoyed distinguished careers in aviation. ERAU offers its students the opportunity to learn and work with a faculty of aviation professionals who stay at the forefront of the industry. With this depth and breadth of experience, ERAU can provide its students with the knowledge and ability for life long learning.

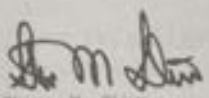
Both undergraduate and graduate students participate with faculty as part of interdisciplinary research teams. The facilities available to complement classroom activity include a large and diverse fleet of aircraft, modern laboratories in the Airway Science Simulation Laboratory, the Lehman Engineering and Technology Center, the Center for Applied Human Factors Research, and the Center for Aerospace Safety Education. Our Jack R. Hunt Memorial Library, Academic Computer Labs, and network of computing services are the envy of students and faculty across the country. Our strong ties to the aviation industry provides exciting off-campus work opportunities on government and industry projects across the United States and around the world. Several million dollars in sponsored research funds from industry and government sources also helps to provide research assistantships and on-campus job opportunities for our students.

We recognize that people who pursue graduate degrees have varying schedules and study needs. To respond, we have diversified our offerings to allow almost anyone to pursue their educational goals. We offer graduate programs at the residential Daytona Beach campus for those that can accommodate a full-time involvement. We offer programs at more than 100 Extended Campus sites throughout the world for those who must combine their studies with their current employment environment. And our new distance learning technologies and methods are flexible and available for those who cannot come to us. We bring the classroom to them.

As a part of the Embry-Riddle family, students will learn to develop communication and teamwork skills along with practical application of technical skills. Students will also learn that being a part of the Embry-Riddle family means that active resources are always available to help with job search assistance through the Career Services Office and the vast alumni network.

A graduate education at Embry-Riddle will provide students with the necessary tools to successfully emerge as leaders who will make a difference in anything and everything they do.

Best wishes for success in your educational pursuit. I look forward to seeing you on campus.



Steven M. Silva,
President

PURPOSE OF THE UNIVERSITY

Embry-Riddle Aeronautical University is an independent, non-sectarian, non-profit, coeducational university with a history dating back to the early days of aviation. The University serves culturally diverse students pursuing 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 education centers throughout the United States and abroad serves civilian and military working adults.

It is the purpose of Embry-Riddle to provide a comprehensive education that prepares graduates for productive careers and responsible citizenship to support the needs of aviation, aerospace engineering, and related fields. To achieve this goal, 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 education, with an 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 promote ethical and responsible behavior among students and graduates in local/national/international aviation and in the community at large.

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 free enterprise system and its social and economic benefits.

To develop and effectively deliver educational programs for the adult student and professional at the undergraduate and graduate level, including off-campus degree programs, short courses, independent studies, non-credit 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 to complement the academic experience by 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.

EMBRY-RIDDLE AT A GLANCE

Aviation and Embry-Riddle: The Lifelong Partnership

At the beginning of this 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, and mechanic school. The original Embry-Riddle operations fit that mold precisely.

On Dec. 17, 1925, exactly 22 years after the historic flight of the Wright Flyer, barnstormer John Paul Riddle and entrepreneur T. Higbee Embry founded the Embry-Riddle Company at Lunken Airport in Cincinnati, Ohio. The following spring, the company opened the Embry-Riddle School of Aviation.

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 Isabell 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 into one location. Accomplished in borrowed trucks with borrowed dollars from Daytona civic leaders, this move proved to be a moment of singular importance. It signaled the rebirth of Embry-Riddle and the start of its odyssey to world-class status in aviation higher education. Within three years, Embry-Riddle was accredited by the Commission on Colleges of the Southern Association of Colleges and Schools. Two years later, Embry-Riddle became a university.

Also under President Hunt's leadership, Embry-Riddle opened a western campus in Prescott, Arizona, on the 510-acre site of a former college. With superb flying weather, expansive grounds, and many buildings, the Prescott campus has been an outstanding companion to the University's eastern campus.

Continuing the legacy left behind by Hunt was Lt. General Kenneth L. Tallman, who was president of Embry-Riddle for five years. He came to the University after a distinguished 35-year military career, which 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 an Engineering Physics degree. He also developed stronger ties between Embry-Riddle and the aviation/aerospace industry.

Embry-Riddle At A Glance

Embry-Riddle is moving through an exciting, dynamic era that requires a leader of the same caliber to guide the University into the 21st century. Embry-Riddle believes President Steven M. Sliwa, Ph.D., has the vision and the experience necessary to successfully lead the University into 2000 and beyond. Prior to assuming the presidency, Dr. Sliwa held several leadership positions in aviation and aerospace organizations as well as educational enterprises. Dr. Sliwa has moved quickly to bring about major changes in the University, reorganizing it to improve communications and emphasizing the areas of student life, space studies and academics.

Dr. Sliwa obtained the largest federal appropriation ever awarded to a University. It has helped fund the construction of four buildings on the Daytona Beach campus and two buildings on the Prescott campus. A strong advocate of the use of technology, Dr. Sliwa also moved the University into the area of distance education. A sophisticated networking system now allows Embry-Riddle students to electronically connect with other institutions, instructors, and classmates around the world.

Recently, the University combined forces with FlightSafety International to create an advanced flight simulation center on the University's Daytona Beach campus. It houses two FAA Level D full motion simulators, a Boeing 737-300 and a Beech 1900D and will provide a level of training not available at any other university in the world.

Embry-Riddle is a global institution which holds a prominent position in aviation/aerospace education. The University is the world's largest independent aeronautical university and boasts a student body of 21,000 who come from all 50 states and more than 100 nations. The University offers over 30 degree programs, with 9 offered at the master's level. Many students receive their degrees from over 100 education centers located in the United States and Europe. Embry-Riddle also provides flexible educational services to thousands of working adults through the Extended Campus.

Accreditations and Affiliations

Embry-Riddle is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award degrees at the associate, bachelor's, and master's levels. The Master of Business Administration (MBA/A) is accredited on the Daytona Beach campus by the Association of Collegiate Business Schools and Programs (ACBSP), and by the Council on Aviation Accreditation (CAA).

Research and Creative Activities

An important role for any university is the creation of new knowledge. At Embry-Riddle this function is closely tied to the graduate program with a strong emphasis on applied research. The University's up-to-date laboratories, wind tunnels, computer equipment, flight simulators, and fleet of aircraft provide a perfect setting for research projects involving students working under the direction of faculty members. Much of this work is funded by the University, but in the past several years the amount of externally funded work has been steadily growing. Areas of investigation include aerodynamics, acoustics, structures, propulsion, satellite development, space physics, aviation weather, simulation, pilot and air traffic controller training, human factors affecting the cockpit, air crew, the National Airspace System, and aviation business management.

The pace of research in aviation and related fields at Embry-Riddle is expected to continue accelerating. Development and use of the extensive, and often unique resources available at the University, will increase. The combination of the University's technically advanced resources, highly skilled faculty, staff, and students with strong spirits of inquiry, will make lasting contributions to air travel safety and efficiency, fulfilling in part Embry-Riddle's role as a world leader in aviation and aerospace higher education.

Embry-Riddle At A Glance

Graduate Students

Many graduate students have established careers in flight, aviation management, maintenance, maintenance management, air traffic control, computer science, software engineering, and engineering. Their experience enhances the interaction within the classroom by providing insight from their current experience within the military and civilian aviation industry.

Alumni Network

Upon graduation, the alumni of Embry-Riddle Aeronautical University join a very "elite" network comprised of over 38,000 members who share that special bond of being an Embry-Riddle Aeronautical University alumnus. The Office of Alumni Relations maintains contact with this network, supplying services to the members of the alumni body, and providing opportunities to them through organized programs to assist themselves, their fellow alumni, and their alma mater.

Services and Opportunities Available to the Alumni:

Alumni Chapters: Alumni Chapters form the grass roots level of support for Embry-Riddle, promoting the welfare and interests of the University and its alumni in local communities across the nation and around the globe. They encourage alumni in their area to become acquainted, engage in community activities, take part in career networking opportunities, and enjoy social activities, all in the name of Embry-Riddle.

Career Networking: Where once students looked to their alma maters for help only in finding their first postgraduation jobs, more recently it has become customary for graduates to turn to their universities for job assistance throughout their careers. At Embry-Riddle, graduates may use the Career Services Office for assistance with resume development, tips on job searches, establishing a job file, and career networking.

Communications: The Alumni Network Newsletter is published six times a year and provides the alumni with an up-to-date calendar of University events, athletic team scores and schedules, alumni class notes, and University happenings. The Leader is a bi-annual magazine that features in-depth stories on alumni, the industry, and the University. Communication with the University can also be maintained by means of the Internet. Embry-Riddle has a home page on the World Wide Web that can be accessed as http://www.erau.edu.

Embry-Riddle At A Glance

The excellence of any educational institution depends heavily upon the quality, interest, and participation of its alumni. Embry-Riddle's alumni participate as guest speakers, serve on advisory councils, supply media experts, and are active in many other activities, providing role models for the current students to emulate, thus continually elevating the status of the University. For more information, please contact the Office of Alumni Relations at 904-226-6160, or 800-727-3728.

Campus Information

Daytona Beach Campus

The Daytona Beach campus is next to the Daytona Beach International Airport. The high-technology industry in the Orlando area, as well as nearby Kennedy Space Center, provide the University with an outstanding support base.

The Lehman Engineering and Technology Centers on both the Daytona Beach and Prescott campuses feature laboratories with the latest research and computer equipment. Distance learning, a cornerstone of 21st century education at Embry-Riddle, is now available through an electronic link between the residential campuses. As a result, faculty members at one campus are able to teach students at another campus, enabling students at different locations to work together on joint projects. It also allows the University to demonstrate its world leadership in distributed design and management education. The building has subsonic and supersonic wind tunnels and a smoke tunnel as well as structures, materials, aircraft design, and composite materials laboratories. A grant from the National Science Foundation made possible the purchase of the first stereolithography unit to be used by students in this country. The revolutionary process lets design students produce prototypes of aircraft structures and test their designs in a short period of time.

The Lindbergh Center provides modern classroom facilities and houses the reading, chemistry, and physics laboratories. The computer science complex provides hands-on experience with mainframe and personal computers.

Embry-Riddle is proud of its multi-million dollar Airway Science Simulation Laboratory at Daytona Beach, which simulates the elements of the National Airspace System. This center for aviation research and education contains state-of-the-art equipment used for instruction in air traffic control, pilot simulation, weather information, airports and airways, and pilot and aircraft performance.

The John Paul Riddle Student Service Center offers a full-service cafeteria, fully equipped bookstore, mailroom, health services, records and registration, parking office, communication office, Flight Deck grill, Landing Strip snack bar, student activities offices, conference rooms, and the Department of Judicial Affairs.

Spruance Hall, at the main entrance to the campus, incorporates a floor plan designed for student convenience. The building houses the admissions office, student financial services, student employment, cashier, financial aid, career services office, and some classrooms. The office of the President is also located in the building.

The Jack R. Hunt Memorial Library is a 48,000-square-foot facility with a seating capacity of 800. The building holds more than 50,800 books, as well as periodicals, documents, newspapers, microfilm, media programs, and a historical aviation collection with materials

from 1909 to the present. Complete service is provided seven days a week throughout the academic term, with extended hours during final examinations. A computer link is maintained with the Southeastern Library Network (Solinet), which connects 6,000 libraries nationwide for shared cataloging and 200 databases that list documents, reports, conference proceedings, journal articles, doctoral dissertations, and many other kinds of information.

Additional facilities include a multi-functional auditorium and instructional media center, a field house with adjacent athletic fields, and an Interfaith Chapel.

Extended Campus

For more than 25 years Embry-Riddle has recognized that the people who work in aviation and aerospace regard education and professional development as top priorities. Opportunities to learn and grow are actively sought because aviation and aerospace are linked to advancing technology and must respond quickly to changes in their environments.

However, not long ago the educational goals of working adults were often frustrated. Common hurdles in aviation jobs, included irregular work schedules, frequent travel, job relocations, and family responsibilities. Navigating around the obstacles to get an education was difficult because few colleges or universities were configured to respond to the needs of adult learners. Few classes were scheduled at times these people could attend.

Embry-Riddle established the Extended Campus to serve the needs of adult learners. Innovation has been, and continues to be, the primary catalyst for the growth and success of the Campus. Three pathways to higher education have been developed to deliver courses and programs to students wherever they may be:

- Classroom classes at more than 100 resident centers,
- Distance learning classes through the resident centers,
- Distance learning classes anywhere in the world through the Center for Distance Learning.

The Campus maintains a comprehensive system of academic control to insure that the same learning objectives are consistently achieved regardless of where or by what means the content of a course may be taught. The same degree curricula, academic policies and academic standards are utilized by all University campuses. Procedures may differ somewhat to accommodate variances in structure, organization and location.

Students may transfer among the campuses confident that academic work will be of comparable quality and, for the most part, integrate with the courses to be taken at the new location. The

applicability of University and transfer courses may vary slightly in one or two degree programs due to specialized accreditation. Acceptance and application of Embry-Riddle courses by other institutions is in accordance with the policies of the individual institution.

In order to serve the unique needs of students who are members of the United States military services, Embry-Riddle is an active member in Servicemembers Opportunity Colleges (SOC), a consortium of national higher education associations and more than 1,000 colleges and universities. The consortium operates in conjunction with the Department of Defense, the military services, and the educational institutions to help military personnel participate in voluntary educational opportunities and complete the requirements of the degree programs they choose to pursue. The University subscribes to SOC principles, criteria, and operating guidelines in the delivery of high quality academic programs to military students.

Selection of Extended Campus faculty is based on academic credentials and professional experience. Emphasis is given to aviation relevance and knowledge and understanding of current information and issues. Appointment and certification are determined in accordance with the criteria and standards followed throughout the University.

Extended Campus classes are scheduled to accommodate the needs of adult students, most of whom participate on a part-time basis. Terms are shorter than the standard semester but more class time is scheduled per week. The same amount of classroom instruction is provided for each course as would be provided in a full semester. Classes may be scheduled in the early morning, during lunch periods, in the evening, or on a series of weekends. The length and starting and ending dates of terms vary by location.

The Extended Campus is organized as follows:

A. Associate Vice President/COO
B. Education Components:
   - College of Career Education, the network of resident centers in the United States and western Europe
   - Center for Distance Learning
   - Division of Continuing Education
   - Embry-Riddle Language Institute
C. Support Departments:
   - Admissions, Records and Registration
   - Center for Instructional Development and Effectiveness
   - Library Support
   - EC Computer Support

College of Career Education (CCE)

Since the first resident center opened at Fort Rucker, Alabama, in 1970 the College of Career Education network of resident centers has spread throughout the United States, including Alaska and Hawaii, and western Europe. The network spans 12 time zones, more than 30 states and 5 European countries. The typical resident center is located at or near a concentration of aviation activities, either civilian, military, or both. In addition to clients in the military services, most resident centers located on military installations are authorized to enroll other U.S. government employees, dependents and local civilians.

All resident centers are approved for veterans' educational benefits and by the appropriate state agencies. An alphabetical list of the resident centers locations can be found at the end of this catalog.

Department of Library Support

The Department of Library Support assists students, faculty, and staff of the Extended Campus with access to materials, to support their informational, instructional, and research needs. The Department provides resident centers with aviation-related reserve book collections, periodical subscriptions, Aviation Tradescan Index subscriptions, and a videotape collection. The Department also develops and publishes a video catalog, a substantial assembly of aviation reference materials referred to as the Riddle Aviation Collection (RAC), and library guides for each resident center. Additionally, it offers an article reprint service, a database search service, and has a home page on the World Wide Web along with other services.

Center for Distance Learning

As the network of resident centers grew, the identity of a new and unserved segment of the aviation population interested in higher education began to form. Early signs of this emerging group came from resident center students who were transferred to locations not served by a resident center before they had completed degree requirements. Later, the Campus began to receive inquiries from people working in aviation in small communities or isolated locales around the world which would never be able to support a resident center. Interest was expressed by workers for whom a regularly scheduled work day was an unfamiliar concept.

The Center for Distance Learning was organized and developed to extend the opportunity to earn an Embry-Riddle degree to anyone who was eligible for admission regardless of where they might be living. The Center is approved for graduate students eligible to

receive education benefits from the U.S. Department of Veterans Affairs (DVA).

Tuition assistance for active duty military personnel is approved by the Defense Activity for Nontraditional Education Support (DANTES).

Interested graduate students should contact the Center for Distance Learning at the following:

Embry-Riddle Aeronautical University
Center for Distance Learning
Graduate Program Manager
600 S. Clyde Morris blvd.
Daytona Beach, FL 32114-3900
1-800-866-6271
e-mail: galloglj@cts.db.erau.edu

Division of Continuing Education

The Division of Continuing Education extends the resources of the University by offering seminars, workshops, training and development, and aviation education programs. Program topics relate to, but are not limited to, the course work offered through the various departments of the University, such as flight, aviation maintenance, aviation engineering technology, aerospace engineering, aviation business administration, and aeronautical and aerospace science.

In addition, the Division of Continuing Education links the resources of the University to the need for aviation professional and educational programs, including the development of specialized training courses. Consulting services to the international education and aviation community also are made available on a contract basis. Call (904) 226-6186 or FAX (904) 226-7630 for more information.

Community Outreach Studies

Through Community Outreach Studies, college credit and non-credit courses of special interest to local residents and aviation enthusiasts are offered in the evening and on some weekends.

Aviation professional training and development courses are available at the Daytona Beach campus and various off-site locations, at any of the College of Career Education resident centers, or through special arrangements such as computer-based training, video course work, and satellite networking. Special courses and training may be developed for individuals, organizations and firms to meet specific learning objectives. Call (904) 226-6186 or FAX (904) 226-7630 for more information.

Center for Instructional Development and Effectiveness

The Center for Instructional Development and Effectiveness (CID/E) works with departments and faculty throughout the University to produce instructional and promotional media, including video and audio tapes, still photography, graphic artwork, multimedia products, and telecommunications. The Center also provides expertise in the analysis, design, development, and evaluation of curricula and instruction. The Center assists in improving teaching and learning by enhancing faculty instructional delivery strategies, and is responsible for developing distance learning using state-of-the-art technology.

Prescott Campus

Primarily oriented towards undergraduate education, and located in one of the most picturesque portions of the Grand Canyon State only 100 miles north of Phoenix, the mile-high Prescott campus covers 510 acres.

The aerospace engineering laboratories provide extensive and significant hands-on experience for students. The wind tunnel laboratory contains a research quality subsonic wind tunnel with a 3x4 ft. test section. In addition, a state-of-the-art 1x1 ft. test section is used extensively to investigate the principles of aerodynamics.

