1994-95 Catalog

EMBRY-RIDDLE
AERONAUTICAL UNIVERSITY

EMBRY-RIDDLE
AERONAUTICAL UNIVERSITY

Leading The World In Aviation And Aerospace Education

DAYTONA BEACH, FLORIDA CAMPUS
Embry-Riddle Aeronautical University
600 S. Clyde Morris Boulevard
Daytona Beach, FL 32114-3900
(904) 226-6000

PRESCOTT, ARIZONA CAMPUS
Embry-Riddle Aeronautical University
3200 Willow Creek Rd.
Prescott, AZ 86301-3720
(602) 776-3728

COLLEGE OF CONTINUING EDUCATION
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900

In Europe contact:
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*Embry-Riddle Aeronautical University
Academic Year 1994-95

Fall Semester 1994

August 22-27	Orientation and Registration
August 29	Classes begin
August 31	Last day for late registration
September 5	HOLIDAY — Labor Day
November 24-25	HOLIDAY — Thanksgiving
December 7	Last day of classes
December 8-9	Study days
December 10-15	Final Examinations
December 17	Graduation

Spring Semester 1995

January 4-7	Orientation and Registration
January 9	Classes begin
January 11	Last day for late registration
January 16	HOLIDAY — Martin Luther King Day
February 20	HOLIDAY — President's Day
March 20-24	HOLIDAY — Spring Break
April 26	Last day of classes
April 27-28	Study days
April 29-May 4	Final Examinations
May 7	Graduation

Summer Semester (Term A) 1995–May 11–June 20

May 11-13	Orientation and Registration
May 15	Classes begin
May 15	Last day for late registration
May 29	HOLIDAY — Memorial Day
June 19	Last day of classes
June 20-21	Final Examinations

Summer Semester (Term B) 1995–May 22–August 3

June 22-24	Orientation and Registration
June 26	Classes begin
June 26	Last day for late registration
July 4	HOLIDAY — Independence Day
July 31	Last day of classes
August 1-2	Final Examinations

Summer Semester (Term C) 1995–May 11–August 1

May 11-13	Orientation and Registration
May 15	Classes begin
May 16	Last day for late registration
May 29	HOLIDAY — Memorial Day
July 4	HOLIDAY — Independence Day
July 25	Last day of classes
July 27-28	Final Examinations

* Daytona Beach and Prescott Campuses only. College of Continuing Education 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, 1994 for all College of Continuing Education locations. It is effective August 27, 1994 for the Daytona Beach and Prescon Campuses.

Orientation

Orientation programs for all new students are planned and scheduled by each campus, and are conducted before registration each semester. A special orientation program for new foreign students is held prior to the general orientation required for all new students. New students will receive specific information regarding the date, time, and place of orientation activities for their campus from Admissions appreximately thirty calendar days in advance of the activities.

MESSAGE FROM THE PRESIDENT

University life is a journey. Traditionally a time of great personal growth, it conveys fresh thoughts and invokes new perspectives. The education that it nurtures encourages critical and intuitive thought, adding layers of understanding to one's view of the world. Our mission at Embry-Riddle, in essence, is to provide the most ideal environment for that journey, helping you to learn the "life process" of education.

In reviewing our catalog, I hope you'll note the broad scope of degree programs, as well as the other learning opportunities we provide. Because a well-rounded, quality education should manifest itself in many ways, we stress getting involved both in and out of the classroom. Your collegiate years will be rewarding and directly proportional to all the education you seek out while at Embry-Riddle: in the classrooms, labs, on the flight line, as well as in your interpersonal relationships and extracurricular activities. To meet those personal needs, each student should strive for an optimum balance.

Here at the world's largest aeronautical university, we all share a passion for aviation and aerospace. This tends to break down communication barriers and borders. Now is the most natural time for you to reach out, to interact with your fellow students, faculty and staff, and to enjoy the diversity that an Embry-Riddle education can provide. I strongly encourage your involvement.

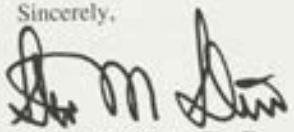
Like the aviation/aerospace industry we serve, Embry-Riddle is a dynamic institution. We're constantly shifting to keep pace. The University is planning now for the educational needs of those who will pursue an aviation/aerospace education in the year 2000, and beyond. Our goal is to keep offering the caliber of facilities, simulators, aircraft and courses that make us superior.

We're always orienting ourselves to embrace positive change. That's because when it comes to our final product — your education — Embry-Riddle is never satisfied. Everyone can take some responsibility by ensuring that the changes we plan are the ones best suited for Embry-Riddle.

That this catalog illustrates our offerings makes it a great reference source. Yet it can't possibly tell the whole story. It doesn't note, for instance, the many professionals who commit their best to making Embry-Riddle a great institution. Behind the course descriptions and curricula information, our faculty and staff are the individual faces who directly contribute to the completeness of your education. What's offered in the spirit of this catalog, then, is their collective effort: to constantly improve our quality of education, our student life and our services, and to keep Embry-Riddle the leader in aviation/aerospace higher education.

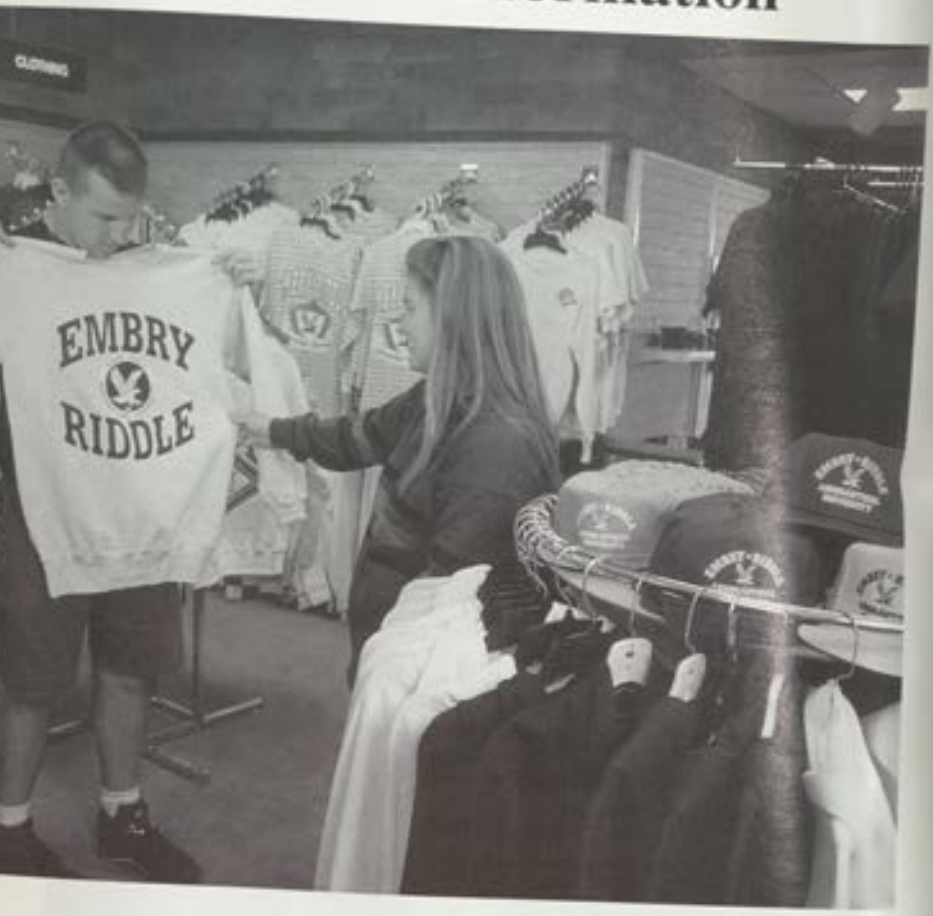
Best wishes as you explore all the riches of University life here.

Sincerely,



Steven M. Sliwa, Ph. D.
President

General Information



Purpose of the University

Embry-Riddle Aeronautical University is an independent, non-sectarian, not-for-profit, coeducational university with a history dating back to the early days of aviation. The University serves culturally diverse students motivated toward careers in aviation and aerospace. Residential campuses in Daytona Beach, Fla. and Prescott, Ariz. provide education in a traditional setting, while an extensive network of continuing 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 which prepares graduates for productive careers and responsible citizenship to support the needs of aviation, aerospace, engineering and related fields. To achieve this, the University is dedicated to the following:

To offer undergraduate and graduate degree programs which 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 which offer opportunities for enhanced physical, psychological, social and spiritual growth; and complementing the academic experience, contribute to the development of a well-rounded individual prepared for personal and professional success.

To engage in research, consulting services, and related activities that address the needs of aviation, aerospace and related industries.

AVIATION AND EMBRY-RIDDLE: THE LIFELONG PARTNERSHIP

At the beginning of this century there were no flying schools, much less an aviation university. It was not until 1903 that the Wright Brothers achieved sustained 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 airplane dealership, airmail service, flight training and mechanic school. The original Embry-Riddle operations fit that mold precisely.

Exactly 22 years after the historic flight of the Wright Flyer, on December 17, 1925, 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.

While the school prospered, it was a volatile time for aviation enterprises. They came and went with regularity. Even Embry-Riddle was not unaffected.

Within three years, the school had become a subsidiary of AVCO, parent of American Airlines. The school remained dormant during most of the 1930s, mirroring the casualties brought about by the Great Depression. By the end of the decade, however, World War II had erupted in Europe and the demand for skilled aviators and mechanics mushroomed. 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.

From the end of the war until Embry-Riddle located in Daytona Beach, Fla., the school expanded its international outreach while strengthening its academic programs. The move to Daytona Beach in 1965, under Jack R. Hunt as president, permitted Embry-Riddle to consolidate its flight, ground school and technical training in one location. This move, accomplished in borrowed trucks with borrowed dollars from Daytona civic leaders, 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; and two years later, Embry-Riddle became a university.

In 1978, Embry-Riddle opened a western campus in Prescott, Ariz., 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.

Embry-Riddle also operates continuing education centers at military bases in the United States and Europe and at several civilian locations. This global network, now called the College of Continuing Education, provides flexible educational services to thousands of working adults. Complementing this outreach operation is our Department of Independent Studies for those not able to attend regularly scheduled classes, and a Center for Professional Programs which serves the special needs of industry groups through seminars and workshops.

As we head into the twenty-first century, President Sliwa brings not only his varied experience but also a new enthusiasm for excellence to the University. Prior to assuming the top post at Embry-Riddle in July 1991, Sliwa accumulated experience in education, educational and engineering software companies, and in aviation/aerospace-related businesses, including NASA. He has been honored by the space agency for his outstanding leadership and engineering acumen.

Lt. Gen. Kenneth L. Tallman, president for five years prior to Sliwa's appointment, has been honored by the Federal Aviation Administration (FAA) for his dedication to aviation education and research. 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 the engineering physics degree. Additionally, he developed stronger ties between Embry-Riddle and the aviation/aerospace industry.

Jack R. Hunt, president of the University for 20 years, brought Embry-Riddle from a small, fledgling institute to an aviation university of the first order. During his presidency, he worked hard to increase enrollments, improve facilities and bring about more involvement with military and civil aviation.

Embry-Riddle today is truly a global institution. Faculty and staff number more than 2,200 strong; and as the world's largest independent aeronautical university, the University has some 18,000 students attending classes from all 50 states and more than 80 nations. Plus, Embry-Riddle degree programs are offered in 18 areas, with five offered at the master's level.

PREEMINENT IN AVIATION HIGHER EDUCATION

Embry-Riddle holds a prominent position as an educator of aviation/aerospace. We intend to keep it this way. The University is planning

now for the educational needs of aviation and aerospace in the next century. This is your assurance that as an Embry-Riddle student you will receive the education and skills needed to compete successfully for the most attractive positions the industry has to offer. You will be one of the best because Embry-Riddle was your University.

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's, bachelor's and master's level. Through a strict evaluating process, the bachelor's degree programs in aerospace engineering at both Daytona Beach and Prescott have been approved by the Accreditation Board for Engineering and Technology (ABET). Other ABET accredited programs at Daytona Beach include bachelor's degree curricula in aircraft engineering technology, avionics engineering technology and engineering physics; at Prescott, the electrical engineering program is also accredited by ABET.

FAA-approved certification programs include the maintenance technology (airframe and power plant), professional pilot (private, commercial, instrument, multi-engine, flight instructor and instrument flight instructor ratings) and flight dispatcher's curricula. Also, a number of the University's degree programs have been identified as having met the criteria of the FAA's model Airway Science Curriculum, developed in conjunction with the University Aviation Association. This recognition provides additional career opportunities for Embry-Riddle graduates.

Finally, Embry-Riddle is a member institution of the Service Members Opportunity Colleges and participates in programs at the associate's and bachelor's degree levels to help those in the military acquire some form of higher education.

Cost Information

Please refer to the Financial Information brochure inserted in this catalog regarding tuition, fees, housing and meal plans. If this brochure is missing, please call the University Director of Admissions at 1-800-222-ERAU to request a copy.

Admission To The University

College of Continuing Education Students — Consult the College of Continuing Education section of this catalog for additional information which specifically applies to College of Continuing Education Students.

GENERAL PROCEDURES

Daytona Beach and Prescott campuses — U.S. citizens, resident aliens and international students.

New students are eligible for admission at the beginning of the Fall and Spring semesters and the Summer terms. Applications are accepted throughout the year; it is advisable to apply as early as possible prior to the desired enrollment date. To receive further information and to request an application call: 1-800-222-ERAU.

Applications and other documents received 30 calendar days prior to the desired enrollment date will be processed, but students may experience delays in the date of admission and enrollment in their desired degree program.

To apply for admission, send all required items to:

Embry-Riddle Aeronautical University
Director of University Admissions
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900

Embry-Riddle evaluates applications on a rolling basis. The rolling admissions plan allows applicants to be notified of an admission decision soon after all forms and credentials have been received. (For details on admission, students should read the information below as it applies to their particular situation.)

FRESHMAN APPLICANTS

Freshman applicants are those who have completed high school and have earned less than 12 semester hours, or equivalent, of academic credit from another accredited institution of higher education.

High school students may apply as early as the end of their junior year. The following items must be provided:

1. Completed application form and $30 application fee (non-refundable).
2. Official copy of high school transcript (must be sent directly from the high school to Embry-Riddle)

   OR

   Evidence of completion of the General Education Development Test (GED scores must be sent directly by the testing agency).
3. If applicable, official copy of college transcript (must be sent directly from the college to Embry-Riddle).
4. ACT or SAT scores (must be sent directly to Embry-Riddle by the testing agency or included on the official high school transcript).

Students should contact their high school guidance counselor or principal to determine the location of the nearest testing center. Students registering for the test should indicate in the proper space that a report of the scores should be sent to Embry-Riddle.

5. FAA Medical Certificate, Class I or II, at least 60 calendar days prior to desired enrollment date (required only of flight students accepted for admission).
6. Students for whom English is not the primary language must either attain a minimum score of 500 on the Test of English as a Foreign Language (TOEFL), or achieve a grade of "C" or higher in a college-level English composition course or successfully complete Embry-Riddle's English as a Second Language program. TOEFL scores must be sent directly to Embry-Riddle by the testing agency. To obtain a Bulletin of Information, write:

   TOEFL/TSE Services
   P.O. Box 6151
   Princeton, NJ 08541-6151

TRANSFER STUDENT APPLICANTS

Transfer student applicants are those who have earned at least 12 semester hours, or equivalent, of college credit from one or more institutions of higher education; such institutions include accredited community colleges, universities or technical institutions.

Transfer students are encouraged to apply as early as possible prior to the desired enrollment date. The following items must be provided:

1. Completed application form and $30 application fee (non-refundable).
2. Official transcripts from every institution of higher education attended (must be sent directly from the school(s) to Embry-Riddle).
3. Upon request only, course syllabuses, or the catalog(s) from such institutions with the descriptions highlighted of courses satisfactorily completed.
4. ACT or SAT scores are not required for students who transfer entry-level math and English classes to Embry-Riddle.
5. Students for whom English is not the primary language must either attain a minimum score of 500 on the Test of English as a Foreign Language (TOEFL), or achieve a grade of "C" or higher in a college-level English composition course or successfully complete Embry-Riddle's English as a Second Language program. TOEFL scores must be sent directly to Embry-Riddle by the testing agency. To obtain a Bulletin of Information, write:

   TOEFL/TSE Services
   P.O. Box 6151
   Princeton, NJ 08541-6151.
6. FAA Medical Certificate, Class I or II, at least 60 calendar days prior to desired enrollment date (required only of flight students accepted for admission).

NON-TRADITIONAL STUDENT APPLICANTS

Embry-Riddle recognizes that full-time employment experience often provides the motivation and discipline to excel in college; this drive to succeed may not be reflected in the student's high school academic background.

The University acknowledges non-traditional applicants to be individuals who have not previously earned 12 or more college credits and who have worked full-time for at least three years. To be considered for admission, the following items must be provided:

1. Completed application form and $30 application fee (non-refundable).
2. Evidence of high school graduation or completion of the General Education Development Test (GED scores must be sent directly by the testing agency).
3. Documentation of full-time employment experience (civilian, military or any combination equaling three years).

NON-DEGREE SEEKING APPLICANTS

Embry-Riddle recognizes the needs of working adults who are interested in furthering their education for re-training purposes or for enhancement of professional skills. Students who meet University admission requirements are permitted to enroll in courses as special students in a non-degree seeking status. These students are permitted to continue their enrollment as long as they maintain satisfactory academic status or until they file a formal application for admission as a degree-seeking student. Persons interested in applying as non-degree seeking students can receive further information from the Director of University Admissions.

IMMUNIZATIONS

In order to register for classes, **ALL** entering students must document immunization for measles (2 doses) and rubella (1 dose). Documentation must be certified by a physician, clinic, or otherwise qualified health care professional. For further information, refer to the University's Medical Report Form.

ADMISSIONS DEPOSITS

Students accepted for admission are asked to submit a $150 advance tuition deposit within 30 calendar days of acceptance. This deposit confirms admission to the University.

The tuition deposit is refundable, provided that the Director of University Admissions is notified in writing of the student's intent not to enroll. This notification needs to reach the Admissions Office at least 60 calendar days before the first day of registration for the semester for which the student originally applied.

If the refund deadline is missed, 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 re-activate the application at any time up to the admissions deadline for the same semester of the following academic year. After one year, a new application, fee and supporting documents must be submitted.

INTERNATIONAL APPLICANTS*

*Refers to non-resident, non-immigrant students planning to study in the United States (typically on a F-1 or J-1 visa).

International students are asked to apply for admission at least 60 calendar days prior to desired enrollment date. The following items must be provided:

1. Completed application form and $50 application fee (non-refundable).
2. Official copy of upper secondary school academic records (must be sent directly from the high school to Embry-Riddle). All transcripts must be translated to the English language and certified by proper officials.
3. Students for whom English is not the primary language must either attain a minimum score of 500 on the Test of English as a Foreign Language (TOEFL), or achieve a grade of "C" or higher in a college-level English composition course or successfully complete Embry-Riddle's English as a Second Language program. TOEFL scores must be sent directly to Embry-Riddle by the testing agency. To obtain a Bulletin of Information, write:
   TOEFL/TSE Services
   P.O. Box 6151
   Princeton, NJ 08541-6151.
4. Transcripts from international post-secondary institutions must be submitted for a course-by-course evaluation to:
   Education Evaluators International, Inc.
   P.O. Box 5397
   Los Alamitos, CA 90721
   A fee is charged for this service. The evaluation will be sent directly to Embry-Riddle by the evaluation service.
5. A bank letter and affidavit of financial support **OR** scholarship letter.

If accepted for admission, international students must:

1. Submit an advance deposit of $5,000 (U.S. currency) to the Director of University Admissions. Upon receipt, the University will send a letter confirming enrollment and issue the Certificate of Eligibility (I-20) form.
2. Present the Certificate of Eligibility to a U.S. embassy or consulate to obtain a visa for entry into the United States. (The I-20 and the visa must be in the student's possession prior to departure from the home country.)

3. Provide documentation of immunity to vaccine preventable diseases as described in material sent from the University. Upon enrollment, all students from areas determined to be endemic or at high risk for Tuberculosis will be required to have a Tuberculosis Skin Test. (Mantoux Test) and additional medical follow-up as needed and directed by the campus Health Services office.
4. FAA Medical Certificate, Class I or II, at least 60 calendar days prior to desired enrollment date (required only of flight students accepted for admission). For students who do not have access to an FAA approved physician, this exam may be taken after arrival in the United States.