A modern supersonic wind tunnel and a shock tube allows investigations of flow with shock. A materials laboratory contains the latest equipment to study the properties of materials, including heat treatment. The engineering graphics and the aircraft design labs have modern computer-aided design equipment. The aircraft structures and composite labs analyze structural aspects of aerospace vehicles, and include an electron microscope capable of magnifying images 70,000 times.

Five modern laboratories support academic instruction in electrical engineering through demonstrations, designs and experiments with aerospace electronics applications. The basic circuits and electronic devices lab, the digital circuits and microcomputer applications lab, the communications system lab, the analog/digital control system lab, and the power and electronics lab all provide resources for avionics design and other student projects.

The Flight Training Center, which is located at Ernest A. Love Field just minutes from the campus, includes the flight operations center, flight line, ramp, and simulator laboratory. Flight instruction is provided in a modern, well equipped fleet of single and multi-engine aircraft.

Admission To The University

There are three ways that a student is able to take classes in the graduate program. The first two are through formal (full or conditional) admission. The third is for qualified students who wish to take individual classes for personal or professional development as non-degree seeking students.

Embry-Riddle seeks graduate students of good character, who have demonstrated scholastic achievement and capacity for future growth. Applicants to all programs must possess an earned Bachelor's degree from a regionally accredited institution at the time of enrollment. All admissions decisions are provisional until this requirement is fulfilled. 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 notifications of acceptance. Normally they will be specified in the form of bodies of knowledge covered by specific Embry-Riddle undergraduate courses; but it is understood that students are free to acquire the necessary mastery by whatever method best suits their needs: taking the specified courses at Embry-Riddle, their equivalent at some other regionally accredited institution, or by self-study. When the prospective student is deficient in some aspects of the background material needed to pursue graduate study, conditional admission may be granted pending the successful completion of 12 hours of graduate level courses directly related to the degree sought.

Since all admissions are granted on a competitive basis, criteria based solely on some minimum undergraduate grade point average are misleading. The Graduate Programs and Research office and the individual program coordinators at the Daytona Beach campus, or the center director in the case of the Extended Campus, consider

each applicant individually. Criteria for admission may include: scholastic ability, maturity, demonstrated accomplishment, statements of purpose, letters of recommendation, a capacity for growth, scholastic talent, and an enthusiasm for the field of aerospace they wish to pursue. In addition to these general requirements, each program has a set of requirements set forth in the following section.

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 campus, the appropriate center director for the Extended Campus, the Center for Distance Learning, or the Admissions Office for the Extended Campus.

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 should the applicant fail to meet the requirement before the specified date for the start of graduate study.

Full Admission

Prospective graduate students must meet the following criteria, as appropriate, for each program in order to be admitted to full graduate status:

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

1. Applicants must possess an earned Bachelor of Science degree in aeronautical or aerospace engineering or equivalent. If earned in the United States, this degree must be from an ABET accredited program. If earned outside the United States, the degree must be from an institution that past admission experience has proven offers the equivalent of an ABET accredited program.
2. Students with a Bachelor of Science or equivalent degrees in other engineering disciplines, mathematics, or physical science, who otherwise meet the requirements for full graduate status, may be admitted to the MSAE or MAE program at the option of the department.
3. Applicants must have earned a minimum overall cumulative grade point average (CGPA) of 2.50 out of a possible 4.00 and must have earned a minimum CGPA of 3.00 in discipline out of a possible 4.00 in their junior and senior years. A master's degree or higher earned may, on occasion, be sufficient for this requirement.
4. If in the opinion of the Dean of Graduate Programs and Research there are mitigating circumstances that would indicate that despite failure to meet these criteria an individual may still

have a successful graduate study career, admission may be granted under conditional status to the MSAE or MAE program.
5. Although generally not required of applicants able to demonstrate compliance with the admission criteria stated above, in cases where some data are unavailable, or in which some question exists about the validity of earlier scholastic achievements, applicants may be requested to take the Graduate Record Examination (GRE). A minimum combined score of at least 1000 on the verbal and quantitative sections of the examination is required.

Master of Aeronautical Science (MAS)

1. Applicants must possess an earned baccalaureate degree or equivalent. If earned in the United States, this degree must be from a regionally accredited college or university. If earned outside the United States, the degree must be from an institution that past admission experience has proven offers a degree program that is equivalent to one in an accredited college or university.
2. Applicants must have earned a minimum overall CGPA of 2.50 out of a possible 4.00. A master's degree or higher earned may, on occasion, be sufficient for this requirement.
3. If in the opinion of the Dean of Graduate Programs and Research, or in the case of the Extended Campus, the center director, there are mitigating circumstances that would indicate that in spite of failure to meet these criteria an individual may have a successful graduate study career, admission may be granted under conditional status to the MAS program.

Master of Business Administration

Master of Business Administration in Aviation Option

Executive Master of Business Administration Option

1. Applicants must possess an earned baccalaureate degree or equivalent. If earned in the United States, this degree must be from a regionally accredited college or university. If earned outside the United States, the degree must be from an institution that past admission experience has proven offers a degree program that is equivalent to one in an accredited college or university.
2. Applicants must have earned a minimum overall cumulative grade point average (CGPA) of 2.50 out of a possible 4.00 and must have earned a minimum CGPA of 3.00 out of a possible 4.00 in their junior and senior years. A master's degree or higher earned may, on occasion, be sufficient for this requirement.

3. If, in the opinion of the Dean of Graduate Programs and Research for the Daytona Beach campus or the Dean of Academics, College of Career Education for the Extended Campus, there are mitigating circumstances that would indicate that in spite of failure to meet these criteria an individual may have a successful graduate study career, admission may be granted under conditional status to the MBA program.
4. Applicants for admission to the MBA/A program must take the Graduate Management Admission Test (GMAT) before matriculating.
5. Applicants seeking admission for the Executive MBA option must have extensive work experience, some at the management/supervisory level.

Master of Science in Human Factors and Systems (MSHFS)

1. Applicants must possess an earned baccalaureate degree, or equivalent. If earned in the United States, this degree must be from an accredited college or university. If earned outside the United States, the degree must be from an institution that past admission experience has proven offers a degree program that is equivalent to one in an accredited college or university. When this experience is lacking, the student may be admitted under conditional status to the MSHFS program.
2. Applicants must have earned a minimum overall cumulative grade point average (CGPA) of 2.50 out of a possible 4.00 and must have earned a minimum CGPA of 3.00 out of a possible 4:00 in their senior year. A master's degree or higher earned may, on occasion, be sufficient for this requirement.
3. If, in the opinion of the Dean of Graduate Programs and Research, or in the case of the Extended Campus, the center director, there are mitigating circumstances that would indicate that in spite of failure to meet these criteria an individual may have a successful graduate study career, admission may be granted under conditional status to the MSHFS program.
4. Although generally not required of applicants able to demonstrate compliance with the admission criteria stated above, in cases where some data are unavailable, or in which some question exists about the validity of earlier scholastic achievements, applicants may be requested to take the Graduate Record Examination(GRE). A minimum combined score of over 1000 on the verbal and quantitative sections of the examination is required.

Master of Science in Industrial Optimization (MSIO)

1. Applicants must possess an earned baccalaureate degree or equivalent in engineering or science. If earned in the United States, this degree must be from an accredited college or university. If earned outside the United States, the degree must be from an institution that past admission experience has proven offers a degree program that is equivalent to one in an accredited college or university. When this experience is lacking, the student may be admitted under conditional status to the MSIO program.
2. Applicants must have earned a minimum overall cumulative grade point average (CGPA) of 2.50 out of a possible 4.00 and must have earned a minimum CGPA of 3.00 out of a possible 4.00 in their senior year. A master's degree or higher earned may, on occasion, be sufficient for this requirement.
3. If, in the opinion of the Dean of Graduate Programs and Research, there are mitigating circumstances indicating that, in spite of failure to meet these criteria, an individual may have a successful graduate study career, admission may be granted under conditional status to the MSIO program.
4. Although generally not required of applicants able to demonstrate compliance with the admission criteria stated above, in cases where some data are unavailable, or in which some question exists about the validity of earlier scholastic achievements, applicants may be required to take the Graduate Record Exam (GRE). A minimum combined score of over 1000 on the verbal and quantitative sections of the examination is required.

Master of Software Engineering (MSE)

1. Applicants must possess an earned baccalaureate degree or equivalent. If earned in the United States, this degree must be from a regionally accredited college or university. If earned outside the United States, the degree must be from an institution that past admission experience has proven offers a degree program that is equivalent to one in an accredited college or university. When this experience is lacking, the student may be admitted under conditional status to the MSE program.
2. Applicants must have earned a minimum overall cumulative grade point average (CGPA) of 2.50 out of a possible 4.00 and must have earned a minimum CGPA of 3.00 out of a possible 4.00 in their senior year. A master's degree or higher earned may, on occasion, be sufficient for this requirement.
3. If, in the opinion of the Dean of Graduate Programs and Research, or in the case of the Extended Campus, the center

director, there are mitigating circumstances that would indicate that in spite of failure to meet these criteria an individual may have a successful graduate study career, admission may be granted under conditional status to the MSE program.
4. Applicants must have an adequate computer science background or be willing to take the necessary prerequisites.
5. Although generally not required of applicants able to demonstrate compliance with the admission criteria stated above, in cases where some data are unavailable, or in which some question exists about the validity of earlier scholastic achievements, applicants may be requested to take the Graduate Record Examination (GRE). A minimum combined score of over 1000 on the verbal and quantitative sections of the examination is required.

*Master of Science in Technical Management (MSTM)**

1. Applicants must possess an earned baccalaureate degree or equivalent. If earned in the United States, this degree must be from a regionally accredited college or university. If earned outside the United States, the degree must be from an institution that past admission experience has proven offers a degree program that is equivalent to one in a regionally accredited college or university. When this background is lacking, the student may be admitted based on the results of the admissions interview.
2. Applicants must have earned a minimum overall cumulative grade point average (CGPA) of 2.50 out of a possible 4.00. A master's degree or higher earned may, on occasion, be sufficient for this requirement.
3. An admissions interview is required.

*The MSTM degree program is delivered through the Extended Campus, and only on-site at selected industry locations.

Conditional Admission

1. Students who are not eligible for full admission may be granted conditional admission under certain circumstances. Students may be granted conditional admission to ascertain their ability to pursue graduate work if previous grades or GMAT scores are on the borderline of acceptability.
2. Students admitted on conditional status will be monitored closely as to scholarly performance. Conditional status will be granted only until the completion of a maximum of twelve credit hours of graduate work, after which the student must be admitted to full status or be dismissed from the program. An average of B or better must be attained, and no more than one C

may be earned in any course at any time while on conditional status. Failure to meet these standards will result in dismissal.
3. Deficiencies in prerequisites may be made up in appropriate Embry-Riddle courses, their equivalent, or by self-study. Such courses do not count toward credits required for the graduate degree.
4. 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.

Non-Degree Seeking Students

1. With the permission of the Dean of Graduate Programs and Research on the Daytona Beach campus, the center director on the Extended Campus, or the Center for Distance Learning, students possessing a bachelor's degree from a regionally accredited postsecondary institution who have not been admitted to a graduate degree program may enroll in graduate courses up to twelve credit hours. An undergraduate transcript must be submitted to the University before the student will be allowed to enroll, but the GRE or GMAT examinations are not required.
2. Should a non-degree student subsequently apply for entry into a degree program, all admission requirements must be met. Up to 12 graduate credit hours may be applied to the degree. In order for such credit to be applied to a graduate degree program, it must have been earned within the seven-year calendar period immediately prior to admission to the degree program.

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.

Daytona Beach applicants should submit their applications for admission to:

Embry-Riddle Aeronautical University
Graduate Admissions Office
600 S. Clyde Morris Blvd.
Daytona Beach, Florida 32114-3900
Toll Free (800) 388-3728 or
Worldwide (904) 226-6115
Email: admit@db.erau.edu

To apply for admission to graduate programs offered by the Extended Campus, all required documents must be submitted to the resident center which the applicant plans to attend, or sent to the Center for Distance Learning. A listing of the centers offering graduate programs may be found in the back of this catalog, or you may contact the Extended Campus Admissions, Records and Registration Office.

Information regarding admissions procedures/policies for the Executive MBA option are documented separately. Please contact the following office for information:

Embry-Riddle Aeronautical University
Business Administration Office
Executive Management Institute
600 S. Clyde Morris Blvd.
Daytona Beach, Florida 32114-3900
Worldwide (904) 226-7946
FAX: (904) 226-7984
Email: kelleyk@cts.db.erau.edu

United States Citizens and Permanent Residents of the United States

All of the following items must be received by the Graduate Admissions Office at the Daytona Beach campus, the appropriate resident center, or the Center for Distance Learning at least 30 days before the first day of the initial term in which the applicant plans to enroll:

1. Completed application form and application fee.
2. The Daytona Beach campus requires a statement of objectives, and three letters of recommendation.
3. Official transcripts must be received directly from the college or university where course work was attempted: i,e.,
   a. Institutions where the baccalaureate degree was earned;
   b. All graduate course work attempted; and
   c. Undergraduate courses which may be prerequisites for graduate courses.

In some cases, applicants wishing to transfer graduate credit may be requested to submit the catalog(s) from the institution where the credit was earned. The catalog(s) must be marked to indicate the courses to be reviewed.

4. Official test result reports sent directly from the testing authority for DANTES or CLEP examinations applicable to undergraduate prerequisite requirements.
5. GRE scores (under certain circumstances), or GMAT scores, as appropriate.

International Applicants

International applicants are those non-resident, non-immigrant applicants entering the United States on visas valid for educational purposes. Embry-Riddle is authorized under Federal laws to enroll non-immigrant alien students. International applicants may enroll at the Daytona Beach campus. Those students interested in attending the Extended Campus in the United States or Europe are advised to contact the director of the specific resident center for information and special approval. Applicants interested in independent study are advised to contact the Center for Distance Learning.

The following items must be received at the Graduate Admissions Office, Daytona Beach campus, the appropriate Extended Campus resident center, or the Center for Distance Learning at least 90 days before the first day of the initial term in which the applicant plans to enroll:

1. Completed application form and application fee.
2. The Daytona Beach campus requires a statement of objectives, and three letters of recommendation.
3. Official transcripts must be received directly from the college or university where course work was attempted: i,e.,
   a. Institutions where the baccalaureate degree was earned;
   b. All graduate course work attempted; and
   c. Undergraduate courses which may be prerequisites for graduate courses.

In some cases, applicants wishing to transfer graduate credit may be requested to submit the catalog(s) from the institution where the credit was earned. The catalog(s) must be marked to indicate the courses to be reviewed.

4. Applicants may be required to obtain a detailed evaluation of all foreign college or university educational credentials. This evaluation must include a course-by-course evaluation and a grade point average calculation. Students should not request an official evaluation unless they are advised to do so by the Graduate Admissions Office. All Extended Campus students are required to obtain the evaluation.
5. 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 evidence of English language proficiency. Evidence consists of an official test result report for the Test of English as a Foreign Language (TOEFL) received directly from the testing agency. The minimum acceptable score is 550.
6. International applicants whose native language is English, or who have studied at a United States college or university for at least one year, need not submit TOEFL scores, but, if applying to

the MBA/A program on the Daytona Beach campus, must submit satisfactory GMAT scores.

7. Bank letter, affidavit of financial support, or official notification of public or private organizational sponsorship. Daytona Beach applicants without sponsorship must remit a $5,000 deposit. In addition, international students must be fully prepared upon arrival at the University to meet all normal living expenses and manage their finances throughout their stay.

Upon notification of acceptance for graduate study, international applicants must remit the required advance tuition deposit. Upon receipt of the deposit, the University will send written confirmation of enrollment eligibility and will issue the Certificate of Eligibility (U.S. Immigration and Naturalization Service Form I-20). The I-20 Form must be in the students' possession before departure and presented to the nearest U.S. embassy or consulate to obtain the necessary entry visa before departure to the United States.

The foregoing 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 required procedures to obtain approval of the U.S. Immigration and Naturalization Service for the transfer. Students should seek the assistance of the international student advisor at the school from which they wish to transfer.

Admission Time Limit

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

Admission Deposit For Daytona Beach Campus

Students accepted for admission must submit a $150 advance tuition deposit no later than 30 calendar days before matriculation. This deposit confirms admission to the University and is credited toward the first semester's tuition.

The deposit will be held in the student's account for one year should the student enroll during that year. After one year, the deposit is forfeited.

A student who cancels the application at any point in the admissions process may reactivate the application at any time up to one year from the date of acceptance. After one year, a new application, fee, and supporting documents must be submitted.

Admission To The University

Transfer And Advanced Standing Credit

The combined total of transfer and advanced standing credit applied to an Embry-Riddle graduate degree may not exceed twelve credit hours.

Transfer credit will be accepted only if all of the following conditions are satisfied:

1. Official transcripts from institutions where credit was earned were received directly from the institutions.
2. The courses were completed with a minimum grade of B or equivalent.
3. The courses were completed within the seven-year period immediately preceding the date the application for admission was received at the Graduate Admissions Office on the Daytona Beach campus, or the Extended Campus Admissions, Records and Registration Office.

Advanced standing credit may be granted for successful completion of certain senior United States military service schools. Credit for the completion of senior service schools will be applied to degree requirements if the subject matter is relevant to the applicant's degree program. The seven-year time limit will not be applied to advanced standing credit for eligible senior military service schools if the service member is on active duty when accepted for admission. The seven-year time limit commences on the date the service member separates from active military service. The eligibility of a school for advanced standing credit and the level of credit to be granted is in accordance with the current "Guide to the Evaluation of Educational Experiences in the Armed Services" published by the American Council on Education and established University procedures.

Intra-University Transfer

Graduate students who have matriculated on either the Daytona Beach or Extended 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. A vacancy must exist in the program to which the student wishes to transfer, either permanently or as a visiting student.

The time required for the transfer of the necessary records is apt to be lengthy and students will not be allowed to attend classes until all elements of the process are complete. 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.

ACADEMIC REGULATIONS AND PROCEDURES

Academic Regulations and Procedures

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 resident centers, 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

At the Daytona Beach campus, the graduate program coordinator is the student's academic adviser. At Extended Campus locations, the resident center director is responsible for academic advisement. Distance Learning students should contact the Director of the Center for Distance Learning for academic advisement. Academic advisers help students choose and schedule courses that meet their educational goals. Daytona Beach campus requires the adviser's signature on all registration and add/drop forms.

Academic advisers post a schedule of office hours, and students should feel free to call on their advisers 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 requiring information about registration procedures at Extended Campus locations should contact the appropriate resident center. Students are not officially enrolled until they complete all phases of registration, including financial requirements.

Late registration will be allowed during the first three 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 or the resident center schedule, whichever applies. Students should contact the Center for Distance Learning for specific registration information.

Schedule of Classes

A schedule of classes is prepared for each term at all locations served by the University. 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 Aeronautical University is committed to maintaining and upholding intellectual integrity. The faculty, departments, 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.
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 detracting from the course may be excluded from the course by the Dean of Graduate Programs and Research with a grade of "W" or "WF". Students have five calender 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.

Academic Regulations and Procedures

Course Loads

The normal maximum course load for graduate students is nine credit hours per term. If a student demonstrates exceptional academic performance, the department graduate program coordinator or the Extended Campus resident center director may approve a maximum one-course overload. The Dean of Graduate Programs and Research, or the resident center director may restrict a student's enrollment when deemed in the best interests of the student.

Full-time enrollment criteria varies by the length of the term.

The Grading System

The following indicators are used on grade reports and transcripts.

LETTER GRADE	STUDENT PERFORMANCE	GRADE POINTS PER CREDIT HOUR
A	Superior	4
B	Above Average	3
C	Average	2
F	Failure	0
WF	Withdrawal from the University-Failing	0
W	Withdrawal from a course	N/A
AU	Audit	N/A
I	Passing but incomplete	N/A
N	No grade submitted by instructor	N/A
P	Passing grade (credit)	N/A
IP	In Progress	N/A
S	Satisfactory (non-credit)	N/A

Grade Reports

Grade reports are issued at the end of each term. All reports of grades are mailed directly to the student at the most current address on file in the office of Records and Registration. 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.

Academic Regulations and Procedures

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, F, and WF only.

Thesis Grading

A final grade of P or F is awarded upon completion of the thesis. While research is in progress, a grade of IP is awarded at the end of each term. Students who do not complete their thesis within the number of credit hours required by their degree program, are normally required to register for one credit hour for every subsequent term. The thesis option is not available to Center for Distance Learning students.

Graduate Research Project Grading

A final grade of P or F is awarded upon completion of the graduate research project. While research is in progress, a grade of IP is awarded at the end of each term. Students who do not complete their graduate research project within the number of credit hours required by their degree program, are normally required to register for one credit hour for every subsequent term.

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. On the Daytona Beach campus, 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.

Because the length of academic terms varies within the Extended Campus, the withdrawal period also varies. Generally, students who withdraw up to the middle of the term, unless otherwise established by any contract or memorandum of understanding/agreement, receive a grade of W.

Incomplete Grades (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 within 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.

The resident center director or the Extended Campus Department of Admissions, Records and Registration may restrict the enrollment of students who have outstanding incompletes or a history of repeated incompletes.

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 elect to take selected Embry-Riddle graduate courses, normally 500 level, for credit towards their undergraduate or graduate degree. Extended Campus students must be within two courses of completing the requirements for the bachelor's degree. Any graduate course used to fulfill undergraduate elective requirements cannot be used for graduate credit.

Academic Warning and Dismissal

Warning

Students on full-status 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 within the next twelve hours of graduate work.

Dismissal

Students on conditional status who fail to earn a B average, or earn more than one C at any time during the first twelve credit hours of graduate work attempted will be dismissed.

Students will also be dismissed under the following conditions:

1. Earn less than a B in three graduate courses;
2. Earn an F in two graduate courses;
3. Are on academic warning and fail to earn a 3.00 CGPA within the next twelve hours of graduate work;
4. Earn less than a 2.5 cumulative grade point average;
5. Students enrolled in the Master of Science in Technical Management degree program, who earn an F in TM 500, Communications and Computer Skills with Quantitative Methods.

Students who are dismissed from the University in accordance with the above standards, may appeal for readmission to the Dean of Graduate Programs and Research on the Daytona Beach campus, or the Dean of Academics for the Extended Campus, within thirty calendar days of receipt of the dismissal notice. If the appeal is denied, academic dismissal is final and the student will not be permitted to take any further graduate or undergraduate courses with the University.

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.

In addition, success in aviation requires a commitment to excel and the discipline to avoid unsafe practices or habits. The use of drugs constitutes an unsafe practice and is totally incompatible with the aviation environment. In recognition of this, it is the policy of Embry Riddle that using or possessing marijuana, or any narcotic, stimulant or hallucinogenic drug will be cause for immediate dismissal.

Withdrawal For Academic Misconduct

Students may be forced to withdraw from the University for habitual delinquency from class, habitual idleness, or any other fault which prevents the student from fulfilling the purpose implied by registration at the University. Students who are forced to withdraw during a given term will have the notation "Academic Misconduct (date)" entered on their permanent academic record following the semester in which the action occurred. Grades of "W" or "WF" (withdrawal) will be entered for each of the courses in which students were registered. Students who have been forced to withdraw must apply for readmission to the Dean of Graduate Programs and Research in the same manner as a dismissed student.

Transfer Between Graduate Degree Programs

A graduate student may apply at any time to transfer from one program to another. 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. Daytona Beach campus students should contact the appropriate graduate program coordinator. Extended Campus students should contact the resident center director, and distance learning students should contact the director of the Center for Distance Learning.

When a student elects to transfer from one degree program to another, the catalog in effect when the transfer is approved, is applicable. All criteria for admission to graduate programs apply.

Additional Graduate Degrees

A graduate student is allowed to apply up to twelve 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. The catalog in effect at a student's initial admission remains applicable as long as the student remains in the original degree program.
2. The applicable catalog for Extended Campus students is determined by the date the admission application is signed and the application fee is paid.
3. Students failing to maintain continuous enrollment are required to reapply for admission under the catalog in effect at that time.
4. Students electing to graduate under the provisions of a later catalog must meet all requirements contained in that catalog.

Degree Completion Time Limit

All requirements for an Embry-Riddle master's degree must be completed within seven years from the date of initial enrollment.

Continuous Enrollment

Students are not considered to be continuously enrolled if they:

1. Fail to enroll in one graduate course at Embry-Riddle in any two calendar year period.
2. Did not complete an Embry-Riddle master's degree within the seven year time limit.

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

Daytona Beach 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 a dean.

Extended Campus students should contact their resident center representative for information regarding withdrawal.

Graduation Requirements

All students must complete the general graduation requirements, as prescribed by the University, as well as all degree requirements specified in the degree being pursued. The following summary of graduation requirements is provided for all students:

1. An application for graduation must be initiated by the student and received within the time limit specified by the appropriate campus records office.
2. Students must successfully complete all required courses listed in the applicable graduate catalog for the degree sought.
3. Students must satisfy the Embry-Riddle graduate residency requirement by completing the last nine credit hours at Embry-Riddle, and by not exceeding a combined total of twelve graduate credit hours in advanced standing or transfer credit.
4. If required by their degree program, students must successfully complete a thesis or graduate research project.
5. Students pursuing a graduate degree must earn a minimum cumulative grade point average (CGPA) of 3.00 for all work completed with the University.
6. Only those students who have completed all degree requirements are allowed to participate in the commencement exercises.
7. Students will not be issued a diploma or transcript of their records until all debts or obligations owed to the University have been satisfied.
8. Students will not be issued a diploma unless they are in good standing according to University policies and regulations

Graduation Honors

Students who have completed a graduate degree program and who have excelled academically throughout their collegiate 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.

Privacy of Student Records

The University respects the rights and the privacy of students in accordance with the Family 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 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 Judicial Affairs.

Student Grievances

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

Mandatory Drug Testing

Success in the aviation industry requires a commitment to excel and the discipline to avoid unsafe practices. The use of illegal drugs constitutes an unsafe practice and is incompatible with an aviation environment. Therefore, the University reserves the right to immediately suspend or dismiss any student who uses or possesses illegal drugs.

In the effort to maintain a work and educational environment that is safe for its employees and students, the University has established a mandatory student drug testing program. The cost of drug testing is the responsibility of the University. Embry-Riddle has contracted with a professional testing service as the certified laboratory for the collection and analysis of test specimens. This testing service will adhere to all requirements for chain of custody, test reporting, and specimen retention in accordance with proposed DOT and FAA regulations.

Scope

The drug testing program applies to all students whose catalog applicability is 1990-91 and later and who engage in flight training at the University on or after January 1, 1991. Students who have catalog applicability before the 1990-91 academic year have the option of participating in the random drug testing program.

As outlined by regulations set forth by the Department of Transportation (DOT) and the Federal Aviation Administration (FAA),

the University tests for marijuana, cocaine, opiates, amphetamines, and phencyclidine (PCP) as follows:

1. Random testing of students engaged in flight training.

2. Required post-accident testing for students involved in an aircraft accident. Students are tested for drugs within 32 hours after an accident. An accident is defined as any occurrence associated with the operation of an aircraft that results in any person suffering death or serious injury, or where the aircraft receives substantial damage as determined by the National Transportation Safety Board. The accident can occur at any point between the time a person boards the aircraft with the intention of flight and the time all have disembarked.

In the event that drug testing is required, students who fail to comply with testing procedures, refuse to be tested, or test positive for illegal drugs are subject to the following actions:

1. Students who fail to comply with all University directives concerning the place of testing, the manner in which they are to arrive at the test site, and any other related matters are subject to disciplinary action up to and including dismissal from the University.

2. Students who refuse to be tested after being requested to do so by the University will be dismissed by the University.

3. Students whose test results show positive for the use of an illegal or non-prescribed drug, as verified by a medical review officer, will be dismissed from the University.

Testing

The cost of drug testing is the responsibility of the University. Embry-Riddle has contracted with a professional testing service as the certified laboratory for the collection and analysis of test specimens. This testing service will adhere to all requirements for chain of custody, test reporting, and specimen retention in accordance with proposed DOT and FAA regulations.

Notification

Students applying to attend the Daytona Beach campus are notified of the drug-testing requirement. In addition, during official orientation all matriculating students are given a copy of the University publication titled Substance Abuse Policy and Mandatory Drug Testing Policy and Procedures. The drug testing policy is also explained on appropriate flight-course registration forms.

Student Education and Assistance

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

Financial Information

University Expenses

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, please call (800) 943-6279.

Extended Campus students should contact the resident center where they will be attending, or the Center for Distance Learning.

Daytona Beach Campus

Fall 1998/Spring 1999 Tuition

MAE/MSAE MSE/MSIO	MAS/MBA/A MSHFS
$450 per credit hour	$425 per credit hour

Summer Tuition 1999

MAE/MSAE MSE/MSIO	MAS/MBA/A MSHFS
$400 per credit hour	$370 per credit hour

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.

Flight Course Fees

Although not part of any graduate curriculum, graduate students on the Daytona Beach campus of Embry-Riddle Aeronautical University are allowed to take flight courses and earn flight ratings from the private pilot through instrument and multi-engine. These courses are not part of the graduate curriculum and cannot be used as credits toward a graduate degree.

The course deposit covers hourly flight fees for the use of aircraft, simulators and flight instructors. Deposit schedules are reviewed periodically and are based on averages of actual costs to complete each flight course.

Financial Information

The following are deposits for the offered flight courses, listed in the order they are usually taken.

Required Flight Course Deposits

FA 110	Commercial Pilot Flight Operations I	$6,000
FA 200	Commercial Pilot Flight Operations II	$5,000
FA 250	Commercial Pilot Flight Operations III	$4,900
FA 300	Commercial Pilot Flight Operations IV	$3,800
AS 430	Turbo Prop Techniques and Crew Procedures (B 1900)	$3,525
AS 470	Airline Flight Crew Techniques and Procedures (B 737)	$4,600

Some students elect to take additional flight course work. These courses and deposits are listed as follows:

Elective Flight Courses

AS 345	Multi-Engine Class Rating	$3,800
AS 417	Flight Training Methods and Curriculum Analysis	$4,200

Hourly Flight Rates

Since students progress at different rates in flight courses, actual costs for flight courses that require a deposit are computed at the completion of each course. These costs are calculated by multiplying the number of training hours completed by the appropriate hourly rate and adjusting the student's account accordingly. Students can request updates on their financial status in the course at any time.

Type Aircraft	Solo	Dual
Non-complex Single Engine	$ 60/hour	$ 95/hour
Complex Single Engine	$ 85/hour	$120/hour
Multi-engine Seminole	$160/hour	$195/hour
Flight Simulator (Single Engine)	$ 20/hour	$ 55/hour
Flight Simulator (Multi-Engine)	$ 55/hour	$ 90/hour
Oral Instruction	$ 35/hour	

Room, Board, and Fees

The following fees will be incurred each semester by any student attending the Daytona Beach campus and should be used when estimating the cost of attendance.

On-campus housing, standard double occupancy (per semester) $1,350
On-campus housing, privacy or efficiency apartments (per semester) $1,550

Dining Services

The Daytona Beach campus provides two meal plan options. Meal plans begin with the first day of registration and end with the last day of final examinations. In addition to the meal plans, students may use *Eagle Dollars* at any dining service location. Please refer to the dining service brochure for a complete description of plans and services.

Type (meals per week)	Fall 1998/ Spring 1999	Summer A or B 1999
5 Meal Plan	$385	$195
12 Meal Plan	$800	$400

Fees

Graduate Internship fee (Fall and Spring)
- Engineering ..... $ 450
- Other ..... $ 425

Graduate Internship fee (Summer A or B)
- Engineering ..... $ 225
- Other ..... $ 215

Annual Vehicle Registration fee
- Automobiles ..... $ 25
- Motorcycles ..... $ 5

Health Service fee ..... $ 25/semester
International Student Insurance Fee ..... $ 160/semester
International Student Service fee ..... $ 50/semester
Transcript fee, academic or financial (per transcript) ..... $ 5/semester
Commencement fee (non-refundable) ..... $ 40/semester
Duplicate Diploma ..... $ 15/semester
Technology Fee (not applicable Summer) ..... $ 80/semester

Embry-Riddle is committed to providing high quality education at a reasonable cost. The University also recognizes the need for students to plan for the cost of their education. Students should estimate annual tuition increases to be approximately six percent.

Refund Policy

During the Fall and Spring semesters only, Daytona Beach students who officially withdraw from all classes are eligible for 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.

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

1. Tuition
2. Housing fees (less $200 housing processing fee)
3. International Student Service fee
4. Health Service fee

Withdrawal/Refund Schedule

Fall/Spring/Summer C Semesters

Period I	Class days 1 - 3	100%*
Period II	Class days 4 - 10	80%
Period III	Class days 11 - 15	60%
Period IV	Class days 16 - 20	40%
Period V	Class days 21 - 25	20%
Period VI	Class days 26 and after	0%

*Less $100 administrative fee

Summer A/B

Period I	Class days 1 - 3	100%*
Period II	Class days 4 - 6	80%
Period III	Class days 7 - 9	60%
Period IV	Class days 10 - 12	40%
Period V	Class days 13 - 15	20%
Period VI	Class days 16 and after	0%

*Less $100 administrative fee

Department of Education Withdrawal/Refund Schedule

Students receiving financial aid who withdraw will be subject to the refund policies specified by the U.S. Department of Education. Refunds for first time students who withdraw on or before the 60% point of the enrollment period will be determined by calculating the amount due under the "pro-rata" schedule. Refunds for all other students who officially withdraw on or before the 60% point of the enrollment period will be determined by calculating and comparing the amounts due under the federal refund schedule and the University refund schedule.

Pro Rata Schedule

Week 1 . . . . . 90%
Week 2-3 . . . . . 80%
Week 4 . . . . . 70%
Week 5-6 . . . . . 60%
Week 7-8 . . . . . 50%
Week 9 . . . . . 40%
Week 10 . . . . . 30%

Federal Refund Schedule

Week 1-2 . . . . . 90%
Week 3-4 . . . . . 50%
Week 5-8 . . . . . 25%

A. Flight Course Deposits: See flight course deposit listing.

B. Students who have housing contracts must contact the Housing Office to release their obligation. Any refunds will be determined at that time.

Requests for refunds which are not covered by the provisions cited above must be submitted in writing to the University's Refund Committee through the Cashier's Office. Before any request for refund will be considered by the Refund Committee, proper documentation in the form of a clearance or change of registration must be completed.

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, military orders, etc.

A request for refund must be submitted within 60 days of the date the student completed a change of registration.

Refund petition requests will normally be processed within ten 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 or a check. Each student is encouraged to open and maintain an account at a local bank for personal matters.

Financial Information

Billing Address

Each student is assigned an Embry-Riddle Aeronautical University mailbox which is their primary address for all University correspondence. However, all financial statements can be sent to any address designated by the student. Billing address change forms are available in the Student Accounting Office.

Payment Procedures

Cash, Visa, MasterCard, Discover, AMEX, and personal checks are acceptable forms of payment. Payments made by mail should be addressed to the campus Cashier's Office and timed to arrive prior to the first day of class. 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 student's name and identification number.

Books and Supplies

Purchases are made directly from the University Bookstore. Cash, checks, Visa, MasterCard and AMEX are accepted. Students whose estimated financial aid is higher than the total amount for tuition and fees may request an advance at the Cashier's Office which can be used for books.

Temporary Loans

A 30-day temporary loan is available for unexpected expenses at the Cashier's Office.

Check Cashing

Students may use the Cashier's Office to cash checks. One-party checks from a parent or guardian, and payable to the student, will be cashed for no more than $100 per day. Cashier's, Traveler's, or U.S. Treasury Checks or Money Orders up to $500 in value may also be cashed.

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's fees for making such collection. Delinquent accounts may be reported to one or all three major credit bureaus.

Extended Campus

Tuition

Off-Campus Centers ..... $220-375 per credit hour
Center for Distance Learning ..... $280 per credit hour

Withdrawal/Refund Schedule

Students enrolled through the Center for Distance Learning or U.S. Resident Centers*

First Week 100%
After first week 0%
*Unless specified by M.O.U., contract, or state regulations.

Non-Military students enrolled in Kentucky, Mississippi, or California

Refund tables available at the local centers.

Military Students and Dependents Enrolled under the DOD European Contract

Up to 1/8th of class meetings 100%
1/8th to 1/4th of class meetings 25%
More than 1/4 of class meetings 0%

Students receiving financial aid who withdraw during their first term are subject to the refund policy specified by the U.S. Department of Education. .

Financial Information

Fees

Application Fee	$ 30
Late Registration Fee	$ 25
Transcript Fee (per transcript)	$ 5
Commencement Fee (non-refundable)	$ 40
CompuServe Fee	$ 20
Duplicate Diploma	$ 15
Previously Earned Diploma	$ 40
Extension Fee (Center for Distance Learning only)	$ 35
California Registration Fee	$ 10 per course
MSTM Transfer Credit Fee (per hour)	$ 50

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 and optional financing programs available to students and their parents is published annually by the Financial Aid Office. Students should consult this publication for information about eligibility criteria, application procedures, and deadline dates. 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 non-citizens;
2. 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 6 graduate hours during the summer terms. Students may register for 6 graduate credit hours in one term, or 3 graduate credit hours in Summer A and in Summer B. Financial aid regulations do not consider 3 graduate credit hours as half-time during the summer terms.
3. Be making satisfactory progress toward a degree;
4. Be registered with Selective Service if required to do so;
5. Establish financial need;

6. Not be in default on a loan or owe a repayment on a previous financial aid award received at any institution.

The Application Process

Applications are mailed to students after they apply for admission to the University. Renewal applications will be mailed to returning students as available. Returning students who do not receive a renewal application may pick up their application materials at the Financial Aid Office. Notices will be posted on campus to remind students of the availability of the forms. Students attending Extended Campus sites may request their financial aid materials through the resident center or contact the Financial Aid Office directly.