ENGLISH AS A SECOND LANGUAGE — AVIATION LANGUAGE PROGRAM

Embry-Riddle's ESL — Aviation Language Program is designed to help international students achieve at least a 500 TOEFL test score.

The program is also intended for aviation professionals who need to develop the vocabulary, reading and speaking skills necessary to effectively communicate in the aviation work place.

Further information on the Aviation Language Program is available by writing to:

Embry-Riddle Aeronautical University
ESL — Aviation Language Program
600 S. Clyde Morris Blvd.
Daytona Beach, FL 32114-3900

RETURNING STUDENT APPLICANTS

A Daytona Beach or Prescott Campus student whose attendance at the University is interrupted may be required to apply for readmission. In such cases, a new application for admission must be filed with the Director of University Admissions. (For further information, refer to the "Continued Enrollment" section of the catalog.)

TRANSFER CREDIT

1. Transfer credit may be granted under the following conditions:
   a. Appropriate course work completed at another accredited institution with a grade of "A", "B", "C", "D", "P" or equivalent will be accepted. It will be left to the discretion of the student, in consultation with the student's academic advisor, to determine whether to retake courses with a "D" grade or where placement testing indicates a deficiency. A grade of "C" or better may be required for entry into specific courses.
   b. Grades are not transferable. However, in instances where a student may be eligible to graduate with honors, both the grade point average of all courses taken at Embry-Riddle and the grade point average of all courses transferred from other institutions will be

taken into consideration. (For details, refer to the "Graduation Honors" section of the catalog.)

c. Previous flight experience may be accepted in accordance with the Embry-Riddle policy as stated in the Advanced Standing section of this chapter.

d. Credit hours are transferable if earned at institutions which are accredited by the appropriate regional agency. Academic credit will be accepted without regard to the date the course was completed. It will be left to the discretion of the student, in consultation with the student's academic advisor, to determine whether to retake the courses where placement testing indicates a deficiency. Embry-Riddle has sole discretion in determining which and how many transfer credit hours will be accepted toward degree requirements.

e. Embry-Riddle evaluates previous academic credit on a course-by-course basis. Acceptable transfer work will be indicated on the Embry-Riddle transcript. If classes are not applicable to the student's degree program at Embry-Riddle, they will be considered as electives in excess of minimum degree requirements. The level of credit (upper or lower division) is determined by the college or university initially granting the credit, regardless of the level of the equivalent Embry-Riddle course.

2. Students who have been granted transfer credit for the entry-level English are exempt from the English Placement Test. **All** incoming students, regardless of the level of math being transferred, are required to take the Math Placement Test. (For further details on placement testing, see the Basic Skills Requirement section of the catalog.)
3. Embry-Riddle may, at its discretion, require an evaluation examination for any course submitted for transfer credit if there is doubt concerning the equivalency of the transfer course with a similar course offered at Embry-Riddle.
4. The transfer student's records (transcripts, etc.) will be evaluated according to the rules and regulations as described in the catalog, and in accordance with University policies in effect at the time of the student's admission to a degree program. After evaluation, the student will be sent a course-by-course outline of all transfer credit accepted by the University.

ADVANCED STANDING

Advanced standing may be awarded for prior learning achieved through post-secondary education, testing, work and/or training experience, or from programs completed prior to enrollment at Embry-Riddle.

It is the student's responsibility to ensure that all documentation is submitted to the University. This information can either be sent with the application for admission or mailed under separate cover. Formal application for advanced standing for flight training must be made prior to the end of the student's first semester of attendance at the Daytona Beach or Prescott Campus.

All academic evaluations for advanced standing will be completed prior to the end of the student's first semester of attendance at/or readmission to the University. The student will be provided with a copy of the completed official evaluation and given 30 calendar days to question the credit awarded.

Advanced standing and transfer credit granted in accordance with these procedures will be authenticated by the Admissions Office and maintained by the campus Records Office for official records purposes.

Documentation that can be submitted for possible advanced standing includes military training, FAA certificates, credit for examination scores, and professional experience. Credit may be awarded as follows:

1. The University offers advanced placement credit toward a college degree to those students who present official College Entrance Examination Board (CEEB) Advanced Placement Test scores of 5, 4 or 3 on any examination, and 2 or better on the mathematics examinations.
2. Embry-Riddle follows the standards recommended by the American Council on Education for awarding credit for the College Level Examination Program (CLEP) General examinations. In order to be officially evaluated for credit, the test scores must be submitted prior to the student's initial enrollment as a degree candidate. The disciplines and hours of credit recognized by Embry-Riddle for these examinations are as follows:

Communications	6 credit hours
Humanities	6 credit hours
Social Sciences	6 credit hours
Natural Sciences	6 credit hours
Mathematics	6 credit hours

3. The University has approved certain CLEP subject examinations, Defense Activity for Non-Traditional Educational Support (DANTES) examinations, and American College Testing program proficiency examinations (ACT PEP) for award of credit as applicable to the student's program. Except for College of Continuing Education students, scores on these examinations must be submitted prior to initial enrollment as a degree candidate in order to be officially evaluated for credit. Credit for these examinations may not be applied toward the last 30 credit hours required for a bachelor's degree or the last 15 credit hours required for an associate degree.
4. Training in military service schools will be considered for credit by each curriculum division, based on the recommendation of the American Council on Education.
5. Applicants with certain professional experience may be granted credit towards advanced standing. The applicants' backgrounds must be determined as satisfying educational objectives of courses in their chosen Embry-Riddle degree program.
6. Advanced standing may be granted on the basis of flight-related experience and training acquired prior to enrollment at Embry-Riddle. The student must provide documentation to substantiate his/her background to the appropriate Embry-Riddle authority **during the**

first semester of attendance at the University. If the student has attended an FAA-approved flight school, a transcript of all flight training, signed by the school's Chief Instructor, must be provided.

7. Degree programs for which holders of the FAA A&P Certificate may receive advanced standing are Aircraft Maintenance, Aviation Technology, Aviation Maintenance Management, Professional Aeronautics, and Management of Technical Operations.
8. The Professional Aeronautics degree awards college credit based on an individual's past training and job experience in an aviation-related field. A description of advanced standing applicable to the Professional Aeronautics degree may be found in the Degree Programs section of the catalog.
9. A student who possesses qualifications not listed above and who believes that his/her background warrants consideration for advanced standing may submit appropriate evidence of credentials for evaluation.

COURSE EQUIVALENCY EXAMINATION

Course equivalency examinations may be requested by students who feel their background warrants consideration for advanced standing not already granted for specific courses. Flight experience will be evaluated in accordance with procedures outlined in the Advanced Standing section of this chapter.

Applications to take course equivalency examinations are submitted to the Campus Records office, or Resident Center for College of Continuing Education students. A non-refundable fee is charged for administering each written examination. The fee for a flight course equivalency examination depends upon aircraft utilization. An examination may be taken only once for each course. A student who fails an examination must enroll in and complete the course in order to receive credit. Equivalency examinations cannot be given in cases where the student has already attempted and failed the course.

DEGREE COMPLETION PROGRAM/ ACTIVE DUTY MILITARY PERSONNEL

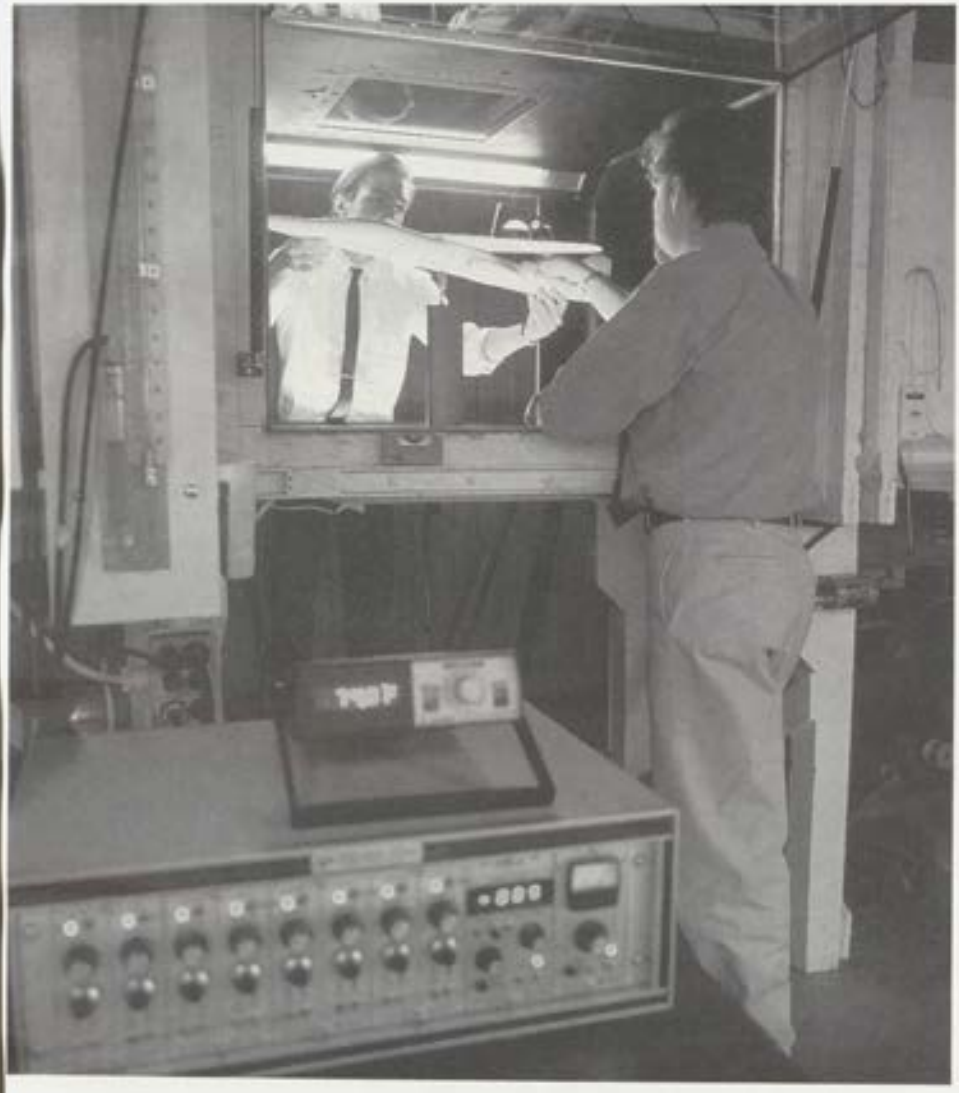
All branches of the Armed Services offer various "Bootstrap" and degree-completion programs. Embry-Riddle welcomes applications from qualified military personnel wishing to participate in such programs.