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 loans, grants, scholarships, 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.

Loans

Federal—
- FSSL (Federal Stafford Student Loan)
- FUSSL (Federal Unsubsidized Stafford Student Loan

Employment

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

Financial Information

Financing Options

- EXCEL Loan
- Knight Extended Repayment Loan
- Educational Line of Credit

Scholarships

University scholarships are awarded to students according to their academic achievement and high probability of success in an aviation career. Students may submit a Scholarship Application after completing at least one semester with a cumulative grade point average of at least 3.00. Scholarships are very competitive. For more information about scholarships, students should contact the Financial Aid Office of the campus they plan to attend.

Athletic Grants

The University offers a limited number of Athletic Grants for qualified students. Awards are available for baseball, basketball, golf, soccer, tennis, wrestling, 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 ten 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).

Eligible persons planning to receive DVA education benefits while attending Embry-Riddle should contact the University's Veterans' Affairs Office, or the certifying official at the College of Career Education Resident Center, for further information and applications for benefits. 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 subject to dismissal. The DVA will be appropriately notified of the unsatisfactory progress. A specific request must be submitted by the student to reinstate benefits. The DVA will determine eligibility for reinstatement of benefits.

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 keep in compliance with University and DVA requirements. Students may receive education benefits only for courses that are required for their designated degree program. Students who receive DVA benefits may be subject to strict academic regulations and should be aware of how auditing courses, repeating a course, changing degree programs or enrollment status, and other actions may affect their eligibility to receive benefits.

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 reserved for qualified graduate students at the Daytona Beach campus. 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 be admitted to the graduate program with a minimum cumulative GPA of 3.00 on a 4.00 basis. Graduate students must maintain a minimum cumulative GPA of 3.00. All graduate assistants must be able to demonstrate adequate communication and technical skills.

Students interested in applying for an assistantship should submit a resume to the graduate Programs and Research office. Incoming students may submit their resume along with their admission application.

Full graduate assistantships carry a stipend set by the University and a tuition waiver for up to nine (9) graduate credits per semester. Graduate assistants with such appointments are expected to devote twenty (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 six (6) graduate credits at Embry-Riddle for any semester of their appointment. Summer registration is not required, but encouraged.

Presidential Fellowships

The Presidential Fellowship Program was established to provide graduate students the opportunity to work with the President and other officers of the University. The Presidential Fellow will learn about and contribute to the management of the University. To be eligible, a student must be in the Master of Business Administration in Aviation (MBA/A) degree program, the Master of Aeronautical Science (MAS) degree program, Management Specialization, or the Master of Science in Human Factors and Systems. A Presidential Fellow will receive a tuition waiver and stipend set by the University and must enroll for six graduate credits for each semester of the appointment. Interested students should contact the Daytona Beach Graduate Programs and Research office for additional application information.

Student Life and Services

Daytona Beach - Student Services and Activities

Embry-Riddle Aeronautical University believes that a well-rounded education goes beyond the classroom. The opportunities for co-curricular involvement are limitless. Daytona Beach students are encouraged to take advantage of the services described in this section to make the most of their academic experience.

Student Activities

The Department of Student Activities provides graduate and undergraduate students the opportunity to get involved in activities and programs outside the classroom. One of the primary ways to get involved is through student organizations. Currently, more than 100 chartered student organizations exist including fraternities, sororities, sports clubs, special interest groups, honorary societies, aviation clubs, military organizations, and religious clubs. Involvement in these groups develops social responsibility, group dynamics, social interaction, leadership, communication, and decision-making skills. To inform students about the many student organizations, the department sponsors an Activities Fair at the beginning of the Fall and Spring semesters. The staff is available to assist students in joining a club and to establish new student groups. The department also provides a variety of opportunities for students to develop leadership skills through workshops, seminars, and retreats. The Department also coordinates the annual Homecoming activities, advises Touch-N-Go Productions, and the Phoenix yearbook.

The John Paul Riddle Student Center is the main facility for events such as movies, comedy shows, dances, and others. The Student Center houses the Dean of Student Affairs, Department of Student Activities, Student Government Association, Avion newspaper, Phoenix yearbook, Touch-N-Go Productions, WERU radio station, Information/Telecommunication Center, Health Services, The Hairport, Embry-Riddle Dining Services Offices and a full-service cafeteria. The Student Center Annex houses the bookstore, mailroom, Registration and Records, Admissions, International Student Services, the Volunteer Outreach office, the Landing Strip, catering rooms and snack bar, Taco Bell, and Aviator Subs.

Delta Mu Delta

The Delta Mu Delta National Honor Society is a nationally recognized organization which 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 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 Eta Lambda.

Intramural and Recreational Sports

The Department of Intramural and Recreational Sports at the Daytona Beach campus provides a wide variety of intramural sports and contests throughout the year. Leagues and tournaments emphasize mental, social, and physical well-being. Activities include tennis, volleyball, softball, floor hockey, flag football, basketball, and other sports on request.

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 utilize all on-campus sports related facilities (i.e., outdoor swimming pool, tennis and basketball courts, playing fields, indoor racquetball, gymnasium and fitness center). Hours vary for each and are posted.

Through arrangements made by the department, discounts to major theme parks and attractions in the area are offered frequently throughout the year.

Student Employment

The Student Employment office assists students seeking part-time employment on or off campus. Embry-Riddle employs over 900 students during Fall and Spring semesters and nearly 500 during the Summer semesters. The business community of the Greater Daytona Beach area also provides many part-time job opportunities for students.

On-campus employment is available to all 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.

Part-time employment is advertised through job postings, the student newspaper, the Avion, and Embry-Riddle's home page on the World Wide Web at http://www.db.erau.edu/campus/student/employment.

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

Safety and Security

Safety and security at Embry-Riddle Aeronautical University are 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, environmental health and safety, crime prevention, communications/dispatch services, and locksmith services.

The patrol and communications sections provide 24-hour service to the University campus and its satellite locations. Safety officers respond to routine requests for safety service and emergency conditions throughout the University. They also conduct field investigations as required and provide specialized security service to the University's flight line. 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 the Daytona Beach Police department and the Daytona Beach International Airport Police department to provide the safest possible learning environment.

Campus Ministry

Campus Ministry recognizes that the typical student feels challenged by the many questions, experiences, and world views encountered on campus. It also recognizes that students are faced with a consuming social life and the subtle influence of peers. Campus Ministry tries to offer a stabilizing influence as the student explores the power of religion in a wide variety of programs. Special opportunities for deepening faith are offered during the regular scholastic year. Jewish, Catholic, Muslim, and Protestant prayer rooms are available in the University's Interfaith Chapel. Catholic and Protestant services are available each Sunday or students may choose to affiliate themselves with a church off campus.

Disability Support Services

Recognizing that some students with special needs require additional assistance with access, academic adjustment, and lifestyle modification, the University has appointed the director of health services as the coordinator of disability support services.

Students who require assistance must request it and document their disabilities with the coordinator. Each student's needs are addressed on an individual basis. The coordinator and staff provide resource information and assistance with barrier-free access, lifestyle management, advocacy, testing modifications, and referrals.

Students who require reasonable accommodations may contact the graduate admissions office and/or the coordinator at their earliest convenience; newly enrolled and continuing students should notify the coordinator.

Health Services

Maintaining one's health facilitates academic success. Because wellness is a lifelong, personal responsibility, the Health Services staff is committed to helping students improve and maintain their health through education and lifestyle modification.

The department's services include assessment and treatment of conditions and injuries commonly experienced by students, individual health counseling, referrals, medical grounding of flight students, and educational programming. Local hospitals, some with 24-hour emergency services, are located near the Daytona Beach campus. Reference materials and audio-visual learning aids complement the personal aspects of a health program tailored toward students pursuing careers in the aviation industry.

Health insurance is not mandatory, but is strongly recommended. Students may buy group coverage at the Daytona Beach campus each semester. Rates are determined annually and additional information on benefits and premiums is available at Health Services.

The Counseling Center

The Counseling Center staff helps students improve their personal, emotional, and academic well being. Professionals trained in counseling help students discuss their concerns and explore solutions. Counseling is available without cost to students, and content and records of sessions are confidential. The issues addressed in counseling vary from adjustment to college life, study skills, relationship problems, and stress to more serious problems. Students may participate in individual counseling sessions or attend instructional seminars or self-improvement groups. The Counseling Center's resource library also offers help through books, brochures, handouts, tapes, and videos covering a variety of subjects.

Student Life and Services

The ERAU Residence Life Program

Embry-Riddle Aeronautical University provides campus housing for approximately 1,800 students. A variety of housing styles and options are available to students, including suites, efficiency apartments and traditional residence hall designs. All on-campus student rooms are equipped with satellite TV, telephone service, and computer links for electronic mail and the World Wide Web. The Embry-Riddle Housing department supports the "Living-Learning" philosophy and provides facilities and services to promote student academic success including tutoring labs, study rooms, and meeting rooms. Recreational facilities, fitness rooms, game rooms and laundry facilities are located throughout the campus housing system.

Accommodations for disabled students are available in all campus residence halls. Requests for these spaces should be made to the director of housing.

All University residence halls are supervised by a resident director and are managed by a specially selected and trained staff of resident advisors. The University-managed housing system is supported by a full-time professional staff trained in counseling and student development.

Room Cost and Availability

Campus housing costs from $1,350 to $1,550 per semester and include all utilities and amenities. Campus housing contracts are for a full academic year (fall and spring semesters). Housing accommodations for graduate students, married students and other non-traditional students are very limited and available on a first come, first served basis. The Department of Housing also provides referral to local agencies for assistance in locating private accommodations in the Daytona Beach area. For further information regarding housing, please contact the housing department at (904) 226-6555. Housing information is also available on-line at the ERAU web site.

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. 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 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.

Dining Services

Several unique facilities provide a wide variety of dining services on the Daytona Beach campus. The Court Cafe, located in the Student Village, offers light breakfast and lunch selections daily as well as a variety of speciality outlets for evening service. Spitfires offers traditional dinner meals and highlights Value Meal packages. Popular chicken, beef, and international entrees are offered nightly with fresh vegetables, breads, starches, and beverages. Stone Willy's Legendary Pizza offers 12 varieties of individual pizzas as well as daily pasta and sauce combinations, salads, breads, and beverages. Aviator Subs has a line of fresh sandwiches and specialty items, while Breyers Gourmet Ice Cream and Seattle's Best Coffee provide the finishing touches. Full scale breakfasts, lunches, and dinners are available on weekends and holidays.

The Food Court, located in the Student Center, offers a tremendous variety of speciality food outlets during breakfast, lunch, and dinner meals to include: World's Fare, Culinary Classics, American Grill, Healthy Choice Deli, Clubhaus Gourmet Sandwiches, Sicily Pizza, Showtime Cooking, Baker's Dozen, and the Garden Spot. Several weekly dining specials, such as trivia contests, buffets, and seasonal pace-changing events are offered in the Food Court.

The Landing Strip Servery, also located in the Student Center, showcases a Taco Bell Express, a snack bar, Aviator Subs, Grab and Go Deli, Dunkin Donuts and Stone Willy's Pizza.

Propellers, a free-standing restaurant located behind the Hunt Library, features flame broiling with fillets of pork, beef and chicken and a special "broasted" golden-battered chicken concept, cooked fresh every hour. Milkshakes and Caesar Salads are also popular fare.

Open daily until midnight, the Village Market (convenience store) offers all necessities such as personal hygiene items, laundry aids, newspapers, bottled water, milk and dairy products, meats, cereals, snacks and other items for which students have made special requests.

Two meal plan options are available; five and twelve meals per week. Both plans may be supplemented with Eagle Dollars to add flexibility and versatility to meal plan holders. All meal plan purchases can be charged to student accounts and are available throughout the school year

Student Life and Services

Mail

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

IF BOX NUMBER IS KNOWN:
Student Name
P.O. Box 14____
Daytona Beach, FL 32114-3977

IF BOX NUMBER IS UNKNOWN:
Student Name
"New Student"
Embry-Riddle Aeronautical University
600 S. Clyde Morris Boulevard
Daytona Beach, FL 32114-3900

All students are assigned a mailbox which 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 Office of International Student Services assumes primary responsibility for the general welfare of international students. The staff conducts international student orientation to familiarize students with the University and the American educational system and also assists with local housing, transportation, and other adjustment arrangements. Services include advising related to immigration regulations, financial and personal matters, and preparation of specialized letters and documents required by foreign governments, sponsors, the U.S. government, and the University. The office coordinates campus and community programs and trips designed to facilitate cultural interchange. The Friendship Family Program matches students with community families to share friendship across cultures. A highlight of the year is International Day which features exhibits, food, and entertainment presented by students of the nationalities represented on campus. Foreign journals and newspapers are available in the office to help students stay informed of events in their countries.

Career Services Office

The Career Services office provides career development and job search services to students of the Daytona Beach campus, Extended Campus and alumni. The office maintains a Career Resource Center which includes corporate profiles, job postings, career development information, and personal computers for access to the World Wide Web Career Services homepage. The office also assists with resume development and interview preparation.

An Industry/Career EXPO which brings approximately 100 employers to the Daytona Beach campus is held each fall. In addition, on-campus interviews with employers are scheduled throughout the year. Postings of current job openings can be found on bulletin boards outside the office, in the Career Resource Center or in the Embry-Riddle Job Bulletin which is published semi-monthly.

The internship education program of the Career Services office assists hundreds of students each year obtain work experience in their chosen field. Students receive academic credit for the experience and are often paid a reasonable salary, including benefits, for the work. Students are encouraged to participate in the program.

ACADEMIC PROGRAMS

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 Aeronautical University 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 presently 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, computer-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 1990's.

Opportunities are provided within each degree program to tailor the curriculum to meet specific, individual career objectives. Classes are scheduled to accommodate both full and part-time study. Many of the graduate courses are non-sequential, 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 ABA 503, and the AED course series) listed in this catalog.

Graduate Internships

Graduate internships are externally funded, temporary professional or industrial work appointments available to graduate students enrolled at the Daytona Beach campus. There are two types of internships: resident and non-resident. Resident internships are professional work activities supported by the University or industry, and conducted on-campus under the supervision of a faculty/staff sponsor. Non-resident internships are professional work activities conducted off-campus at the supporting organization facility, or equivalent. 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 are fully admitted to a graduate program, and in good standing with a minimum of 12 completed graduate credit hours, and who earn a cumulative GPA of 3.00 on a 4.00 basis are eligible for graduate internships. Students must demonstrate adequate communication and technical skills.

Students accepted in the internship program must register for the approved number of credit hours in the appropriate departmental internship course, and pay all tuition and 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 normally be applied as an elective towards a degree program. Students are advised to consult with their graduate program coordinator for availability of internship credits.

Thesis and Graduate Research Project Options

Requirements

Thesis Option

The thesis option is proposed, approved, and the research carried out under the direction of a thesis committee. The thesis committee is comprised of a chair who is a faculty member and at least two other members, internal or external faculty or professionals, who are familiar with the student's program of study. When the thesis is completed to the thesis committee's satisfaction, the student presents an oral defense.

After the thesis is accepted, the original and one copy of the thesis manuscript are bound and permanently placed in the Library collection.

Graduate Research Project Option

The graduate research project topic is approved by a faculty review committee consisting of an adviser and a reader. The graduate research project is more rigorous than a term paper, but less demanding than a thesis. The adviser and reader guide the student and evaluate the scholarly final report required to complete the course.

The graduate research project option may not be available for all programs.

Aeronautical Science Degree (MAS)

DAYTONA BEACH

Department Chair:
M.E. Wiggins

Graduate Program Coordinator
C. Richardson

EXTENDED CAMPUS

Department Chair:
P. Bankit

Graduate Program Chair
S. O'Brien

Introduction

The Master of Aeronautical Science (MAS) degree program is designed to provide the aviation/aerospace professional with a rigorous academic approach to a generalist education oriented degree. It provides an unequalled 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 MAS program requires possession of an undergraduate foundation in the areas of college-level mathematics, introduction to computers, economics, behavioral science, and aviation rules and regulations.

There are seven specializations from which the student may choose: Aeronautics, Aviation/Aerospace Education Technology, Aviation/Aerospace Management, Aviation/Aerospace Operations, Aviation/Aerospace Safety Systems, Human Factors in Aviation Systems, and Space Studies. The specializations are not necessarily offered at all campus locations. Students must complete the Advanced Aviation/Aerospace Science core consisting of twelve credits. Students then complete twelve credits which make up the selected specialization. The remaining credits consist of electives, and either a thesis or a graduate research project. The thesis option is not available to Extended Campus students.

MAS students can also complete courses leading to a dual specialization. The dual specialization is declared prior to the completion of the degree program.

Center for Aerospace Safety Education

In order to network the University's safety-related resources, Embry-Riddle has established a Center for Aerospace Safety Education (CASE). The Center is guided by an Advisory Board of national reputation which meets semi-annually to provide direction and oversight.

Safety is integrated into all programs throughout the University curriculum. Daytona Beach campus resources emphasize systems safety (human factors and information technology) in the National Airspace System. The Extended Campus with its connection to Army, Navy, and Air Force operations throughout the world, provides real-world expertise and dissemination. Flight qualifications are not required for this degree.

Degree Requirements

Aeronautics Specialization*

Advanced Aviation/Aerospace Science Core		Credits
MAS 602	The Air Transportation System	3
MAS 603	Aircraft and Spacecraft Development	3
MAS 604	Human Factors in the Aviation/Aerospace Industry	3
MAS 605	Research Methods and Statistics	3
		12

Aeronautics Specialization		Credits
Students must complete 12 credit hours from the following list of courses:		
MAS 509	Advanced Aerodynamics	3
MAS 510	Advanced Aircraft Performance	3
MAS 515	Aviation/Aerospace Simulation Systems	3
MAS 516	Applications in Crew Resource Management	3
MAS 517	Advanced Meteorology	3
MAS 560	Rotorcraft Operations	3
MAS 607	Advanced Aircraft/Spacecraft Systems	3
		12

Electives		Credits
Option I		
MAS/BA	Electives (500-600 level)	6
AND		
MAS 700	Thesis	6
OR		
Option II		
MAS 690	Graduate Research Project	3
AND		
MAS/BA	Electives (500-600 level)	9
		12

Total Required	**36**

***Not offered at the Daytona Beach campus during the 1998-1999 academic year.**

Aviation/Aerospace Education Technology Specialization*

Advanced Aviation/Aerospace Science Core		Credits
MAS 602	The Air Transportation System	3
MAS 603	Aircraft and Spacecraft Development	3
MAS 604	Human Factors in the Aviation/Aerospace Industry	3
MAS 605	Research Methods and Statistics	3
		12

Education Technology Specialization		Credits
Students must complete 12 credit hours from the following list of courses:		
MAS 514	Computer-Based Instruction	3
MAS 515	Aviation/Aerospace Simulation Systems	3
MAS 550	Aviation Education Foundations	3
MAS 614	Advanced Aviation/Aerospace Curriculum Development	3
MAS 652	Continuing Education's Role in Aviation	3
MAS 654	Adult Teaching and Learning Techniques	3
MAS 663	Memory and Cognition	3
		12

Electives		Credits
Option I		
MAS/BA	Electives (500-600 Level)	6
AND		
MAS 700	Thesis	6
OR		
Option II		
MAS 690	Graduate Research Project	3
AND		
MAS/BA	Electives (500-600 Level)	9
		12

Total Required	36

***Not offered on the Daytona Beach campus during the 1998-1999 academic year.**

Aviation/Aerospace Management Specialization

Advanced Aviation/Aerospace Science Core		Credits
MAS 602	The Air Transportation System	3
MAS 603	Aircraft and Spacecraft Development	3
MAS 604	Human Factors in the Aviation/Aerospace Industry	3
MAS 605	Research Methods and Statistics	3
		12

Management Specialization		Credits
Students must complete 12 credit hours from the following list of courses:		
BA 511	Operations Research	3
BA 521	Global Information and Technology Management	3
BA 607	Human Resource Development	3
BA 632	Seminar in Aviation Labor Relations	3
BA 645	Airport Operations and Management	3
MAS 609	Aircraft Maintenance Management	3
MAS 636	Aviation/Aerospace Planning Systems	3
MAS 641	Production and Procurement Management in the Aviation/Aerospace Industry	3
MAS 643	Management of Research and Development for the Aviation/Aerospace Industry	3
MAS 644	Integrated Logistics Support in the Aviation/Aerospace	3
		12

Electives		Credits
Option I		
MAS/BA	Electives (500-600 Level)	6
AND		
MAS 700	Thesis	6
OR		
Option II		
MAS 690	Graduate Research Project	3
AND		
MAS/BA	Electives (500-600 Level)	9
		12

Total Required	
(At least 18 credits must be MAS courses)	**36**

Aviation/Aerospace Operations Specialization

Advanced Aviation/Aerospace Science Core		Credits
MAS 602	The Air Transportation System	3
MAS 603	Aircraft and Spacecraft Development	3
MAS 604	Human Factors in the Aviation/Aerospace Industry	3
MAS 605	Research Methods and Statistics	3
		12

Operations Specialization		Credits
Students must complete 12 credit hours from the following list of courses:		
MAS 515	Aviation/Aerospace Simulation Systems	3
MAS 560	Rotorcraft Operations	3
MAS 606	Aviation/Aerospace Communication/Control Systems	3
MAS 608	Aviation/Aerospace Accident Investigation and Safety Systems	3
MAS 620	Air Carrier Operations	3
MAS 622	Corporate Aviation Operations	3
BA 511	Operations Research	3
		12

Electives		Credits
Option I		
MAS/BA	Electives (500-600 Level)	6
AND		
MAS 700	Thesis	6
OR		
Option II		
MAS 690	Graduate Research Project	3
AND		
MAS/BA	Electives (500-600 Level)	9
		12

Total Required	36

Aviation/Aerospace Safety Systems Specialization

Advanced Aviation/Aerospace Science Core		Credits
MAS 602	The Air Transportation System	3
MAS 603	Aircraft and Spacecraft Development	3
MAS 604	Human Factors in the Aviation/Aerospace Industry	3
MAS 605	Research Methods and Statistics	3
		12

Safety Systems Specialization		Credits
Students must complete 12 credit hours from the following list of courses:		
MAS 608	Aviation/Aerospace Accident Investigation and Safety Systems	3
MAS 611	Aviation/Aerospace System Safety	3
MAS 612	Aviation/Aerospace Industrial Safety Management	3
MAS 613	Airport Operations Safety	3
MAS 634	Aviation/Aerospace Psychology	3
		12

Electives		Credits
Option I		
MAS/BA	Electives	6
AND		
MAS 700	Thesis	6
OR		
Option II		
MAS 690	Graduate Research Project	3
AND		
MAS/BA	Electives (500-600 Level)	9
		12
Total Required		36

Human Factors in Aviation Systems Specialization

Advanced Aviation/Aerospace Science Core		Credits
MAS 602	The Air Transportation System	3
MAS 603	Aircraft and Spacecraft Development	3
MAS 604	Human Factors in the Aviation/ Aerospace Industry	3
MAS 605	Research Methods and Statistics	3
		12

Human Factors Specialization		Credits
Students must complete 12 credit hours from the following list of courses:		
MAS 634	Aviation/Aerospace Psychology	3
MAS 643	Management of Research and Development for the Aviation/Aerospace Industry	3
MAS 660	Sensation and Perception	3
MAS 661	Human-Computer Interaction	3
MAS 663	Memory and Cognition	3
MAS 665	Applied Experimental Design	3
		12

Electives		Credits
Option I		
MAS/BA	Electives	6
AND		
MAS 700	Thesis	6
OR		
Option II		
MAS 690	Graduate Research Project	3
AND		
MAS/BA	Electives (500-600 Level)	9
		12
Total Required		36

Space Studies Specialization*

Advanced Aviation/Aerospace Science Core		Credits
MAS 602	The Air Transportation System	3
MAS 603	Aircraft and Spacecraft Development	3
MAS 604	Human Factors in the Aviation/ Aerospace Industry	3
MAS 605	Research Methods and Statistics	3
		12

Space Studies Specialization		Credits
MAS 511	Earth Observation and Remote Sensing	3
MAS 512	Space Mission and Launch Operations	3
MAS 513	Space Habitation and Life Support Systems	3
MAS 601	Applications in Space: Commerce, Defense, and Exploration	3
		12

Electives		Credits
Option I		
MAS/BA	Electives	6
AND		
MAS 700	Thesis	6
OR		
Option II		
MAS 690	Graduate Research Project	3
AND		
MAS/BA	Electives (500-600 Level)	9
		12

Total Required	36

*Not offered on the Daytona Beach campus during the 1998-1999 academic year.

Aerospace Engineering Degrees (MSAE/MAE)

DEPARTMENT CHAIR: *A. I. Ormsbee*
GRADUATE PROGRAM COORDINATOR: *Y. Crispin*

INTRODUCTION

Graduate programs in aerospace engineering provide formal post-baccalaureate study in areas of knowledge required by engineers engaged in aircraft/aerospace-oriented research, development, and design activities. Each degree program is planned to augment the individual student's engineering and science background with adequate depth in areas of aeroacoustics, acoustic emission nondestructive testing, aerodynamics, optimal systems, propulsion, aerospace structures, or other areas of aerospace engineering. Candidates for the degrees can select courses with the goal of building a graduate program that supports their interests in the aerospace engineering profession, or that prepares them to continue on to doctoral studies.

Both degree programs require a minimum of thirty-three credit hours of graduate course work.

DEGREE REQUIREMENTS

MSAE (thesis option)	**MAE** (non-thesis option)
12 hrs. required core	12 hrs. required core
12 hrs. elective	21 hrs. elective
9 hrs. thesis	
33 hrs	33 hrs

Required Courses

One (1) Math course and two (2) courses outside the area of specialization.

Elective Courses

The remaining courses are normally selected from the following list with the advise of the graduate advisor:

		Credits
MA 502	Boundary Value Problems	3
MA 504	Theory of the Potential	3
MA 506	Probability for Engineers	3
MA 508	Applied Stochastic Processes	3
MA 510	Optimization Techniques	3
AE 508	Heat Transfer	3
AE 510	Aircraft Structural Dynamics	3
AE 502	Strength and Fatigue of Materials	3
AE 504	Advanced Compressible Flow	3
AE 506	Airplane Dynamic Stability	3

AE 512	Combustion I	3
AE 590	Graduate Seminar*	1-3
AE 601	Combustion II	3
AE 602	Continuum Mechanics	3
AE 604	Finite Element Fundamentals	3
AE 606	Finite Element Aerospace Applications	3
AE 608	Introduction to Computational Aerodynamics	3
AE 610	Computational Aerodynamics	3
AE 612	Analysis of Aircraft Plate and Shell Structures	3
AE 614	Analysis of Aircraft Composite Structures	3
AE 616	Advanced Aircraft Structural Dynamics	3
AE 620	Boundary Layer Theory	3
AE 640	Turbine Engine Propulsion Systems	3
AE 642	Rocket Engine Propulsion Systems	3
AE 696	Graduate Internship in Aerospace Engineering	1-3
AE 699	Special Topics in Aerospace Engineering	1-3
AE 700	MSAE Thesis	9

* State-of-the-art design topics are regularly offered through the graduate seminar course, and may be a component of the student's study program.

Business Administration Degrees
MBA/A Executive MBA

DAYTONA BEACH

DEPARTMENT CHAIR:
A. Harraf

EXTENDED CAMPUS

DEPARTMENT CHAIR:
V. Mitchell

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 the wide variety of specified electives.

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 the 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. While the curriculum is highly structured, part of it can be individually molded to satisfy personal interests.

The Master of Business Administration degree program is offered in two options: the Master of Business Administration in Aviation (MBA/A), and the Executive Master of Business Administration (Executive MBA). Specific prerequisite knowledge for each graduate course in the MBA/A is contained in the Course Description section of this catalog. The prerequisite knowledge for any graduate course must be satisfied before enrollment in the course is permitted. Students should assume responsibility to see that prerequisites are satisfied.The MBA/A option is offered as a two year residency program at the Daytona Beach campus and at selected Extended Campus resident centers.

The Executive MBA option is structured to provide a full MBA curriculum to its participants in 18 months with the least possible disruption to their professional and personal lives. The program is conducted at the University's Daytona Beach campus in a series of six two-week residency sessions, approximately one session per calendar quarter. The policies and procedures for the Executive MBA are documented separately.

Through the University's Business Administration Department at the Daytona Beach campus, the MBA/A is nationally accredited by the Association of Collegiate Business Schools and Programs (ACBSP) and Council on Aviation Accreditation (CAA).

Degree Requirements

Master of Business Administration in Aviation

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*	Organization 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**

Aviation Business Specified Electives*		Credits
BA 590	Graduate Seminar	1-3
BA 603	Aerospace Production and Operations Management	3
BA 604	International Management and Aviation Policy	3
BA 609	Airline Operations and Management	3
BA 632	Seminar in Aviation Labor Relations	3
BA 645	Airport Operations and Management	3
BA 655	Aviation Law and Insurance	3
BA 699	Special Topics in Aviation Business Administration	1-3
		6

Students may petition for substitution of an internship for 3 hours of specified electives.

Research Options*		Credits
BA 700	Thesis	6
OR		
BA 690**	Graduate Research Project	3

If thesis option is not exercised, then six (6) additional specified elective hours are required. On the Extended Campus, students must take a Thesis or Graduate Research Project option.

* An option may be available by prior approval of Graduate Program Coordinator.

** Not offered at the Daytona Beach Campus during the 1998-1999 academic year.

Total Required:

Thesis/all course work option	**39**
Graduate Research Project option	**36**

Human Factors and Systems Degree (MSHFS)

DEPARTMENT CHAIR: *D.J. Garland*

GRADUATE PROGRAM COORDINATOR: *D.J. Garland*

INTRODUCTION

The Department of Human Factors and Systems offers graduate instruction leading to the Master of Science degree in Human Factors and Systems with distinct tracks in (a) human factors engineering, and (b) systems engineering. These programs are designed to meet the highest academic rigors (i.e., fully prepared for doctoral level studies), while at the same time preparing the students for immediate employability in real world, cost sensitive and operationally driven aviation/aerospace environments.

The human factors engineering 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 active participation in human factors projects at the graduate level. A variety of research, consulting, and internship arrangements are included in the program.

The 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. Students must also select a specialization area, including human-computer interaction, human-machine-environment interface, human performance, human factors in simulation and training, or other areas of interest with the advisor's authorization.

The systems engineering 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.

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.

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 1) sensitive to operational feasibility during the early stages of system development and 2) assumes the responsibility for user-centered life cycle engineering. Therefore, a major focus of the system engineering track is an appreciation of the total life cycle of the system, including design, development, testing, production, operations, sustaining support, and disposal.

Finally, the systems engineering track will produce graduates that can move easily across disciplines i.e., to be interdisciplinary. 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 non-traditional applications.

Degree Requirements

Human Factors Engineering Track

Core Courses		Credits
HFS 500	Systems Concepts, Theory, and Tools	3
HFS 510	Research Design and Analysis I	3
HFS 600	Human Factors in Systems	3
HFS 610	Research Design and Analysis II	3
HFS 615	Sensation and Perception	3
HFS 620	Memory and Cognition	3
		18

Electives*		Credits
BA 511	Operations Research	3
HFS 515	Ergonomics	3
HFS 520	Team Resource Management	3
HFS 525	Human and Organizational Factors in Technological Systems	3
HFS 530	Systems Psychology	3
HFS 590	Graduate Seminar	3
HFS 625	Applied Testing and Selection	3
HFS 630	Cognitive Systems	3
HFS 635	Human Computer Interaction	3
HFS 640	Aviation/Aerospace Psychology	3
HFS 645	Underpinnings of Human Factors and Ergonomics	3
HFS 650	Human Factors of Aviation/Aerospace Applications	3
HFS 699	Special Topics in Human Factors and Systems	3
MAS 611	Aviation/Aerospace System Safety	3
MAS 612	Aviation/Aerospace Industrial Safety Management	3
MSE 500	Software Engineering Discipline	3
MSE 560	Human Factors in Software Engineering	3
TM 605	Organization Theory in a Technical Environment	3
TM 610	Managing Effective Technical Work Teams	3
		9

* Electives are normally selected with the consent of the student's graduate advisor. Other elective courses may be selected with the approval of the graduate advisor.

		Credits
HFS 696	Internship in human factors and systems	3
HFS 700	Thesis	6
Total Required		36

Systems Engineering Track

Core Courses		Credits
HFS 500	Systems Concepts, Theory, and Tools	3
HFS 505	System engineering I	3
HFS 510	Research Design and Analysis I	3
HFS 600	Human Factors in Systems	3
HFS 605	System engineering II	3
HFS 610	Research Design and Analysis II	3
		18

Electives *		Credits
BA 511	Operations Research	3
BA 520	Organization, Behavior, Theory, and Applications in Aviation	3
BA 521	Global Information and Technology Management	3
HFS 525	Human and Organizational Factors in Technological Systems	3
HFS 530	Systems Psychology	3
HFS 640	Aviation/Aerospace Psychology	3
HFS 645	Underpinnings of Human Factors and Ergonomics	3
HFS 650	Human Factors of Aviation/Aerospace Applications	3
HFS 699	Special Topics in Human Factors and Systems	3
MAS 611	Aviation/Aerospace System Safety	3
MAS 612	Aviation/Aerospace Industrial Safety Management	3
MAS 641	Production & Procurement Management in the Aviation/Aerospace Industry	3
MAS 643	Management of Research & Development in the Aviation/Aerospace Industry	3
MSE 500	Software Engineering Discipline	3
MSE 520	Formal Methods for Software Engineering	3
MSE 540	Simulation and Software Engineering	3
MSE 545	Specification and Design of Real-Time Systems	3
MSE 560	Human Factors in Software Engineering	3
TM 505	Computer Applications in Systems Management	3
TM 510	Project Development Techniques with Statistical Applications	3
TM 610	Managing Effective Technical Work Teams	3
TM 615	Planning for Systems Development and Operations	3
TM 645	Advanced Operations Research and Management Science	3
TM 645	Advanced Operations Research and Management Science	3
		9

* Electives are normally selected with the consent of the student's graduate advisor. Other elective courses may be selected with the approval of the graduate advisor.

		Credits
HFS 696	Graduate Internship in human factors and systems	3
HFS 700	Thesis	6
Total Required		36

Industrial Optimization Degree (MSIO)

DEPARTMENT CHAIR: *I. Hirmanpour*
GRADUATE PROGRAM COORDINATOR: *D. Osborne*

INTRODUCTION

The Master of Science in Industrial Optimization degree program is designed to provide recent engineering and science graduates, as well as mid-career engineers and scientists, an opportunity to develop skills in optimization, statistics, and quality control and improvement that can be applied to product and process design and improvement. Engineers and scientists completing this program can assume key positions in engineering and scientific research.

The MSIO degree program achieves its purpose by the extensive use of aviation/aerospace-related case studies that enable the students to gain practical skills in analyzing and solving current aviation/aerospace problems requiring the application of optimization tools and or statistics. Throughout the program, application software and teams are used, enabling students to solve problems in an environment that simulates process and product design and improvement organizations in aviation and aerospace.

MSIO students will have the opportunity to strengthen and expand discipline-specific skills by taking several courses in their field of expertise (engineering, computer science, business, physics) as part of the program, while developing the mathematical foundation necessary to solve complex application problems within their field.

The curriculum is structured into four groups: fundamentals, core, capstone, and electives. All students must complete two required fundamental courses, developing skills in mathematical methods and statistics, followed by three required core courses in optimization, mathematical programming and decision making, and statistical quality analysis. Additionally, all students must complete a capstone course in multivariate optimization.

The MSIO program offers students three program options: a thesis option requiring 30 credit hours; a research project option requiring 33 credit hours; and a course-only option requiring 36 credit hours. For those students choosing the thesis option, 6 credit hours of specified electives and a 6 credit hour thesis are required. For those students choosing the research report option, 12 credit hours of specified electives and a 3 credit hour research report are required. For those students choosing the course-only option, 18 credit hours of specified electives are required and a department-administered comprehensive exam must be satisfactorily completed prior to graduation.

Degree Requirements

Fundamentals Courses		Credits
MA 503	Mathematical Methods	3
MA 505	Statistics	3
		6

Core Courses		Credits
MA 510	Fundamentals of Optimization	3
MA 520	Mathematical Programming and Decision-Making	3
MA 605	Statistical Quality Analysis	3
		9

Capstone Course		Credits
MA 610	Multivariate Optimization	3

Additional Requirements		Credits
Thesis Option:		
MA 700	Thesis	6
	Electives	6
		12
Graduate Research Project Option:		
MA 690	Graduate Research Project	3
	Electives	12
		15
Course -Only Option		
	Electives	18
		18

Specified Electives:

Elective courses may be selected from the ERAU Graduate Catalog in the software engineering, aerospace engineering, aeronautical science, or business administration disciplines. These courses should be selected in consultation with the student's Graduate Advisor, who must approve the course choices.