Applications must be submitted at least 90 calendar days prior to the desired enrollment date. Upon receipt of the student's application and supporting documents, the University will evaluate prior college course work, military education and work experience to determine eligibility for advanced standing. Each applicant receives a copy of the University evaluation form stating specifically the courses for which credit has been given.

REGISTRATION FOR STUDENTS WITH DISABILITIES

Students with disabilities can make special arrangements for early registration by contacting the Director of University Admissions.

Guide To The Curriculum



DEGREE PROGRAMS

Embry-Riddle Aeronautical University reserves the right to terminate or modify program requirements, content and sequence of program offerings from semester to semester for educational, financial or other reasons which it determines are sufficient to warrant such action.

The University currently offers the following majors and degrees:

Engineering

B.S. in Aerospace Engineering — D,P
B.S. in Electrical Engineering — P
B.S. in Engineering Physics — D

Aviation Business Administration

B.S. in Aviation Business Administration — D,P,C
A.S. in Aviation Business Administration — C
B.S. in Aviation Maintenance Management (Maintenance) — D,P,C
B.S. in Aviation Maintenance Management (Avionics) — D
B.S. in Management of Technical Operations — D,P,C

Aeronautical Science (Flight)

B.S. in Aeronautical Science — D,P
B.S. in Aviation Technology (Maintenance/Flight) — D
B.S. in Aviation Technology (Flight/Avionics) — D
*A.S. and B.S. in Professional Aeronautics — D,P,C
A.S. in Airway Science — D,P

Maintenance

A.S. in Aircraft Maintenance — D,C
A. in Aviation Maintenance Technology — D
B.S. in Aviation Technology (Maintenance/Avionics) — D
B.S. in Aviation Technology (Maintenance/Flight) — D

Avionics

A.S. in Avionics Technology — D
B.S. in Aviation Technology (Avionics/Flight) — D

Engineering Technology

B.S. in Aircraft Engineering Technology — D
B.S. in Avionics Engineering Technology — D

Aerospace Studies

B.S. in Aerospace Studies — D,P

Computer Science

B.S. in Aviation Computer Science — D,P

Graduate Programs

M.S. in Aerospace Engineering — D
Master of Business Administration in Aviation — D,C
Master of Aeronautical Science — D,C
M.S. in Technical Management — C
M.S. in Software Engineering — D

C Available at College of Continuing Education Locations.
P Available at the Prescott campus.
D Available at the Daytona Beach campus.
* Associate degrees are not offered at the Prescott campus.

BASIC SKILLS REQUIREMENT

Embry-Riddle recognizes the importance of communications and related skills in all areas of aviation. Successful pilots, airport managers, aviation maintenance technicians or other aviation professionals must possess these skills in order to perform their jobs effectively. Because of this, Embry-Riddle requires all students to demonstrate proficiency in the areas of writing and reading and quantitative skills. Proficiency may be demonstrated either by passing the basic skills placement tests, making qualifying scores on SAT or ACT tests, or transferring credit for first-level English and mathematics courses. If proficiency is not demonstrated as stated above, students **must** enroll in the basic skills courses described below.

The reading and study skills course (HU 017) offers methods of developing the reading and listening skills necessary for effective communications. The developmental English course (HU 006) teaches students in writing. The quantitative skills courses (MA 005, MA 006) help to prepare students for the introductory mathematics courses in the various curricula such as MA 111 and MA 120.

Proof of proficiency in the above basic skills areas is required during the student's first semester. New students (including transfer students) must either register for the basic skills courses or successfully complete the University placement tests before they will be permitted to complete their registrations. Students may exempt these basic skills courses based on their ACT or SAT scores.

Students for whom English is not the primary language will be tested and required to demonstrate advanced English proficiency by achieving a satisfactory score on the test. Students lacking in such proficiency will be required to take appropriate basic skills courses in their first semester of attendance at ERAU. These may include HU003, HU004, and HU013 in addition to the courses described above.

NOTE: The basic skills courses do not apply toward minimum degree requirements but are computed into the student's Grade Point Average (GPA).

GENERAL EDUCATION REQUIREMENTS

The General Education requirements are intended to help students lead meaningful, responsible lives in our complex society. To be able to do this, students must possess the literacy skills necessary to give, receive, and interpret information effectively. They must possess the inquiry skills necessary to understand, evaluate and synthesize information for the purpose of solving problems and making appropriate decisions.

Beyond the levels of skills, however, we want our students to become responsible local, national, and world citizens. Also, students must prepare themselves to adapt constructively when technologies or organizations become obsolete. Towards these ends, we require students to choose courses from a variety of humanities and social sciences topics.

The General Education requirements at Embry-Riddle Aeronautical University include two components. The first component consists of required courses covering reading, writing, speaking, analytical thinking, and computer literacy. The other component requires the student to choose at least four courses in the humanities and social sciences.

While the following General Education requirements must be completed by all candidates for the bachelor's degree, many other courses, including those within the degree programs, also support the General Education goals.

DISCIPLINE	CREDITS
Mathematics	6
Communicative Skills (HU122, HU219, HU221)	9
Computer Science	3
Social Sciences (Selected from SS110, SS120, SS210, SS220, EC200, EC210, EC211)	6
Humanities (HU123 or HU140 or HU141 plus an HU/SS 300-400 level elective)	6
Physical/Life Sciences (One course must include a laboratory.)	6
	36

The goals of the General Education program are to enable the students:

1. to use language accurately and effectively in writing, mastering report formats and using graphic aids where appropriate.
2. to make informed evaluation of spoken messages; to communicate and defend a position orally to an audience; to participate successfully in group discussions.
3. to apply the techniques of scientific inquiry to problem-solving; to efficiently and effectively process quantitative data; and to think critically toward logical conclusions.
4. to locate, read and demonstrate comprehension of scholarly and technical materials.
5. to demonstrate an ability to use computers and to use software packages applicable in their fields.
6. to demonstrate knowledge in at least five of the following six areas:
   arts and literature
   Western and non-Western civilizations
   ethical principles and norms
   human history and historical forces
   psychological and social nature of human beings,
   economic principles, problems, and policies.

AERONAUTICAL SCIENCE

Combining in-flight training with rigorous academic study, Embry-Riddle's Aeronautical Science Degree Program prepares the graduate for a career as an airline, military or corporate pilot. Foundation skills in mathematics, physics, communications and aeronautics, including FAA certification as an instrument rated commercial pilot, are attained during the first two years of the program. The last two years include extensive professional level aeronautical science and flight courses that prepare the graduate for a career as a professional pilot including airline flight crew operations in multi-engine jet transport aircraft.

AEROSPACE ENGINEERING

Embry-Riddle offers the Bachelor of Science degree in Aerospace Engineering at the Daytona Beach and Prescott campuses. The Aerospace Engineering program provides the student the opportunity to acquire specific aerospace design skills, as well as a broad exposure to theory and modern analysis, measurement, communications and computational techniques essential for a wide range of entry level engineering positions in the aerospace industry.

ELECTRICAL ENGINEERING

Embry-Riddle offers a Bachelor of Science degree in Electrical Engineering at the Prescott campus. The Electrical Engineering program provides the student with the opportunity to acquire a broad background in circuit theory, communication sciences, computers, control systems, electromagnetic fields, energy sources and systems, materials and electronic devices. The student also gains specialization in avionics appropriate for entry level engineering positions in the aerospace industry. This added emphasis in avionics places the ERAU Electrical Engineering program in a unique position to increase student employment opportunities after graduation.

ENGINEERING PHYSICS

The Bachelor of Science in Engineering Physics, offered only on the Daytona Beach campus, is designed to develop sufficient depth in both engineering skills and science in order to produce students who are able to relate basic knowledge to practical problems in engineering. The engineering physicist will have the training of an applied physicist; and the ability and the inclination of an engineer to attack novel as well as routine problems, in particular aeronautical and aerospace challenges associated with the near-earth space environment; and the flexibility to extend this basic knowledge to any branch of engineering and science. This strong background in basic physics and engineering methodology will prepare the engineering physics student for a position in industry or for further study at the graduate level.

AIRCRAFT ENGINEERING TECHNOLOGY

Embry-Riddle offers the Bachelor of Science degree in Aircraft Engineering Technology (ACET) at the Daytona Beach campus. The ACET program is designed to provide the student with a solid foundation in math and the natural sciences as well as broad exposure to technical courses that address the application of scientific and engineering knowledge combined with technical skills in support of engineering activities. The strong background in basic engineering, aerodynamics, structures, propulsion, and integrated logistics support required for a wide range of careers in the aviation industry.

AVIONICS ENGINEERING TECHNOLOGY

Avionics Engineering Technology is offered only on the Daytona Beach campus. The program is designed to provide the student with a solid foundation in math and the natural sciences as well as a broad exposure to technical courses that address the application of scientific and engineering knowledge combined with technical skills in support of engineering activities. The program provides a strong technical background in electronics, applied electronics engineering, applied avionics engineering, applied engineering mechanics, and integrated logistics support required for a wide range of careers in the aviation industry.

AVIATION COMPUTER SCIENCE

The curriculum for the Bachelor of Science degree in Aviation Computer Science includes courses in software development, computer architecture, graphics, operating systems and database management. The program provides a blend of theory and applications which prepare students for a variety of computer science positions in scientific and business fields, and lays the foundation needed for graduate studies in computer science. The elective courses in the program allow the students to pursue specific interests in computer science such as applications in aviation or aerospace technology.

AIRWAY SCIENCE

The Federal Aviation Administration has initiated the Airway Science curriculum as a method of preparing the next generation of aviation technicians and managers. It is a rigorous program that stresses hard science, the human side of management, knowledge of computers and, of course, aviation. Embry-Riddle is one of a few of the nation's institutions of higher learning which have been approved by the FAA and the University Aviation Association to offer such a program.

Graduates of an FAA approved Airway Science degree program are eligible to fill positions with the FAA in a number of career specializations. In order to be employed by the FAA, graduates of this program must possess an FAA Class II Medical Certificate and meet FAA psychological standards.

The Airway Science Program is offered as an option in the Aeronautical Science, Aviation Computer Science, Aviation Business Administration, and Aviation Maintenance Management degree programs. Interested students should contact their academic advisor or program chair.

AEROSPACE STUDIES

The Aerospace Studies program provides students with the breadth and flexibility of an interdisciplinary education based on a rigorous core of critical thinking and communication courses leading to completion of three different minors. It ensures ease of transfer from or to other more specialized degree programs, and recognizes the importance of adaptibility based on study of more than one academic area.

AVIATION MAINTENANCE TECHNOLOGY

Maintenance technology training may be taken as an integral part of the Associate in Aviation Maintenance Technology, the Associate in Science in Aircraft Maintenance, the Bachelor of Science in Aviation Technology, or the Aviation Maintenance Management programs. In addition, the AMT courses may be pursued as an area of concentration in other selected degree programs, or selected courses may be used as elective credit in most ERAU degree programs.

AIRFRAME AND POWERPLANT TECHNOLOGY

Embry-Riddle offers two distinct types of AMT degree programs for students who wish to prepare for the FAA Airframe and/or Powerplant (A&P) examinations and pursue degree programs which require that knowledge and skill. AMT degree programs are not available at the Prescott campus.

Type 147: This program, offered only at the Daytona Beach campus, presents a carefully selected blend of theory and practical applications, which provide the student an opportunity to prepare for, and upon successful completion establish eligibility to take, the FAA Airframe and/or Powerplant examinations. Students perform actual repairs and overhaul of engines and accessories, including those used in Embry-Riddle's fleet of aircraft. Other academic courses may be taken concurrently (including avionics technology) to minimize the time and expense necessary to meet degree requirements. The Samuel Goldman AMT Center at the Daytona Beach campus is fully approved under Part 147 of the Federal Aviation Regulations and holds Air Agency Certificate No. NX4T404M and FAA Repair Station Certificate No. NX42404M.

Type 65: Embry-Riddle offers special AMT courses to students in the College of Continuing Education who are experienced but unlicensed aircraft maintenance specialists. These courses deal largely with the theory and concepts of all aspects of airframe and powerplant maintenance and with the problems, considerations and practices involved in maintaining aircraft in an airworthy condition.The completion of Type 65 courses does not influence the determination by the FAA of eligibility to take the airframe and/or powerplant examinations. The courses, together with on-the-

job experience and/or successful completion of the A&P examinations, may be applied toward meeting the requirements of various ERAU degree programs. Type 65 courses are offered at various centers of the College of Continuing Education.

AVIATION TECHNOLOGY

The Bachelor of Science degree in Aviation Technology uniquely prepares the student for a career in aviation by merging Avionics/Aircraft Maintenance, Avionics/Flight or Aircraft Maintenance/Flight options with general education courses. Graduates of the Aviation Technology program are qualified for challenging careers with the major airlines, fixed base operations, aircraft manufacturers and aerospace industries.

BUSINESS ADMINISTRATION PROGRAMS

The University offers a variety of degree programs to prepare students for managerial roles in the aviation industry. The Bachelor of Science in Aviation Business Administration is the primary four-year degree allowing students to prepare for aviation careers and for many other areas of business. The program is available with areas of concentration in Aviation Management, Airport Management, Airline Management, International Air Transportation Management, and Aviation Systems Management. Those students who do not wish to specialize in any area of concentration must select 15 credit hours of 300-400 level EC/MS aviation management courses. The four-year degree program in Aviation Maintenance Management is offered with options in aviation maintenance technology or avionics, and is more narrowly focused on the supervisory role and technological requirements of aviation maintenance activities. The four-year degree program in Management of Technical Operations provides students who already possess technical skills and knowledge in a variety of aviation specialty areas with the managerial knowledge and expertise to effectively manage that technical specialty.

FLIGHT

All flight training which is encompassed in various degree programs at Embry-Riddle utilizes late-model, fully equipped training aircraft. Aircraft type and flight configuration are selected to fit the given training location and environment.

Mockups, procedures trainers, part-task trainers, and simulators provide the student with a safe, flexible and cost-effective training environment. As with aircraft types, the controlled environment training configuration is suited to the location and training environment.

The ERAU flight training uses the "Gemini-Flight" concept whereby two students fly together on dual instructional flights. One student flies the aircraft, and the other student participates from the rear seat while the instructor conducts the lesson. The concept increases and reinforces the learning experience of both students without additional expense to the students.

Flight training may be taken as an integral part of the Aeronautical Science degree program, as an area of concentration in other selected degree programs, or as elective credit on a space-available basis in most degree programs. The student is cautioned to investigate the applicability of specific courses to specific degree programs prior to making the commitment and investment.

The flight training program operates under all applicable FAA rules, regulations and requirements. THE STUDENT WILL BE RESPONSIBLE FOR ADHERING TO ALL RULES, REGULATIONS AND PROCEDURES CONTAINED IN THE LOCAL CAMPUS BULLETIN AND FLIGHT OPERATIONS MANUAL. The University and FAA rules and regulations are incorporated herein by this reference.

SPECIAL ACADEMIC OPPORTUNITIES

Study Abroad

An international program at ERAU currently offers students in engineering and computer science the opportunity to study for a year in Europe at a minimum cost. Those who qualify will spend a year at a selected institution in France or Germany, receive language and cultural training, and take subjects applicable to their degree at ERAU. The last three months of their program will be spent in European industry where students will work on technical problems and will be paid for their efforts. Upon successful completion of the program students will receive the "Euronational Certificate".

Teacher Certification

Students who wish to acquire teacher certification at the secondary level have the opportunity to satisfy both education and internship requirements through collaborative agreements with local institutions. More information is available in the Office of the Dean of Academics, Daytona Beach Campus.

Minorities Taking Courses at Other Institutions

Minority students may be allowed to take courses in Black Studies as electives at a local institution. More information is available in the Office of the Dean of Academics, Daytona Beach Campus.

ADULT EDUCATION

The University recognizes that many working adults who are eager to pursue higher education in aviation may be prevented from enrolling in a conventional university program with routine daytime class schedules because of occupational or personal commitments. Embry-Riddle's College of Continuing Education schedules classes in the evenings and on weekends to complement the work schedules of this working adult student population. Likewise, term lengths vary from 8 to 12 weeks. The network of more than 90 resident centers in the U.S. and Europe facilitates degree completion for military and civilian students whose education would otherwise be disrupted by the change of job location.

AVIATION LANGUAGE

The Aviation Language Program (ALP) was established at ERAU's Daytona Beach campus to assist non-English speaking aviation professionals and/or prospective students to become more proficient in the listening, speaking, reading, and writing skills.

This program is offered to those who have less than a 500 TOEFL level or other demonstrated English language proficiency. The purpose of this program is to prepare non-native English students to transition into aviation related programs, employment or academic institutions. Specific aviation tracks have been developed for aircraft maintenance, avionics, aviation management, air traffic control, and flight.

GRADUATE PROGRAMS

For the bachelor degree holder seeking advanced study in aeronautical science, computer science, engineering or management of aviation, five degree program alternatives are available at the master's level.*

For more information and an application form, contact one of the following:

1. The: University Director of Admissions
   Embry-Riddle Aeronautical University
   600 S. Clyde Morris Blvd.
   Daytona Beach, Florida 32114-3900
   (For all graduate programs available at the Daytona Beach campus) 1-800-222-ERAU

2. The nearest College of Continuing Education Resident Center location,

OR

College of Continuing Education
Admission, Records & Registration Department
Embry-Riddle Aeronautical University
600 S. Clyde Morris Blvd.
Daytona Beach, Florida 32114-3900
904-226-6910

*The Master of Science in Aerospace Engineering and the Master of Science in Software Engineering are available only at the Daytona Beach campus.

Master of Business Administration in Aviation

The Master of Business Administration in Aviation (MBA/A) program blends the development of management skills, tools and techniques with the study of the aviation and aerospace industry. The MBA/A curriculum combines a strong traditional business core along with courses in air carrier and corporate aviation operations, airline operations and management, airline marketing, aviation law and insurance, airport management, aircraft maintenance management, supply and distribution, production and procurement, and research and development.

The development of versatility and analytical resourcefulness are two of the key aims of the MBA/A program. The program is fashioned to stress pragmatic solutions to the managerial, technical, and operational problems likely to arise in the aviation industry as a result of the frequent and sweeping changes that occur in technology and the national and international regulations with which the industry must abide. Degree requirements offer a thesis or a graduate research project option.

Master of Software Engineering

The Master of Software Engineering (MSE) curriculum is designed with industry needs in mind. The goal of the curriculum is to produce a software engineer who can rapidly assume a position of substantial responsibility within an aerospace/aviation software development organization. The program emphasizes modern approaches to software development with a special emphasis on software for real-time systems. The curriculum pays particular attention to the following:

- The software development process
- Software project planning and management
- Software analysis and design
- Communications and teamwork skills

This program is available to all graduates. The prerequisite computer science knowledge consists of computer programming, algorithms and data structures, and computer organization. Articulation programs are available for students who do not have all the prerequisites.

Master of Science in Aerospace Engineering

The Master of Science in Aerospace Engineering (MSAE) provides formal postbaccalaureate study in the areas of knowledge required by engineers engaged in aerospace oriented research, development, and design activities for public and private organizations. The program can be tailored for specialization in the fields of aerodynamics, structures, design, and propulsion. Instruction is available in many areas, including subsonic, transonic, supersonic, and hypersonic aerodynamics; computational aerodynamics; turbine and rocket engine propulsion systems; aerodynamics system design; continuum and fracture mechanics; aeroelasticity; aircraft composite structures; aeroacoustics; performance optimization; automatic flight control systems; and structural dynamics and design and astrodynamics. Both thesis and nonthesis options are available for the MSAE program.