Total Required	**30 -36**

Software Engineering Degree (MSE)

DEPARTMENT CHAIR: *I. Hirmanpour*

GRADUATE PROGRAM COORDINATOR: *S. Khajenoori*

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 in the cutting edge of modern software development. Software engineers who complete the program can rapidly assume positions of substantial responsibility within 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 the skills in communication, group interaction, management, and planning. The program emphasizes a modern approach to the software development process including management, requirements and specifications collection, design, implementation, verification, validation, and maintenance. A special emphasis is on real-time embedded software systems encountered in such applications as the FAA Advanced Automation System, aircraft avionics, NASA Space Station, and others.

The goal of the program is to provide graduates with in-depth understanding and ability in the areas of software process engineering, software project planning and management, software analysis and design, communications, and teamwork. 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 course work.

The curriculum is structured into three groups of courses: the core, specified electives, and recommended electives. In addition each student is required to complete a graduate project. Courses such as Modeling and Simulation, Knowledge Based Systems, and Concurrent and Distributed Systems are available as specified electives. The electives provide students with the opportunity to custom tailor their program toward one or more software architectures.

The department's philosophy is that software engineering curriculum must address the issue of target software architecture as opposed to a generic architecture. The approach of applying software engineering tools and techniques to different software architectures (Real Time, AI, and Simulation) is one of the distinguishing features of the curriculum. In the Modeling and Simulation course, for example, a student learns the software engineering approach to developing simulation software.

Degree Requirements

Required Courses		Credits
Students must complete 15 credit hours of core courses.		
MSE 500	Software Engineering Discipline	3
MSE 510	Software Project Management	3
MSE 530	Software Requirements Engineering	3
MSE 610	Software Systems Architecture and Design	3
MSE 625	Quality Engineering and Assurance	3
		15

Specified Elective Courses		Credits
Students must complete 6 to 9 credit hours from the following list of courses:		
MSE 520	Formal Methods for Software Engineering	3
MSE 535	Graphical User Interface Design and Evaluation	3
MSE 540	Simulation and Software Engineering	3
MSE 545	Specification and Design of Real-Time Systems	3
MSE 550	Current Trends in Software Engineering	3
MSE 555	Object-Oriented Software Construction	3
MSE 560	Human Factors in Software Engineering	3
MSE 570	Artificial Intelligence and Software Engineering	3
MSE 580	Software Process Definition and Modeling	3
MSE 585	Metrics and Statistical Methods for Software Engineering	3
MSE 590	Graduate Seminar	3
MSE 640	Concurrent and Distributed Systems	3
MSE 650	Software Safety	3
MSE 655	Performance Analysis of Real-Time Systems	3
MSE 660	Formal Methods for Concurrent and Real-Time Systems	3
MSE 680	Software Process Improvement	3
MSE 699	Special Topics in Software Engineering	3
		6-9

Recommended Elective Courses	Credits
Students must complete 6 to 9 credit hours in recommended electives. Course selection will be based on student background, program of study and advisor approval.	6-9

Thesis/Graduate Research Project		Credits
MSE 690	Graduate Research Project	3
OR		
MSE 700	Thesis	6
		3-6

Total Required	36

Technical Management Degree (MSTM)

EXTENDED CAMPUS

DEPARTMENT CHAIR: *V. Mitchell*
GRADUATE PROGRAM COORDINATOR: *W. Harsha*

The Master of Science in Technical Management (MSTM) degree program is a unique educational program developed in cooperation with aviation and aerospace industry representatives. The program aims at entry- or mid-level managers who aspire to greater management responsibilities.

The curriculum has been designed as a cohesive and integrated educational experience, from the introductory preparatory skills course to the final course in total quality management. The degree requires 39 credit hours and strongly emphasizes building the communications (writing and speaking), and the management skills needed in technically-oriented enterprises. Students can expect assignments requiring projects, reports, and presentations to exercise the knowledge and skills they have learned.

The MSTM degree program is delivered on-site at selected industry and government locations where a minimum of 24 students have made the commitment to start and complete the program. Various organizations have been willing to provide classroom facilities. The program was designed and structured so that each class of students maintains its integrity from start to degree completion. Students can anticipate completion of degree requirements in less than two years while continuing to work. Classes are conducted on Friday evenings and all day on Saturdays, every other weekend, during the 13-week terms. The faculty who teach in the program are recognized experts in the field.

Corporations or individuals interested in learning more about the Master of Science in Technical Management degree program are invited to write or call:

Embry-Riddle Aeronautical University
Extended Campus
Admissions, Records and Registration
600 S. Clyde Morris Blvd.
Daytona Beach, Florida 32114-3900
(904) 226-6910 or (800) 522-6787
E-mail: ecinfo@cts.db.erau.edu

Degree Requirements

Required Courses		Credits
TM 500	Communications and Computer Skills with Quantitative Methods	6
TM 505	Computer Applications Systems Management	3
TM 510	Project Development Techniques with Statistical Applications	3
TM 520	Financial and Managerial Accounting and Control in Technical Management	3
TM 605	Organization Theory in a Technical Environment	3
TM 610	Managing Effective Technical Work Teams	3
TM 615	Planning for Systems Development and Operations	3
TM 620	Federal Regulations, Ethics and the Legal Environment	3
TM 625	Marketing in the Technical Environment	3
TM 640	Project Planning for Procurement and Contracting	3
TM 645	Advanced Operations Research and Management Science	3
TM 650	Total Quality Management and Quality Control	3
Total Required		**39**

Special Academic Programs and Opportunities

Study Abroad

Embry-Riddle Aeronautical University offers students in engineering and computer science the chance to study for a year in Europe at minimal cost. Qualified students receive language and cultural training and enroll at a selected institution in France or Germany. While abroad, students study subjects applicable to their degree programs at the University. During the last three months of their year abroad, students complete a paid internship in European industry, working on technical problems related to their field of study. After successful completion of the program, students receive the Euronational Certificate.

Embry-Riddle Industrial Consortium (ERIC)

Embry-Riddle University in cooperation with the Volusia Manufacturers Association (VMA) has formed a regional industrial consortium to serve and help local industry. The University's entire resource base is made available to the consortium for proactive problem solving and information retrieval.

The Embry-Riddle Industrial Consortium (ERIC) is managed through a university center called the "Office Serving Industry Requests for Information and Services (OSIRIS)". OSIRIS is directed by Dr. R. Luther Reisbig, a professor of Engineering. Mr. Lou Fifer serves OSIRIS as Director of Marketing and Community Relations. Mr. Fifer is also the President and CEO of the Volusia Manufacturers Association.

Many Volusia County industries have fewer than 500 employees. Smallness translates into limited resources. ERAU offers resource help to local industry in: a) engineering; b) marketing; c) computer software/hardware; d) computer networking; e) electronic devices; f) data base design/utilization; g) operations research; h) logistics; i) human factors; j) communications; k) product design; l) product development/testing; m) materials science; n)research; o) management; and more.

COURSE DESCRIPTIONS

Course Descriptions

Embry-Riddle Aeronautical University course offerings are listed in alphabetical order, according to the following course designations:

AE	Master of Aerospace Engineering/ Master of Science Aerospace Engineering
AED	Aviation Education
BA	Master of Business Administration in Aviation
HFS	Master of Science in Human Factors and Systems
MA	Mathematics
MAS	Master of Aeronautical Science
MSE	Master of Software Engineering
TM	Master of Science in Technical Management

The following courses are not necessarily offered every term, nor are they necessarily offered at all campus locations.

AE - Aerospace Engineering

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

Classification and solution of compressible flow problem, basic conservation laws, and fundamental theorems of compressible flows. Wave phenomena; normal and oblique shocks. Method of characteristics and wave interactions. Perturbation theories and similarity rules. Linearized supersonic flow, axisymmetric flow wing theory and wave drag. Nonlinear theories of transonic and supersonic flows. Prerequisite: Consent of the department.

AE 506

Airplane Dynamic Stability
3 Credits

Small-disturbance theory and linearized solutions of the general equations of motions. Aerodynamic derivatives, derivative analysis, aerodynamic transfer functions. Dynamic stability of uncontrolled longitudinal and lateral motions. Computer solution of dynamic stability problems. Inverse problems. Automatic stability and control. An introduction to automatic flight controls and feedback control system analysis. 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 I
3 Credits
Equilibrium and kinetics of combustion processes. Law of mass action, Arrhenius reaction rate law, heat of reaction, and adiabatic flame temperature. Conservation equations of reacting flows. Applications of conservation equations. Prerequisite: Consent of the department.

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 upon the varied interests of the students, the graduate faculty, or the research requirements of the Aerospace Engineering department. Prerequisite: Consent of the department.

AE 601

Combustion II
3 Credits
Several simplified but important steady flow combustion problems will be studied. The concept of flame stabilization will be explored. The final part of the course will deal with combustion problems in unsteady flow systems. Prerequisite: Graduate standing.

AE 602

Continuum Mechanics
3 Credits
Kinematics and deformation of a continuum. Balance principles for mass, momentum and energy. Constitutive equations. Application of the theory to solid and fluid media. Prerequisite: Consent of the department.

AE 604

Finite Element Fundamentals
3 Credits
Basic equations of the theory of elasticity. Energy principles. Formulation and assembly of stiffness matrices and load vectors for elastic solids. Modeling considerations. Solution methods. Computer implementation of finite element and stress analysis procedures. Interpretation of computer solutions. Design applications. Prerequisite: Graduate standing.

AE 606

Finite Element Aerospace Applications
3 Credits
Development of finite element representation of continuum using Galerkin and variational techniques. Boundary elements. Applications to statics and dynamics of solids, structures, fluids and heat flow. Includes the use of finite element codes. Prerequisite: Graduate standing.

AE 608

Introduction to Computational Aerodynamics
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 610

Computational Aerodynamics
3 Credits
Application of vortex lattice, panel element and boundary element methods to incompressible and compressible three-dimensional aerodynamics 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
Bending and buckling of plates. Cylindrical bending. Boundary value problems. Axisymmetric problems. Deformation of shells. Energy principles. Stress and stability analysis. Approximate methods. Finite element methods. Computer applications. Prerequisite: Graduate standing.

AE 614

Analysis of Aircraft Composites Structures
3 Credits
Fiber materials, tapes, cloths, resin systems. Theory of elastic anisotropic materials. Elastic constants for multi-ply composites. Matrix formulation. Computer analysis. Strength and theory of failure. Sources and use of experimental data. Design considerations. Prerequisite: Graduate standing.

AE 616

Advanced Aircraft Structural Dynamics
3 Credits
Analysis of structures subjected to dynamic loads. Hamilton's Principle and Lagrange's equations. Rayleigh's principle. Numerical evaluation of natural frequencies and modes. Mode superposition and direct integration methods for dynamic response. Finite element modeling. Component mode synthesis. Computer applications. Prerequisite: Graduate standing.

AE 620

Boundary Layer Theory
3 Credits
Navier-Stokes equations for laminar and turbulent flows. Boundary layers. Jets, wakes, elementary turbulence modeling. Skin friction, separation, drag and aerodynamic heating. Approximate and exact finite-difference

solutions including the effect of suction and blowing. Solutions of turbulent boundary layer equations. Prerequisite: Graduate standing.

AE 640

Turbine Engine Propulsion Systems
3 Credits

Advanced theory of turbojet, multi-spool 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 poststall behavior. Prerequisite: Graduate standing.

AE 642

Rocket Engine Propulsion Systems
3 Credits

Analysis of combustion and expansion processes. Thrust nozzle performance analysis and design techniques. Characteristics of liquid propellants and liquid propellant rocket motors. Characteristics of solid propellants and interior ballistics of solid propellant rocket motors. Cooling techniques. Thrust vector control methods. Prerequisite: Graduate standing.

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 work place. 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 sixty hours of research for each credit hour. Prerequisite: Graduate standing.

AE 700

M.S.A.E. Thesis
9 Credits

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 sixty 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, and 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.

AED601

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 into 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 in Aviation

BA 503

Business Foundations
1-6 Credits
This course examines in depth the major competencies which have been identified as essential prerequisite knowledge for a graduate student enrolled in the MBA/A degree program to successfully complete the course work. The course is broken down into six stand-alone modules in the discipline areas of management/quantitative methods, marketing/accounting, and economics/finance. Each student will only take those modules which have been identified through advisement as being required. Emphasis is placed on understanding the core knowledge and skills in each of the disciplines. Credit for this course is not applicable to the requirements of any Embry-Riddle degree.

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 within 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, 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 and financial engineering, swaps, options and financial future, and international finance. Prerequisites: Satisfactory completion of Business Foundation courses, and/or permission of the Graduate Program Chair.

BA 520

Organization, Behavior, Theory, and Applications in Aviation
3 Credits

This course focuses on current organizational issues which have a direct impact on management in the aviation industry. The emphasis is on human development and the development of effective work elements, as well as the personnel concerns which must be resolved for successful leadership. Topics will provide insights to 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 521

Global Information and Technology Management
3 Credits

The course will develop knowledgeable and effective users of information technology in aviation and aerospace management occupations. A combination of technical and managerial material is presented. This

material is necessary to achieve an understanding of the operations and strategic uses of management information systems within the aviation industry. Emphasis is placed on the use of computers as an information processor, decision tool, and as a means of linking management more closely to the organization. In addition, topics relating to the management of information resources are presented. Prerequisites: Satisfactory completion of Business Foundation courses, and/or permission of 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 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 upon 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 all activities that create goods and services within 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 within 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 604

International Management and Aviation Policy
3 Credits

An advanced study of international management and aviation policy through the examination of major trends and issues challenging the aviation manager. Cross-cultural situations are evaluated from the perspective of interpersonal relationships in a diverse domestic and foreign environment, and in the context of evolving global trends. Strategic planning and negotiation are examined by defining the major tasks involved in organizing for international aviation, such as designing the organization and staffing. Managing workforce diversity is examined from culture-based and comparative perspectives, along with the function of control through the examination of effective control systems for overseas operations that ensure environmental interdependence through social responsibility and ethical behavior. 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. Prerequisite: Successful completion of Business Foundation courses and/or permission of 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 planing are studied. Prerequisites: Satisfactory completion of 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, growth factors, 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 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 be able to formulate the 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: Satisfactory completion of Business Foundation courses and/or permission of the Graduate Program Chair.

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 which 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 a required course for those students who choose not to write a thesis. (Graduate Research Project not offered at Daytona Beach campus during the 1998-1999 Academic Year.) Prerequisite: ABA 522 or MAS 605.

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 work place. They are academic/professional activities coordinated by the University between offering organizations and graduate student.

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. Prerequisite: ABA 522 or MAS 605.

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. Prerequisites: HFS 500, Systems Concepts, Theory, and Tools.

HFS 510

Research Design and Analysis I
3 Credits
Foundation and procedures of research techniques, tools, and methods. Course reviews the principle concepts of research design and evaluation. The application of experimental, case study, survey, and non-experimental 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 same as MAS 665.)

HFS 515

Ergonomics
3 Credits
This class will address the basic concepts of ergonomics and their application to 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, Systems Concepts, Theory, and Tools, 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 related 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 multimodel 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 the 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 the 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, Systems Concepts, Theory, and Tools and HFS 505 Systems Engineering I.

HFS 610

Research Design and Analysis II
3 Credits

This course is the advanced program in experimental design and analysis. The focus in this course 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 Research Design and Analysis I.

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 sensory and perceptual phenomena. Attention will be paid to all of 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 tactile senses. Lab is a required part of this course. Prerequisite: Completion of an undergraduate course in the area of sensation and perception. (This course same as MAS 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, time-sharing, reaction time, action, manual control, and the impact of automation. Lab is a required part of this course. Prerequisites: Completion of an undergraduate course in the area memory and cognition. (This course same as MAS 663.)

HFS 625

Applied Testing and Selection
3 credits

Issues in selecting and testing applicants for a broad range of aviation and related industries positions is 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 Research Design and Analysis I and HFS 610 Research Design and Analysis II.

HFS 630

Cognitive Systems
3 Credits

The course addressed applied cognitive science, that draws on the knowledge and techniques of cognitive psychology and related disciplines to provide the basis for principle-driven design. Specifically it

will address human cognitive behavior in complex worlds, that exist without the artificial boundaries of the laboratory. It specifically addresses those worlds where there have multiple agents (i.e., cognitive systems) and which are problem driven and tool constrained. The course will also address the impact of mismatches between the models of the designers, their software, and the users. Prerequisites: HFS 600 Human Factors in Systems and HFS 620 Memory and Cognition.

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 required part of this course. Prerequisites: Completion of an undergraduate course in human factors or human computer interaction. (This course same as MAS 661.)

HFS 640

Aviation/Aerospace Psychology
3 Credits

This is a survey course that 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, crew resource management, and other areas of current interest. The topic areas change from semester to semester depending on the focus of 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.

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 of 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, visual momentum will be read and critically discussed. The course pay 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 both an 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 (e.g., stress circadian rhythms), person-to-person communications, performance measurement, and research and development needed. Prerequisite: Completion of an undergraduate course in human factors.

HFS 696

Graduate Internship in Human Factors and Systems
3 credits

Supervised placement in an industrial, governmental, or consulting setting. 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.

HFS 700

Thesis
1-6 credits

The performance and a written description of a master's 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. Prerequisite: Completion of all core courses in Human Factors Engineering track or 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 503

Mathematical Methods
3 Credits
Single variable calculus; convexity; functions of several variables; Lagrange multipliers; linear systems of equations; matrix algebra; determinants; eigenvalues; LU decomposition.

MA 504

Theory of the Potential
3 Credits
Potential theory and Green's function. Method of characteristics and solution in the large of Cauchy's initial value problem for first and second order equations. Numerical methods. Application to fluid mechanics, electromagnetic fields, heat conduction, and other areas. Computer applications. Prerequisite: MA 502.

MA 505

Statistics
3 Credits
Fundamental concepts of design of experiments, including factorial designs; simple linear regression analysis; introduction to multiple regression; residual analysis; case studies from aviation/aerospace involving designed experiments and regression models. Prerequisite: elementary statistics course. Corequisite: MA 503.

MA 506

Probability for Engineers
3 Credits
Foundations, combinations, conditional probability, expectations and applications to discrete sample spaces. Random variable in one or more dimensions. Various continuum distributions. Characteristic functions. Applications to engineering problems. Computer applications. Prerequisite: MA 441 or equivalent.

MA 508

Applied Stochastic Processes
3 Credits

An introductory course in the concept of a discrete and continuous stochastic process based upon physical phenomena that originally gave rise to the specific stochastic models that are studied. Random walk, recurrent events, queuing theory, Markov chains, birth and death processes, diffusion, simple representations of noise, spectra, response of time invariant systems to noise inputs. Power spectral density. Stationary random processes. Computer applications. Prerequisite: MA 506.