Master of Aeronautical Science

The Master of Aeronautical Science (MAS) is designed to enable the aviation professional to obtain a generalist education oriented towards an operational perspective of the aviation industry. It provides an opportunity for flight crew members, air traffic control personnel, flight operations specialists, industry management and 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 four specializations which the student may choose from: Aeronautics, Aviation/Aerospace Operations, Aviation/Aerospace Education, and Aviation/Aerospace Management. All students must complete the Advanced Aviation/Aerospace Science core consisting of twelve credits. The student then completes twelve credits which make up the selected Aviation/Aerospace specialization. The remaining twelve credits consist of electives and either a thesis or a research project. If the thesis is chosen, 6 credit hours are allocated for specialized elective courses and 6 for completion of the thesis. If the non-thesis option is chosen, 9 credit hours of specialized electives are required and 3 credit hours are allocated to a graduate research project. The degree can generally be completed in three or four semesters of full time study.

Master of Science in Technical Management

Individuals interested in learning more about this program should see the current Graduate Catalog for details.

COOPERATIVE EDUCATION

Cooperative Education (Co-op) is a program which allows full-time students to earn academic credit for learning gained through work experience. This program provides an opportunity for students to apply the knowledge and skill they have gained in the classroom to practical situations. In addition to being able to earn up to 6 academic credit hours for each co-op work assignment, students may earn wages commensurate with the work they perform.

To be eligible for admission to the Co-op Program, students must:

1. Attend a Co-op Admission Seminar.
2. Have a cumulative ERAU grade point average (GPA) of 2.50 or higher.
3. Have completed 30 credit hours applicable to their degree programs.

To earn academic credit for co-op work assignments, students must:

1. Secure an acceptable co-op position.
2. Be properly registered for the assignment by the last day of late registration.

Employers make the final hiring decisions. Embry-Riddle does not guarantee placement of students in co-op assignments. Also, the applicability of co-op credits varies among degree programs. Students should review their degree programs and discuss their co-op plans with their academic advisor. Additional information is available at Co-op Admissions Seminars.

Cooperative education is only available to undergraduate students at the Daytona Beach and Prescott campuses. Interested students should contact their Campus Co-op Administrator for more information.

RESERVE OFFICER TRAINING

Not all of the Reserve Officer Training Programs described below are available at all University campuses or locations. The student should contact the University Admissions Office to determine program availability. Reserve Officer Training Programs are subject to the control of the service branch which sponsors them and are operated pursuant to the rules and regulations established by the service branch; these may be changed from time to time without notice or obligation.

AIR FORCE RESERVE OFFICER TRAINING CORPS

Embry-Riddle students may enroll in the Air Force Reserve Officer Training Corps (AFROTC) courses and receive elective course credit in Embry-Riddle programs. Upon graduation, those students who successfully complete AFROTC receive commissions as officers in the United States Air Force.

Any qualified student may pursue this opportunity provided he or she has a minimum of four semesters remaining at the University (AFROTC courses are not offered at ERAU during the summer term). The curriculum offers a choice of either a two or four-year program.

Four-Year Program

Enrollment procedures for the first two years of the four-year program, the General Military Course (GMC), are the same as for any other college course. The student simply selects the appropriate AFROTC class during registration. Students in the GMC are under no obligation to the Air Force and may withdraw from the class in the same manner as they might withdraw from any other course.

Those who decide to continue in the final two years, the Professional Officer Course (POC), receive a monetary allowance and incur an obligation to serve in the Air Force upon commissioning. Prior to entering the POC, each student must pass a medical examination, receive a competitive score on the Air Force Officer Qualifying Test (AFOQT), be selected by a Central Selection Board, and complete a four-week summer field training session at an Air Force base.

Two-Year Program

The two-year program is identical to the last two years of the four-year program but is preceded by a six-week summer field training session at an Air Force base. Two-year program students must also receive a competitive score on the AFOQT and pass an Air Force medical examination, and be selected by a Central Selection Board, prior to attending field training.

Finances

Textbooks for all AFROTC courses are free. Students enrolled in the POC receive a $100-per-month tax-free subsistence allowance during the academic year. In addition, those attending summer field training receive travel pay to and from the Air Force base hosting the session, free room and board, and pay while attending the session.

Embry-Riddle students have enjoyed a high selection rate for AFROTC scholarships that pay full tuition, lab and incidental fees, textbooks, and the $100 monthly tax-free subsistence allowance. Three- and four-year scholarships are available, on a competitive basis, to high school graduates, while additional scholarship opportunities are available for students already enrolled in the AFROTC program at Embry-Riddle.

For information, contact AFROTC Det. 157, Embry-Riddle Aeronautical University, 600 S. Clyde Morris Blvd., Daytona Beach, FL 32114-3900, (904) 226-6878 or AFROTC Det. 28, Embry-Riddle Aeronautical University, Prescott, AZ 86301, (602) 776-3867/3868. Those students enrolled through the South Florida Center should contact AFROTC Det. 155, University of Miami, Coral Gables, FL 33124, or call (305) 284-2870.

ARMY RESERVE OFFICER TRAINING CORPS

Army ROTC stands for Reserve Officer's Training Corps and it is a course which men and women may take, freshmen through seniors, and may lead to a commission as a second lieutenant in the US Army. Army ROTC enhances a student's education by providing unique leadership and management training, along with practical experiences. The curriculum is designed to be exciting, educational, and flexible enough to meet scholastic and personal goals. Classes and training include: map reading, land navigation, rappelling, rifle marksmanship, patrolling, tactics, drill and ceremony, military history, ethics and military law. You may earn sixteen (16) hours of academic credit for completing four years of Army ROTC. All uniforms, military text books, and equipment are issued to cadets at no charge.

Army Reserve Officer Training

The Army Reserve Officer Training Corps (ROTC) program provides an opportunity to acquire skills and knowledge necessary for commissioning as a second lieutenant in the US Army. The program offers both a four-year and two-year option. The two-year option allows students with at least two academic years remaining in college to meet all requirements for commissioning. The ROTC courses may be applied toward open elective requirements in degree programs.

Basic Military Science

The Basic Military Science courses are offered during the freshman and sophomore years. These courses address military organization, equipment, weapons, map reading, land navigation, use of compass, grade structure, threat, communications, leadership, and physical training. The courses consist of both classroom instruction and a mandatory lab. Students are required to have a doctor's statement allowing participation in college level physical education classes.

Advanced Military Science

The Advanced Military Science courses are normally taken during the junior and senior years. These courses specialize in small unit tactics, preparation and conduct of military training, military justice system, staff procedures, decision making and leadership, managerial concepts, problem analysis, military writing, the ethic of professional solider, and physical training. The courses consist of both classroom instruction and a mandatory lab. This phase requires attendance at a six-week advanced camp conducted at a military installation during the summer after your junior year.

Alternate Entry Program

The Alternate Entry Program provides the student who has no military experience a last opportunity to enter ROTC at the beginning of the Junior Year. The criteria and requisites, however, are stringent. The Professor of Military Science (PMS) holds the key to this procedure and must be contacted prior to enrollment.

Basic Camp

A summer training program is offered for students who will be academic juniors without previous ROTC or military training. This consists of a six-week course at Fort Knox, Kentucky during the summer after the sophomore year. This will qualify a student for entry into the Advanced Course, thus allowing completion of all requirements for commissioning within two years. Students attending the summer camp at Fort Knox receive approximately $600 pay.

Benefits

All contracted military science students receive a tax-free monetary allowance of $100 per month.

Four and three-year scholarships are available to those who qualify. Academic excellence is essential to any future career and especially in a highly technical Army. Naturally, the higher GPA and test scores, the better chance exists of being selected as a scholarship recipient, however the minimum requirements are:

- US Citizen
- Be under 25 years of age the year of college graduation (waivers possible for prior service)
- Meet required physical standards
- Have a cumulative academic GPA of 2.5
- Have a SAT score of 850 or ACT score of 19

Scholarship benefits include:

$32,000 — Tuition paid at the rate of $8,000 per year.
*$12,000 — Room and board paid at the rate of $3,000 per year for 4-year scholarship winners.
$ 4,000 — Subsistence allowance paid at the rate of $100 per month, up to ten months of the school year.
$ 1,800 — Books paid at the rate of $225 per semester.
$ 1,600 — Miscellaneous fees paid at the rate of $200 per semester.
$51,400 — TOTAL not including uniforms and other items of military equipment that are issued at no expense to the cadet.

* As an extra incentive, Embry-Riddle Aeronautical University provides FREE ROOM AND BOARD for four-year scholarship winners.

Admission to the Basic Course

Admission requirements are the following:
1. Enrollment in a baccalaureate or master's program.
2. At least seventeen years of age at time of entry but not more than thirty years of age at time of graduation.
3. U.S. Citizen

Admission to the Advanced Course

Admission requirements are the following:
1. Successful completion of the Basic Course or equivalent.
2. Successful completion of Army officer qualifying test.
3. Successful completion of Army physical examination.
4. Selection by the Professor of Military Science.
5. Agreement to complete the Advanced Course requirements and serve on active duty, reserve, or National Guard duty as a commissioned officer.
6. Maintain a 2.5 overall academic GPA and a 3.0 ROTC GPA.

MARINE CORPS COMMISSIONING

For freshmen, sophomores and juniors, the Marine Corps has the Platoon Leaders Class Program (PLCP). Freshmen and sophomores attend two six-week training sessions, and juniors attend one ten-week session at Quantico, VA.

To be eligible for the program you must be an American citizen (either native born or naturalized), a full-time student enrolled in a minimum of 12 academic credits per semester, and working towards an accredited/recognized Baccalaureate degree.

The PLCP Program offers two entry level paths which lead to a commission as a 2nd Lieutenant in the U.S. Marine Corps. The first is the Ground Officer Program which encompasses all Military Occupational Specialties (MOSs) not directly related to piloting aircraft. If you have a qualifying score from either the SAT or ACT tests, you may apply. The second program is the Guaranteed Aviation Program. In order to apply for this program you will need to have a quaifying SAT or ACT score as well as take the Aviation Qualification Test/Flight Aptitude Rating (AQT/FAR). If you have at least the minimum score of a 4/6 on the AQT/FAR, pass a Class-1 Aviation Medical examination performed at a Military Medical Facility, pass a Marine Corps Physical Fitness test (PFT) and are accepted into the program by Headquarters Marine Corps, you could be eligible to receive a "Contract Guarantee" that you will attend Flight School for the Marine Corps upon graduation from college and acceptance of the Commission as a 2nd Lieutenant.