MA 510

Fundamentals of Optimization
3 Credits

Necessary and sufficient conditions for optimality; classification of optimization problems into constrained/unconstrained, linear/nonlinear; model formulation; optimization techniques-exact and approximate; sensitivity analysis; case studies from aviation/aerospace involving model development and determination of optimal solutions. Prerequisite: MA 503.

MA 520

Mathematical Programming and Decision-Making
3 Credits

Utility and value functions; linear and nonlinear programming; AHP; network flows; duality; case studies from aviation/aerospace involving mathematical programming and decision theory. Prerequisite: MA 510.

MA 605

Statistical Quality Analysis
3 Credits

Fundamentals of statistical quality control; mixture and screening experiments; use of central composite designs; response surface methodology; weighted least squares; advanced topics in multiple regression; nonparametric statistics; case studies from aviation/aerospace involving quality control and improvement and advanced statistics concepts. Prerequisite: MA 505.

MA 610

Multivariate Optimization
Credits
Multiple objective optimization; response surface methodology; multiple response surface methodology; group decision-making techniques; vector optimization; case studies from aviation/aerospace emphasizing multivariate model development and determination of optimal solutions. Prerequisites: MA 520 and MA 606.

MA 690

Graduate Research Project
Credits
An applied problem on an aviation/aerospace topic that requires use of optimization and/or quality improvement skills. A student pursuing the research project track of the MSIO must select this course.

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
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.

MAS - Aeronautical Science

MAS 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.

MAS 509

Advanced Aerodynamics
3 Credits

A study of current flight applications and problems that includes transonic, supersonic, and hypersonic aerodynamics, principles of aircraft stability and control, and operational strength considerations. Emphasis is placed on the applications of the rapidly changing technological innovations in aerodynamics and the solutions to the problems created by these advances. Prerequisite: Demonstrated knowledge of basic aerodynamics.

MAS 510

Advanced Aircraft Performance
3 Credits

An analysis of performance characteristics for transonic, supersonic, and near space air vehicles powered by jet or rocket engines. Problems related to high speed and high altitude flight such as aeroelastic effects, compressibility drag, Reynold's Number effects, ram pressure rise, and aerodynamic-heating are explored. Discussions center on current developments and the problems associated with these advancements. Prerequisite: Demonstrated knowledge of basic aircraft performance.

MAS 511

Earth Observation and Remote Sensing
3 Credits

U.S. and international solar system exploration programs are reviewed and related to the current and proposed Earth-research projects. Examination of these research programs will be structured towards defining problems related to environmental changes and resource exploration. Formatted research data from Earth-resource satellites and EOS sources will be used for demonstrating specific research techniques, exploration methods, and economic and social elements of exploration. Prerequisite: Demonstrated knowledge of spacecraft or satellite operations.

MAS 512

Space Mission and Launch Operations
3 Credits

This course introduces the student to launch, mission operations, and facilities for manned and unmanned missions at U.S. and foreign sites. Satellite and spacecraft launch facility system discussion covers safety, meteorology, communications and tracking, navigation and control systems. Examples of mission control, operations, and systems include spacecraft project descriptions, and control site operations. Computer-based simulation instruction provides mission- and site-specific operation detail. Prerequisite: Demonstrated knowledge of spacecraft or satellite operations.

MAS 513

Space Habitation and Life Support Systems
3 Credits

This course addresses the problems related to space-flight induced changes in the major body systems which need to be solved in this decade, to develop countermeasures for maintaining the health of crewmembers on long duration space operations. Physiological elements of zero gravity environment, radiation hazards, and protection measures are explored, along with physical and chemical closed-loop life support systems for long duration space missions. More elaborate life support systems for larger manned missions and colonies are outlined for further student development. Prerequisite: Demonstrated knowledge of manned spaceflight programs.

MAS 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.

MAS 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, from 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, are examined in detail.

MAS 516

Applications in Crew Resource Management
3 Credits

This course will examine the common concepts of Crew Resource Management (CRM) as developed by major air carriers and explore the theoretical basis of such training. Topics such as supervision of crewmembers, counseling, manner and style, accountability, and role management will be studied. Each student will have 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 will use simulators and computer-based instruction to supplement their academic instruction.

MAS 517

Advanced Meteorology
3 Credits

Course topics include the derivation and application of the hydrostatic equation, atmospheric kinematics, derivation of the equation of continuity, development of thermal wind, fundamental weather analysis, high altitude and radar meteorology, air pollution, and solar impact on weather. The student practices current weather analysis and short range weather forecasting using much of the latest equipment available in aviation. Prerequisites: Demonstrated knowledge of mathematics and basic meteorology.

MAS 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, its historical and philosophical foundations.

MAS 560

Rotorcraft Operations
3 Credits

The course introduces the complexities of rotary wing flight systems and the advancements made to overcome them. The unique problems facing

an organization involved in rotorcraft operations are studied from the initial inception of a program to the government rules and regulations, environmental and noise considerations, special landing and take-off facilities, flight and maintenance ratings, and techniques of control. Special consideration is given to the unique problems and issues facing such rotorcraft operations as police, medical evacuation, forestry service and corporate aviation.

MAS 570

Advanced Avionics
3 Credits

An advanced study of electronic communication, navigation, and landing equipment used in aircraft and spacecraft is the basis for this course. Discussions will include electronic pulse type equipment, surveillance systems, low frequency and area navigation systems, flight control systems, and systems integration. Prerequisite: Demonstrated knowledge of avionics systems.

MAS 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 upon 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.

MAS 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 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.

MAS 602

The Air Transportation System
3 Credits

A study of air transportation as part of a global, multi-modal 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 this century. The long-term and short-term effects of deregu-

lation, 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. Prerequisites: Demonstrated knowledge of aviation rules and regulations, and economics.

MAS 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 to include 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. Prerequisites: Demonstrated knowledge of college-level mathematics and economics.

MAS 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 will emphasize 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 the 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.

MAS 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.

MAS 606

Aviation/Aerospace Communications/Control Systems

3 Credits

A detailed analysis of current and future developments and trends in the control of air traffic that includes the evolution of current national policies, 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.

MAS 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 sub-systems. 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, and aircraft systems and components.

MAS 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.

MAS 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 utilized. 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.

MAS 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 the student 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.

MAS 612

Aviation/Aerospace Industrial Safety Management
3 Credits

The Aviation/Aerospace Industrial Safety Management 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.

MAS 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. Prerequisite: Demonstrated knowledge of performance of airports and airline operations management or related field.

MAS 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.

MAS 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.

MAS 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.

MAS 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.

MAS 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.

MAS 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 manufacturers, operators, and certificator/regulator. The study of the process begins with demand analysis and continues through purchase contracting, manufacturing, marketing, certification, pre-delivery activities, and introduction into service. Prerequisites: Demonstrated knowledge of management principles and economics.

MAS 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.

MAS 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.

MAS 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 utilized in developing curricula for an adult continuing education program related to aviation.

MAS 654

Adult Teaching and Learning Techniques
3 Credits

The major instructional strategies used in education with particular emphasis on higher education and adult learning are the core of this course. Multiple approaches as they relate to academic disciplines and grade levels are studied. The unique "cockpit classroom" environment will be discussed and evaluated.

MAS 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. (Same course as HFS 615.)

MAS 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; color and sound. Prerequisite: Demonstrated knowledge of the use of computers, including programming familiarity with a high-level language.

MAS 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—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. (Same course as HFS 620.)

MAS 665

Applied Experimental Design
3 Credits

The design, conduct, statistical analysis, and interpretation of common behavioral science research designs are covered within 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: MAS 605, or completion of an undergraduate experimental psychology course. (Same course as HFS 510.)

MAS - Aeronautical Science

MAS 690

Graduate Research Project
3 Credits
A written document on an aviation/aerospace topic which exposes the student to the technical aspects of writing. This course is included in the MAS 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: MAS 605.

MAS 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 work place. They are academic/professional activities coordinated by the University between offering organizations and a graduate student.

MAS 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.

MAS 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: MAS 605.

MSE - Software Engineering

MSE 500

Software Engineering Discipline
3 Credits

This course introduces students to the concepts and methods for a disciplined software engineering process. Students will be introduced to the scales down industrial practices for planning, tracking, analysis, and defect management to fit the needs of small-scale program development. The course demonstrates how small project disciplines provide a solid base for larger projects and how it provides a framework for a statistically managed software engineering discipline. Also discussed is the cost and benefit of a Personal Software Process (PSP). Students will work individually to complete the course assignments. Prerequisite: Practical knowledge of a modern programming language (e.g., Ada, C, C++).

MSE 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. Prerequisites: Basis knowledge of computer science. Prerequisite/Co-requisite: MSE 500.

MSE 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 the use of formal methods throughout the software life-cycle. Prerequisite: CS 222 or consent of Instructor.

MSE 530

Software Requirements Engineering
3 Credits

This course is concerned with the software engineering process of determining what is to be produced and the products generated as a result of following the process. Software requirements engineering is studied as a three step process of requirements, elicitation, analysis/validation and specification. In-depth study of methods such as Prototyping and Scenario Analysis for requirements elicitation, Object- or Function-Oriented methodologies and Quality Function Deployment for requirements analysis and validation, and standards such as ANSI/IEEE Std 830 and DoD 2167A for requirements specification. The course also includes use of Computer Aided Software Engineering (CASE) tools and review techniques (e.g., Peer Review, Inspection, Structured Walkthroughs) in requirements engineering of software systems. Students will participate in individual and group projects on performing

software requirements engineering task. In addition, the course requires definition and development of a process guidelines for requirements engineering task. Prerequisite/Corequisite: MSE 500.

MSE 535

Graphical User Interface Design and Evaluation
3 Credits

An introduction to designing, implementing, and evaluating computer-human interfaces with emphasis on graphical user interfaces. The approach is both theoretical and practical. Students participate in small team development of a prototype graphical user interface, using an available interface design software tool such as TAE. A paper evaluating a graphical user interface, as described in the literature and/or evidenced in existing software is required.

MSE 540

Simulation and Software Engineering
3 Credits

This course addresses basic concepts of simulation discipline and the role of software engineering in development of complex simulation software. It provides advanced material in organization of simulation study, developing simulation models, and executing the model on a digital computer. The focus is on simulation process and various simulation paradigms. Model taxonomy, unifying elements of continuous and discrete simulations, address issues of both modeling and analysis, and the simulation algorithms and execution are stressed. The course material will require to do research on state-of-the-art in simulation methodology and prepare appropriate reports. Prerequisite: Consent of Instructor.

MSE 545

Specification and Design of Real-Time Systems
3 Credits

This course addresses basic concepts and methods used in software specification and design of concurrent and real-time systems. The characteristics of concurrent and real-time systems, the role of software design in software development. Review and comparison of a number of software design methods specifically suited for concurrent and real-time systems will be explored. Two of the methods will be analyzed in detail and some case studies will illustrate the design process. The course material may require research in real-time aspects of software design and to produce appropriate reports. Prerequisite: MSE 500.

MSE 550

Current Trends in Software Engineering
3 Credits

Current techniques, methods, procedures and paradigms of software engineering are studied. Students perform literature searches and prepare written and oral reports on current software engineering practices. Prerequisite: MSE 500.

MSE 555

Object-Oriented Software Construction
3 Credits

This course addresses 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. It discusses and evaluates the suitability of different software development life cycles for object-oriented paradigm. Also covered in the course are object-oriented metrics and case studies in object-oriented software development. Prerequisites: MSE 500, proficiency in use of modern programming languages (e.g., Ada, C, C++).

MSE 560

Human Factors in Software Engineering
3 Credits

This course stresses the importance of proper 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. Prerequisite: MSE 500.

MSE 570

Artificial Intelligence and Software Engineering
3 Credits

The objectives of this course are twofold; 1) to investigate application software engineering principles in the development of knowledge-based systems, and 2) to study application of artificial intelligence tools and techniques in the development of software systems. The course provides advanced material in the organization of knowledge-based systems, collection and analysis of requirements, knowledge acquisition, knowledge representation, validation and verification, and maintenance. Prerequisite: CS 455 or Consent of Instructor.

MSE 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, engineering of process, enactment of the processes, and description of the process properties. Other subject related to process definition covered are Process, Process Step, Process Element, and Process Script. The course also addresses various representation to process modeling, such as text-

based, template-based, and graphical-based. Executable presentations, in the form of process program, are studied. These executable presentations include process definition and modeling tools, such as State Transition Diagrams, Entry-Task-Validation-Exit, Statecharts, and Petri-Nets, and automated tools for process representations. Prerequisite: MSE 500 or Consent of Instructor.

MSE 585

Metrics and Statistical Methods for Software Engineering
3 Credits

This course is concerned with three related 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 engineering including the representational theory of measurement, collection, analysis and validation of data. Also studied are frameworks such as Goal-Question-metrics and Quality Function Deployment paradigms for guiding measurement efforts. Statistical methods along with Statistical Process Control (SPC) tools such as Control Charts, Fishbon Diagram, scatter Diagrams and advanced subjects such as Taguchi's Robust Design technique and their application in software engineering are covered. Also explored are the concepts of experimental design, analysis of experiments, model building, ethics and presentation of experiments. Prerequisite: MSE 500 or consent of Instructor.

MSE 590

Graduate Seminar
3 Credits

A study of the current advancements in a particular field of software engineering as determined by the instructor of the course. The course will have a different topic each term depending upon the varied interests of students, the graduate faculty, or the research requirements of the Aviation Computer Science Department.

MSE 610

Software Systems Architecture and Design
3 Credits

This course is concerned with the principles and concepts relevant to the software engineering process of designing large programs and systems, and the products generated as a result of enacting the process. Software design is studied as a two-step process of building an abstract model for the software system and refining this model into an implementation form, along with the products of the design process such as high-level and detailed designs. The course provides an introduction to a range of design methodologies, together with a description of their uses and limitations as well as principles that are used to assess the quality of a design process and products. In-depth study of Object- and Function-Oriented design methods, and use of Computer Aided Software Engineering (CASE) tools and review techniques (e.g., Peer Review, Inspection, Structured Walkthroughs) in the design process. Also cov-

ered are advanced topics related to software architectures and design patterns. Students will participate in individual and group project on high-level and detailed designs of a software system. The course also includes definition and development of a process guideline for design process. Prerequisite: MSE 530.

MSE 625

Quality Engineering and Assurance
3 Credits

This course describes the overall approach to specifying software quality, achieving quality, and mapping a quality specification into an engineerable set of activities. It describes the major activities used to cross-check the quality of software artifact and its development process. This course provides a framework for understanding the application of software verifications and validation (V&V) processes and techniques throughout the software development life cycle. Typical products of V&V processes are identified along with their possible V&V objectives. The course will analyze five categories of V&V approaches: 1) technical reviews, 2) software testing, 3) proof of correctness (program verification), 4) simulation and prototyping, and 5) requirements tracing. For each category some representative techniques will be identified and assessed. The course emphasis is on validating the system at the requirements and design stages. This validation is then coherently extended into a discussion of testing concepts, planning and controlling of testing activity, and integration-level testing. The course covers the economics of software quality and provides a guide to organizing the project to achieve quality in both the software product and process. Prerequisite: MSE 530 or consent of Instructor.

MSE 640

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, and implementation techniques will be described and illustrated by examples and practical exercises. Principles and practices of concurrent programming, including synchronization and communication issues, and a survey of languages suitable for implementing concurrent solutions will be covered. Prerequisite: MSE 530.

MSE 650

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 will be 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 will be discussed. An essential element of this course is a group project

on the development of safety related software, including its design, implementation and testing. Prerequisite: MSE 500 or consent of Instructor.

MSE 655

Performance Analysis of Real-Time Systems
3 Credits

The objective of this course is to teach principles of performance analysis of real-time systems on the design and implementation levels. Performance modeling and analysis techniques will be described and illustrated by examples and practical exercises. Principles and practices of software development to achieve required or optimal performance, including design analysis and assessment of the implementation, will be addressed. An actual project in instrumentation of software for performance evaluation is an essential element of this course. Prerequisite: MSE 640 or consent of Instructor.

MSE 660

Formal Methods for Concurrent and Real-Time Systems
3 Credits

A study of the formal specification of reactive systems, temporal logic, and current research in the specification of concurrent and real-time systems. There also will be some discussion of verifying software designs based on formal specifications. Prerequisite: MSE 520 or consent of Instructor.

MSE 680

Software Process Improvement
3 Credits

This course provides students with fundamental knowledge for process improvement issues. Subjects, such as software process maturity, software process models and standards (i.e., CMM, ISO), and improvement approaches at organizational, project and individual levels are studied. Concepts for quantitative software process management and their origins are emphasized. Process improvement initiatives for defect detection (e.g., Inspection) and defect prevention (e.g., Causal analysis) are studied in detail. Related topics to process improvement issues, such as risk management, organization culture, group dynamics, and technology change management are also covered. Prerequisite: MSE 500.

MSE 690

Graduate Research Project
3 Credits

A written document on aviation/aerospace software engineering topics which exposes the student to the technical aspects of writing. The document is an individual work based on student involvement in a team software development activity representing a significant element of the software development life cycle. It provides the student with an opportunity to pursue a project of special interest at a practical level. This is a required course for students who choose not to write a thesis.

MSE 696

Graduate Internship in Software 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 work place. They are academic/professional activities coordinated by the University between organizations and a graduate student.

MSE 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. A detailed proposal of the desired project must be developed and presented to the department chair for faculty review and recommendation.

MSE 700

Thesis Research
6 Credits

Formal research resulting in a written thesis on a software engineering topic supervised throughout its preparation by the student's Thesis Committee. The research demonstrates the student's mastery of the subject and is of satisfactory quality for publication. The thesis is based on the student's involvement in team software development activities expanded by individual research, theoretical background, and/or elements of innovation.

TM - Technical Management

TM 500

Communications and Computer Skills with Quantitative Methods
6 Credits

The integration graduate level skills in computers, quantitative management methods, and communications is explained 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. Computer techniques will be covered only as an efficient method to achieve higher level analytical and communicative skills. Emphasis is placed on understanding analytical methodologies, interpreting quantitative results, and communicating conclusions in concise and persuasive writing and speaking. **This is a required first course for all students in the M.S. in Technical Management degree program.**

TM - Technical Management

TM 505

Computer Applications in Systems Management
3 Credits

Computers are used to enhance systems management. Emphasis is placed on electronic data management systems; electronic spreadsheets; decision support systems; electronic mail bulletin boards and communications; word processing and desktop publishing for developing graphics and aids for presentations. New concepts and applications of computer-integrations of computer-aided-design (CAD) with relational databases using Structured Query Languages (SQL), color graphics, and local area networks (LANS) of interactive personal computers as intelligent terminals to mainframes are also covered.