A monthly financial stipend of $100.00 a month for the 9 months of the school year is available to all who meet the requirements and successfully complete the summer training at Officer's Candidate School.

These programs are subject to the control of, and administered by and under the rules and regulations of, the U.S. Marine Corps and are subject to change from time to time.

NAVAL AVIATION

Although no NROTC program is available, large numbers of ERAU graduates enter various U.S. Navy Officer Candidate Programs. In fact, only the U.S. Naval Academy produces more Navy Pilot and Naval Flight Officers. Following graduation, the Naval Aviation Officer Candidate Program at Pensacola leads to a commission in approximately 14 weeks.

On both the Daytona Beach and Prescott campuses, a dynamic Naval Aviation Club exists with the goal of informing and assisting students anxious to learn about Naval Aviation Careers. Membership dues are nominal and no academic credit is conferred. The club features guest speakers and aircraft from Fleet squadrons, in addition to field trips to Naval Air Stations, aircraft carriers, and the "Cradle of Naval Aviation" at Pensacola. Current Navy policy information is made available through close liaison with Navy Recruit Command representatives.

Degree Programs

In this chapter, degree programs are grouped into several aviation disciplines:

Aerospace Engineering Program
Aircraft Engineering Technology Program
Avionics Engineering Technology Program
Electrical Engineering Program
Engineering Physics Program
Aviation Computer Science Program
Aerospace Studies Program
Aviation Maintenance and Technology Programs
Avionics Technology Programs
Aviation Business and Management Programs
Flight Related Programs

OPTIONAL FRESHMAN YEAR

Below is an "Optional Freshman Year" that is designed for students who are undecided on a major, but who have an interest in engineering, computer science, or engineering technology. It allows students to take courses in the optional freshman year with minimum loss toward their degree. Students could therefore put off the decision on a major until their sophomore year.

This optional freshman year does not replace the freshman year of those who have decided on a major. Its impact on subsequent years will depend on the major they decide on. Those who are undecided and take the optional freshman year need to select a major before their sophomore year and consult an appropriate advisor before continuing their program of study.

OPTIONAL FRESHMAN YEAR

SEMESTER I	MA 241	4
	SS 110/120	3
	EC 200	3
	HU 122	3
	Option Elective	3
		16
SEMESTER II	MA 242	4
	HU 123/140/141	3
	HU 219	3
	PS 211/215	4/3
	PS 212/216	1
	Option Elective	3
		17/18

AEROSPACE ENGINEERING PROGRAM

Aerospace Engineering

Bachelor of Science

ADMISSION REQUIREMENTS

To enter this program, students should have demonstrated a competence in mechanical drawing, mathematics, physics and chemistry in high school. They should be prepared to enter Calculus I, having demonstrated proficiency in algebra and trigonometry. Students can prepare themselves for this program, if required, by taking MA 140 College Algebra, MA 142 Trigonometry, and ET 101 Engineering Graphics at Embry-Riddle prior to taking MA 241 Calculus and Analytical Geometry I and ET 110 Drafting and Descriptive Geometry.

DEGREE REQUIREMENTS

The Bachelor of Science in Aerospace Engineering program requires successful completion of a minimum of 136 credit hours. The program may be completed in eight semesters assuming appropriate background and full-time enrollment. The courses necessary to earn this degree are listed below.

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	ET 110	Drafting and Descriptive Geometry	2
	HU 122	English Composition and Literature I	3
	MA 241	Calculus and Analytical Geometry I	4
	PS 140	Chemistry for Engineers	4
	PS 141	Chemistry for Engineers Laboratory	1
	SS 110	World History OR	
	SS 120	American History	3
			17
SECOND	CS 210	Scientific Programming	3
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	MA 242	Calculus and Analytical Geometry II	4
	PS 211	Engineering Physics I	4
	PS 212	Engineering Physics Laboratory I	1
			15

THIRD	ES 201	Statics	3
	HU 219	Speech	3
	HU 221	Technical Report Writing	3
	MA 243	Calculus and Analytical Geometry III	4
	PS 217	Engineering Physics II	4
	PS 218	Engineering Physics Laboratory II	1
			18
FOURTH	ES 202	Solid Mechanics	3
	ES 204	Dynamics	3
	ES 206	Fluid Mechanics	3
	MA 345	Differential Equations and Matrix Methods	4
	PS 303	Modern Physics	3
			16
FIFTH	AE 301	Aerodynamics I	3
	AE 304	Aircraft Structures I	3
	AE 309	Experimental Aerodynamics	2
	ES 305	Thermodynamics	3
	ES 307	Engineering Materials Science w/Lab	3
	MA 441	Advanced Engineering Mathematics I	3
			17
SIXTH	AE 302	Aerodynamics II	3
	AE 404	Aircraft Structures II	3
	AE 413	Airplane Stability and Control	3
	EC 200	An Economic Survey	3
	ES 402	Electrical Engineering I w/Lab	3
	HU/SS	Elective	3
			18
SEVENTH	AE 408	Turbine and Rocket Engines	3
	AE 420	Aircraft Preliminary Design	3
	AE 430	Control Systems Analysis and Design	3
	ES 405	Electrical Engineering II	3
	ES 409	Space Mechanics	3
		Open Elective	3
			18
EIGHTH	AE 421	Aircraft Detail Design	3
	ES 410	Structures and Instrumentation Lab	2
	HU/SS	Electives (300-400 Level)	6
		Technical Electives	6
			17
TOTAL			136

TECHNICAL ELECTIVES:

AE 350, 399, 401, 407, 409, 415, 433, 499, 5XXU
CE (AE): By Special Arrangement
CS: 325, 338, 344, 350, 372, 395I
EP: 320, 410, 440, 450, 455
ES 399, 403, 409, 499
ET: 401
MA: 412, 432, 442, 443, 5XXU
PS: 320, 401

Students may substitute upper level AF and MY courses or aeronautic certificates for a maximum of 6 credits of the Technical electives. Coope ative Education credits may be used as open and/or technical electiv with prior approval from the Department Chair. For details, see the Co-o faculty advisor.

LOWER LEVEL:

HU: 130, 135, 140*, 141*, 15X (if not a native language)
SS: 110*, 120*, 204, 210, 220
* (if not required)

UPPER LEVEL:

HU: 300, 305, 310, 320, 325, 330, 335, 341, 345, 399**
SS: 302, 305, 310, 320, 325, 331, 335, 340, 350, 395D, 398, 399**
** Must be approved by the A/SP dept. *before* taking this course.
HU 140 or *HU 141* will substitute for HU 123.

AIRCRAFT ENGINEERING TECHNOLOGY PROGRAM

Aircraft Engineering Technolog

Bachelor of Scienc

ADMISSION REQUIREMENTS

Students entering this program should have a basic background in math physics and chemistry. College Calculus is the entry level math course Students wishing to strengthen their background in math and the basic sci ences before enrolling in the prescribed course sequence should consul the Department Chair for guidance in course selection.

DEGREE REQUIREMENTS

The Bachelor of Science in Aircraft Engineering Technology requires successful completion of 129 semester hours, as outlined in the course list below.

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	ET 110	Drafting and Descriptive Geometry	2
	HU 122	English Composition and Literature I	3
	MA 241	Calculus and Analytical Geometry I	4
	PS 101	Basic Chemistry	3
	SS 110	World History OR	
	SS 120	American History	3
			15
SECOND	CS 210	Scientific Programming	3
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	MA 242	Calculus and Analytical Geometry II	4
	PS 211	Engineering Physics I	4
	PS 212	Engineering Physics Laboratory I	1
			15
THIRD	ET 201	Technical Mechanics	4
	HU 219	Speech	3
	HU 221	Technical Report Writing	3
	MA 245	Applied Technical Mathematics	3
	PS 217	Engineering Physics II	4
	PS 218	Engineering Physics Laboratory II	1
			18
FOURTH	EC 200	An Economics Survey	3
	ET 305	Applied Thermodynamics w/Lab	4
	ET 309	Applied Strength of Materials w/Lab	4
	ET 310	Applied Fluid Mechanics	3
	SS 220	Introduction to Psychology	3
			17
FIFTH	ET 303	Aircraft Drafting	3
	ET 307	Manufacturing Processes and Materials w/Lab	4
	ET 312	Applied Electrical Science w/Lab	4
	ET 315	Applied Aerodynamics I	3
		Open Elective	3
			17

SIXTH	AV 346	Applied Reliability and Maintainability Engineering	3
	ET 320	Aircraft Structural Analysis	4
	ET 325	Applied Aerodynamics II	3
	HU/SS	(300-400 Level) Elective	3
	SS 335	Human Factors	3
			16
SEVENTH	ET 401	Mechanical Design	3
	ET 402	Applied Instrumentation Laboratory	3
	ET 404	Aircraft Performance and Design	3
	ET 406	Aircraft Systems Analysis and Design	3
	ET 407	Aircraft Gas Turbines	3
			15
EIGHTH	ET 403	Aircraft Detail Design	3
	ET 405	Non-Destructive Testing and Quality Assurance w/Lab	3
	ET 408	Applied Structural Dynamics	3
	ET 410	Aircraft Structures Test Laboratory	1
		Open Electives	6
			16
TOTAL			129

Cooperative Education credits may be used as open electives.

AVIONICS ENGINEERING TECHNOLOGY PROGRAM

Avionics Engineering Technology

Bachelor of Science

ADMISSIONS REQUIREMENTS

Students entering this program should have a basic background in math, physics and chemistry. College Calculus is the entry level math course. Students wishing to strengthen their background in math and the basic sciences before enrolling in the prescribed courses should contact the Department Chair for guidance in course selection.

DEGREE REQUIREMENTS

The Bachelor of Science in Avionics Engineering Technology requires successful completion of 130 semester hours, as outlined in the course list below.