TM 510

Project Development Techniques with Statistical Applications
3 Credits

The use of available resources to develop credible research applications and strategies to support systems development. The search process: conducting literature, index/catalog and/or full text searches and synthesis of data for reports and presentations. Statistical methods for analyzing project assumptions: forecasting; regression analysis; probability distributions; parametric and nonparametric statistical methods; sampling theory; and time series analysis. The art and science of problem-solving in applied and pure business research, and the uses and abuses of statistics in applied research. Introduction to a style manual for the preparation of the research proposal.

TM 520

Financial and Managerial Accounting and Control in Technical Management
3 Credits

Understanding financial control procedures for a systems approach management. Cost elements in manufacturing, research and development, logistic and support services. 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 and its relationship to cost; using spreadsheets for budget and overhead analysis; pricing, capital budgeting and investment decisions.

TM 605

Organization 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; participation; sensitivity to cultural and minority differences; managing technical change and innovation in a

large organization; communication in a technical organization; organization culture and tradition; government perspective; industry perspective.

TM 610

Managing Effective Technical Work Teams
3 Credits

Team building for a technical project. Two-way communications and feedback; participative management techniques concerning motivation; small-group processes, and group decision support traction and retention of quality personnel; skills in writing employee evaluations; responsibility, authority, accountability; solution; initiative; creativity; communicating upward and downward, being caught in the middle; personality/temperament, logic versus heuristic/detail versus holistic; people management strategies; motivation, recognition, reward.

TM 615

Planning for Systems Development and Operations
3 Credits

Detailed systems planning for implementation of a program up to and including production and support. Systems life cycle concepts; analysis and design techniques; economic trade-offs and requirements, cost benefit analysis; legal, environmental, and international considerations; organizing for project management, production and quality control; training, maintenance and logistics requirements.

TM 620

Federal Regulations, Ethics, and the Legal Environment
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 within 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 explain and/or sell your projects, programs, or products to a hostile or friendly audience. Understanding products and people; collecting data to accurately reflect the situation; 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.

TM 640

Project Planning for Procurement and Contracting
3 Credits

Using strategic and tactical planning for program and project management in a technical environment. Organizing for acquisition using strategic and tactical plans; specifications, regulations, legal liabilities, proposal preparation and submittal; selections process criteria, pricing, and negotiation; contracting, warranties, quality assurance, subcontracting, administration, audits, appeals, coordination, modification, budgetary process and profits; types of contracts—fixed price, CPFF, CPIF; incentive contracting; advantages/disadvantages of contract types.

TM 645

Advanced Operations Research and Management Science
3 Credits

Quantitative methods for program management. Forecasting and probability distributions; decisions 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; queuing theory and waiting lines; network models such as PERT, CPM, maximal flow and shortest route techniques; and simulation and modeling; regression analysis; time series analysis.

TM 650

Total Quality Management and Quality Control
3 Credits

Instilling quality concepts in a project. Continuous improvement; total quality; designing for and cost of quality; organizing for TQM; alternative approaches to quality; understanding the corporate culture; developing the quality plan, implementing TQM; introducing the concept; work meetings and project teams; informing, motivating, recording; using technology; key approaches and when to use them; reward and recognition; follow-up, evaluation, and feedback.

EXTENDED CAMPUS

Resident Centers

UNITED STATES

STATE	CITY	CENTER	TELEPHONE
Alabama	Enterprise	Fort-Rucker	(334) 598-6232
Alaska	Anchorage	Elmendorf AFB	(907) 753-9367
	Ft. Wainwright	Fairbanks	(907) 356-7773
Arizona	Mesa	East Mesa	(602) 727-1192
	Glendale	Luke AFB	(602) 935-4000
	Phoenix	Sky Harbor	(602) 275-5533
	Tucson	Davis-Monthan AFB	(520) 747-5540
Arkansas	N. Little Rock	Little Rock ANGB	(501) 212-6608
California	Marysville	Beale AFB	(916) 788-0900
	Oakland	East Bay	(510) 521-8751
	Rosamond	Edwards AFB	(805) 258-1264
	Ft. Irwin	High Desert	(619) 386-7997
	Lemoore	NAS Lemoore	(209) 998-6026
	Riverside	March AFB	(909) 653-4074
	Sacramento	McClellan AFB	(916) 920-9620
	San Jose	Moffett Federal Airfield	(415) 603-9694
	San Diego	NTC San Diego	(619) 523-9270
	Fairfield	Travis AFB	(707) 437-5464
	NAWS Pt. Mugu	Ventura	(805) 271-9691
Colorado	Aurora	Denver	(303) 340-7194
	Ft. Carson	Colorado Springs	(719) 526-3387
Florida	Ft. Walton Bch.	Eglin AFB	(904) 678-3137
	Pompano Beach	Fort Lauderdale	(954) 970-8551
	Jacksonville	NAS Jacksonville	(904) 779-0246
	Tampa	MacDill AFB	(813) 828-3772
	Miami	Miami	(305) 871-3855
	Cocoa	Patrick AFB	(407) 783-5020
	Pensacola	NAS Pensacola	(904) 458-1098
	Panama City	Tyndall AFB	(904) 286-6246
Georgia	Marietta	NAS Atlanta	(770) 426-9990
	Savannah	Hunter/Stewart	(912) 355-0644
	Valdosta	Moody AFB	(912) 244-9400
	Warner Robins	Robins AFB	(912) 926-1727
Hawaii	Oahu Island	NAS Barbers Point	(808) 682-5168
	Honolulu	Hickam AFB	(808) 422-0835
	Kailua	MCBH Kaneohe	(808) 254-2106
Idaho	Mountain Home	Mountain Home AFB	(208) 832-2222
Indiana	Indianapolis	Indianapolis	(317) 487-6281
Kansas	Wichita	McConnell AFB	(316) 687-3006

Kentucky	Hopkinsville	Fort Campbell	(502) 439-4534
	Louisville	Fort Knox	(502) 942-0625
Louisiana	Shreveport	Barksdale AFB	(318) 747-4508
Maine	Brunswick	NAS Brunswick	(207) 721-0664
Maryland	Andrews AFB	Andrews AFB	(301) 735-6340
	Lexington Park	NAS Patuxent River	(301) 863-8776
Michigan	Detroit	Selfridge ANG	(810) 465-3259
Mississippi	Biloxi	Keesler AFB	(601) 432-5312
	Columbus	Columbus AFB	(601) 434-6121
Montana	Great Falls	Great Falls	(406) 452-9988
Nebraska	Omaha	Offutt AFB	(402) 292-6655
Nevada	Fallon	NAS Fallon	(702) 423-4018
	Las Vegas	Nellis AFB	(702) 643-0762
New Jersey	Atlantic City	FAA Hughes Tech Center	(609) 485-4517
	Trenton	McGuire AFB	(609) 723-1337
New Mexico	Alamagordo	Holloman AFB	(505) 479-6892
	Albuquerque	Kirtland AFB	(505) 846-8946
	Clovis	Cannon AFB	(505) 784-8763
New York	Rome	Hancock Field	(315) 458-2523
	Watertown	Fort Drum	(315) 773-2909
N. Carolina	Fayetteville	Ft. Bragg	(910) 436-5005
	Fayetteville	Pope AFB	(910) 436-3188
	Goldsboro	Seymour Johnson AFB	(919) 734-9211
N. Dakota	Grand Forks	Grand Forks AFB	(701) 594-5324
	Minot	Minot AFB	(701) 727-9007
Ohio	Cincinnati	Cincinnati	(513) 733-3728
	Fairborn	Wright-Patterson AFB	(513) 878-1908
Oklahoma	Enid	Vance AFB	(405) 249-7320
	Altus	Altus AFB	(405) 481-5991
S. Carolina	Charleston	Charleston AFB	(803) 767-8912
	Sumter	Shaw AFB	(803) 666-7401
S. Dakota	Rapid City	Ellsworth AFB	(605) 923-4447
Tennessee	Millington	NAS Memphis	(901) 872-4088
Texas	Abilene	Dyess AFB	(915) 692-2007
	Arlington	Fort Worth	(817) 737-8180
	Corpus Christi	NAS Corpus Christi	(512) 937-4951
	Del Rio	Laughlin AFB	(210) 298-3272
	Kingsville	NAS Kingsville	(512) 595-7644
	San Antonio	Randolph AFB	(210) 659-0801
Utah	Salt Lake City	Hill AFB	(801) 777-0952
Vermont	Burlington	Burlington	(802) 860-2222
Virginia	Hampton	Langley AFB	(757) 764-2662
	Norfolk	NAS Norfolk	(757) 440-5078
	Newport News	Ft. Eustis	(804) 887-0980

Washington	Spokane	Fairchild AFB	(509) 244-3832
	Tacoma	McChord AFB	(206) 964-4572
	Tacoma	Fort Lewis	(206) 964-4572
	Moses Lake	Moses Lake	(509) 762-6338
	Oak Harbor	NAS Whidbey Island	(360) 257-2540
Wyoming	Cheyenne	F.E. Warren AFB	(307) 634-9693

EUROPEAN

COUNTRY	LOCATION	CENTER	TELEPHONE
England	Lakenheath	RAF Lakenheath	011-44-1638-522464
	Mildenhall	RAF Mildenhall	011-44-1638-510955
Germany	Geilenkirchen	Geilenkirchen AB	011-49-2451-66545
	Giebelstadt	Giebelstadt AAF	011-49-9334-8294
	Hanau	Hanau AAF	011-49-6183-73156
	Heidelberg	Heidelberg AAF	011-49-6221-24743
	Illesheim	Illesheim AAF	011-49-9841-8737
	Katterbach	Katterbach AAF	011-49-9802-8757
	Ramstein	Ramstein AB	011-49-6371-44204
	Spangdahlem	Spangdahlem AB	011-49-6565-7297
	Wiesbaden	Wiesbaden AAF	011-49-611-701704
Hungary	Taszar	Taszar	011-36-82-426-320
Italy	Aviano	Aviano AB	011-39-434-660631
	Vicenza	Vicenza AAF	011-39-444-500780
Spain	Rota	Rota NAS	011-34-5682-2984
Turkey	Adana	Incirlik	011-90-322-346-6029

College of Career Education

Regional Directors

Glad, Larry C..
Regional Director, North Central Region.
B.A., Bemidji State University; M.S., University of Wyoming

Goodrich, Alice A.
Regional Director, South Central Region.
B.A., Trenton State College; M.B.A., Embry-Riddle Aeronautical University.

Hansen, Janet M.
Regional Director, Western Region.
A.A., Merced Community College; B.A. and M.A., California State College.

Henkel, Thomas
Regional Director, Southeastern Region.
B.S., University of Maryland; M.S., Troy State; Ed.D, Auburn University.

Johnson, Stephen R.
Regional Director, European Region.
B.A., University of Louisville; M.S., University of Illinois

McEntee, Joseph J.
Regional Director, Eastern Region.
B.S., New York University; M.A., The American University.

Stockton, Wendell R.
Regional Director, Southwestern Region.
B.A., Park College.

Wright, Ann
Regional Director, Northwestern Region.
B.A., San Francisco State University; M.S., Chapman University.

Extended Campus

Sources of Additional Information

Extended Campus students should contact the director of the resident center they attend or any of the offices listed below for more information and guidance:

1. For general academic and admissions information:
   Admissions, Records and Registration Department
   Extended Campus
   Embry-Riddle Aeronautical University
   600 S. Clyde Morris Blvd.
   Daytona Beach, FL 32114-3900
   Telephone: (904) 226-6910
   1-800-522-6787
   Fax: (904) 226-6984
   E-mail: ecinfo@ec.db.erau.edu

2. For information about resident centers in the United States:
   Dean of Academics
   College of Career Education
   Embry-Riddle Aeronautical University
   600 S. Clyde Morris Blvd.
   Daytona Beach, FL 32114-3900
   Telephone: (904) 226-6970
   Fax: (904) 226-6949

3. For information about resident centers in Europe:
   European Regional Office
   Embry-Riddle Aeronautical University
   Unit 4495
   APO AE 09094-4495
   Telephone from U.S.: 011-49-631-536-7170/7152
   FAX from U.S.: 011-49-631-98450
   Military telephone: 489-7170/7152
   Internet: europe_director@cts.db.erau.edu

4. For more information about undergraduate or graduate independent study:
   Center for Distance Learning
   Graduate Program Manager
   Embry-Riddle Aeronautical University
   600 S. Clyde Morris Blvd.
   Daytona Beach, FL 32114-3900
   Telephone: (800) 866-6271
   E-mail: galloglj@cts.db.erau.edu

5. For information about financial aid:

Financial Aid Office
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900
Telephone: (800) 943-6279

6. For veterans' educational benefits:

Veterans Affairs Office
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900
Telephone: (904) 226-6350

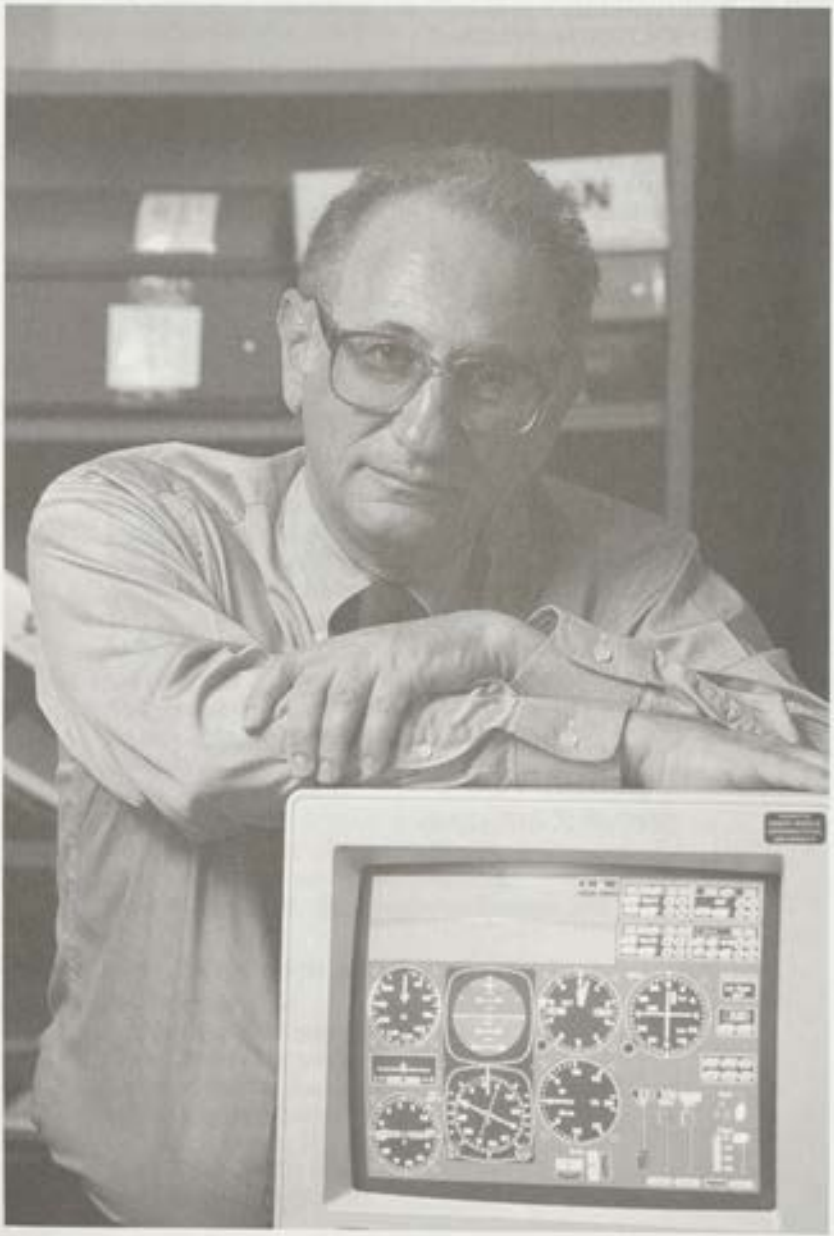
7. For student financial services:

Student Financial Services
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900
Telephone: (904) 226-6285

8. For non-credit certificates:

Division of Continuing Education
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900
Telephone: (904) 226-6188
(800) 359-4550

Faculty and Administration



The Administration of Embry-Riddle are listed on the following pages. An asterisk (*) denotes the Extended Campus; all others are assigned to the Daytona Beach campus. Faculty are listed according to their campus.

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 Maintenance Technician
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 Communications Commission
FE – Flight Engineer
AC – Advanced Graduate Credit

Faculty and Administration

Officers of the University

Sliwa, Steven M.
President. Ph.D., Stanford University; C-ASMEL-I-G; CFI-ASEL-G.

Jacobson, Ira D.
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Jost, Robert A.
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McDuffee, Paul E.
Vice President, University Relations. M.S., Embry-Riddle Aeronautical University; C-AMEL; SES; I-A; CFI-ASMEL-I; AGI; IGI; C-ASMEL-IA.

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Extended Campus students should contact their resident center director for academic advisement.

Faculty and Administration

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Carl Brown, Aeronautical Science
Richard Bryant, Aeronautical Science
Donald J. Campbell, Aviation Business Administration
Lowell Chrisman, Aviation Management
Robert B. Dunmire, Mathematics/Physical Sciences
Norbert Kluga, Aeronautical Science
Hoyt Maulden, Aviation Business Administration
Dr. Elinor S. Miller, Humanities/Social Sciences
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Dr. Elizabeth Nelson, Humanities/Social Sciences
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Robert F. Overmyer, 1985
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General Johannes Steinhoff, 1987
Joana Yeager, 1987
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John Paul Riddle, 1988
Tony LeVier, 1989
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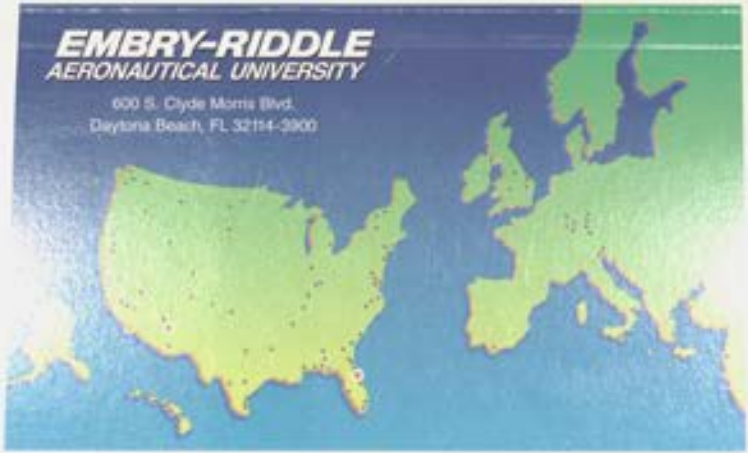

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