SEMESTER	COURSE NUMBER	TITLE	CREDITS
FIRST	HU 122	English Composition and Literature I	3
	MA 241	Calculus and Analytical Geometry I	4
	PS 101	Basic Chemistry	3
	EL 106	Direct and Alternating Current Fundamentals and Circuit Analysis w/Lab	6
			16
SECOND	EL 223	Solid State Fundamentals and Circuit Analysis w/Lab	6
	MA 242	Calculus and Analytical Geometry II	4
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	CS 210	Scientific Programming	3
			16
THIRD	EL 220	Introduction to Pulse and Digital Circuits w/Lab	4
	MA 243	Calculus and Analytical Geometry III	4
	ET 101	Engineering Graphics	2
	PS 211	Engineering Physics I	4
	PS 212	Engineering Physics Laboratory I	1
			15
FOURTH	EL 225	Advanced Digital Circuits and Systems w/Lab	4
	ET 201	Technical Mechanics	4
	PS 217	Engineering Physics II	4
	PS 218	Engineering Physics Laboratory II	1
	MA 345	Differential Equations and Matrix Methods	4
			17
FIFTH	EL 230	Microprocessor Systems w/Lab	3
	HU 221	Technical Report Writing	3
	EL 305	Linear Systems Analysis	3
	ET 305	Applied Thermodynamics w/Lab	4
	ET 309	Applied Strength of Materials w/Lab	4
			17

SIXTH	EL 309	Elements of Engineering Design and Laboratory Procedures	3
	EL 300	Electronics Communications Systems w/Lab	4
	EC 200	An Economic Survey	3
	HU 219	Speech	3
	SS 220	Introduction to Psychology	3
			16
SEVENTH	AV 405	Avionics Analog Systems Design Considerations w/Lab	4
	AV 410	Avionics Digital Systems Design Considerations w/Lab	4
	AV 346	Applied Reliability and Maintainability Engineering	3
	SS 335	Human Factors	3
		Open Elective	3
			17
EIGHTH	AV 411	Integrated Aviation Logistics Support	3
	AV 421	Avionics System Integration and Design	3
	ET 307	Manufacturing Processes and Materials w/Lab	4
	HU/SS	Elective (300-400 Level)	3
		Open Elective	3
			16
TOTAL			130

Cooperative Education credits may be used as open electives.

ELECTRICAL ENGINEERING PROGRAM

Electrical Engineering

Bachelor of Science

***This program available only at the Prescott Campus.**

ADMISSION REQUIREMENTS

To enter this program, students should have demonstrated a competence in mathematics, physics, and chemistry in high school. They should be prepared to enter Calculus I, having demonstrated proficiency in algebra and trigonometry. Students can prepare themselves for this program, if required, by taking MA 140 College Algebra and MA 142 Trigonometry at Embry-Riddle prior to taking MA 241 Calculus and Analytical Geometry I. Students who take MA 140 and MA 142 during their first semester will need to attend during the summer following their Freshman year to catch up on prerequisites if a delay in graduation is to be avoided.

DEGREE REQUIREMENTS

The Bachelor of Science in Electrical Engineering degree program requires 135 credit hours. This program may be completed in eight semesters assuming appropriate background and full-time enrollment. The courses necessary to earn this degree are listed below.

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	MA 241	Calculus and Analytical Geometry I	4
	PS 140	Chemistry for Engineers	4
	PS 141	Chemistry for Engineers Laboratory	1
	HU 122	English Composition and Literature I	3
	SS 110	World History OR	
	SS 120	American History	3
			15
SECOND	MA 242	Calculus and Analytical Geometry II	4
	PS 211	Engineering Physics I	4
	PS 212	Engineering Physics Laboratory I	1
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	*CS	Programming Language Elective	3
	EC 200	An Economic Survey	3
			18
THIRD	EE 220	Digital Circuit Design	3
	EE 222	Digital Circuit Laboratory	1
	MA 243	Calculus and Analytical Geometry II	4
	PS 217	Engineering Physics II	4
	PS 218	Engineering Physics Laboratory II	1
	HU 221	Technical Report Writing	3
			16
FOURTH	EE 223	Linear Circuits Analysis I	3
	EE 224	Electrical Engineering Laboratory I	1
	EE 320	Introduction to Computer Engineering	3
	EE 322	Computer Engineering Laboratory	1
	MA 345	Differential Equations and Matrix Methods	4
	HU 219	Speech	3
	**ES	Elective	3
			18
FIFTH	EE 300	Linear Circuits Analysis II	3
	EE 301	Electrical Engineering Laboratory II	1
	EE 302	Electronic Devices and Circuits	3
	EE 304	Electronic Circuits Laboratory	1
	MA 441	Advanced Engineering Mathematics I	3
	**ES	Elective	3
	***	Spec. Elective	3
			17

SIXTH	EE 303	Signals and Filters	3
	EE 305	Operational Amplifiers and A/D-D/A Circuits	3
	EE 340	Electric and Magnetic Fields	3
	**ES	Elective	3
	***	Spec. Elective	3
	HU/SS	Elective	3
			18
SEVENTH	EE 401	Control Systems Analysis and Design	3
	EE 402	Control Systems Laboratory	1
	EE 410	Communications Systems	3
	EE 412	Communications Systems Laboratory	1
	EE 420	Avionics Preliminary Design	3
	***	Spec. Elective	3
	HU/SS	Elective	3
			17
EIGHTH	HU/SS	Elective (300-400 level)	3
	EE 421	Avionics Detailed Design	3
	EE 450	Elements of Power Systems	3
	EE 452	Power Systems Laboratory	1
	**	Technical Elective	3
	EE 460	Advanced Controls and Systems Integration	3
			16
TOTAL			135

*CS Electives: CS210, CS215, CS216, CS325
**ES Electives selected in conjunction with advisor
***Specified Electives selected in conjunction with advisor

ENGINEERING PHYSICS PROGRAM

Engineering Physics

Bachelor of Science

ADMISSION REQUIREMENTS

To enter this program, students must have completed four years of high school science and mathematics demonstrating a high level of competency. Successful candidates for this program will be prepared to enter Calculus I and Chemistry for Engineers.

DEGREE REQUIREMENTS

The Bachelor of Science in Engineering Physics degree program requires 136 credit hours. The program can be completed in eight semesters and one summer term. The courses necessary to earn this degree are listed below.

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	MA 241	Calculus and Analytical Geometry I	4
	PS 140	Chemistry for Engineers	4
	PS 141	Chemistry for Engineers Laboratory	1
	SS 110	World History OR	
	SS 120	American History	3
	HU 122	English Composition and Literature I	3
			15
SECOND	MA 242	Calculus and Analytical Geometry II	4
	PS 215	Physics I	3
	PS 216	Physics Laboratory I	1
	ET 110	Drafting & Descriptive Geometry	2
	HU 123	English Composition & Literature II OR	
	HU 140	Humanities & Western Culture OR	
	HU 141	Studies in the Humanities	3
	HU 219	Speech	3
			16
THIRD	MA 243	Calculus and Analytical Geometry III	4
	PS 208	Physics II	3
	ES 201	Statics	3
	CS 210	Scientific Programming	3
	HU 221	Technical Report Writing	3
			16
FOURTH	MA 345	Differential Equations and Matrix Methods	4
	PS 219	Physics III	3
	PS 220	Physics Laboratory III	1
	*PS 290	Physics Laboratory Practicum	0
	ES 202	Solid Mechanics	3
	ES 204	Dynamics	3
	ES 206	Fluid Mechanics	3
			17
FIFTH	MA 441	Advanced Engineering Mathematics I	3
	PS 303	Modern Physics	3
	PS 305	Modern Physics Laboratory	1
	ES 305	Thermodynamics	3
	ES 402	Electrical Engineering I	3
	EC 200	An Economics Survey	3
			16

* May be taken during the fourth or fifth semester.

SUMMER SESSION (MUST be taken before seventh semester)			
	HU/SS	Electives (300-400 Level)	6
		Open Elective	3
			9

SIXTH	MA 442	Advanced Engineering Mathematics II	3
	PS 320	Classical Mechanics	3
	EP 320	Electro-Optical Engineering	3
	ES 307	Engineering Materials Science w/Lab	3
	ES 405	Electrical Engineering II	3
	ET 200	Machine Shop Laboratory	1
			16
SEVENTH	EP 455	Quantum Physics	3
	EP 440	Engineering Electricity and Magnetism	3
	EP 450	Space Systems Engineering	3
	EP 490	Senior Design Project I	3
	SS 210	Introduction to Sociology OR	3
	SS 220	Introduction to Psychology	3
			15
EIGHTH	EP 410	Space Physics	3
	EP 491	Senior Design Project II	4
	ES 409	Space Mechanics	3
	AE	Elective	3
		Open Elective	3
			16
TOTAL			136

AE ELECTIVES:
AE 301, 302, 304, 309, 404, 430

HUMANITIES/SOCIAL SCIENCE ELECTIVES
HU 300, 305, 310, 320, 325, 330, 335, 341, 345
SS 305, 310, 320, 325, 331, 335, 340, 350
Students may take other AE and HU/SS courses with the approval of the Department/Program Chair.

AVIATION COMPUTER SCIENCE PROGRAM

Aviation Computer Science

Bachelor of Science

DEGREE REQUIREMENTS

The Bachelor of Science degree can be earned in eight semesters assuming appropriate background and full-time enrollment. Successful completion of a minimum of 126 credit hours is required.

Students entering this program are expected to have completed a basic typing or word-processing course. Those who haven't should enroll in CS 101 — Introduction to Keyboard Operations during their first semester of attendance. Students should have demonstrated a competence in mathematics and science (preferably in physics). They should be prepared to

enter Calculus I, having demonstrated proficiency in algebra and trigonometry. Students can prepare themselves for this program by taking MA 140, College Algebra, and MA 142, Trigonometry, prior to taking MA 241. For those students who have not taken physics in high school it is recommended that PS 103, Technical Physics I be taken prior to PS 211. For those students who have not taken a course in computer programming in high school, it is strongly recommended that CS 118, Fundamentals of Computer Programming, be taken prior to CS 115.

SEMESTER	COURSE	NUMBER/TITLE	CREDITS
FIRST	MA 241	Calculus and Analytical Geometry I	4
	HU 122	English Composition and Literature I	3
	CS 115	Computer Programming I	3
	SS 110	World History	3
		(or SS 120)	
	AS 120	Principles of Aeronautical Science	3
			16
Note: Students must satisfy the requirements for CS 101.			
SECOND	MA 242	Calculus and Analytical Geometry II	4
	HU 123	English Composition and Literature II	3
	(or HU 140 or HU 141)		
	CS 215	Computer Programming II	3
	CS 222	Introduction to Discrete Structures	3
	AS 201	Meteorology I	3
			16
THIRD	PS 211	Engineering Physics I	4
	PS 212	Engineering Physics Laboratory I	1
	EC 200	An Economic Survey	3
	SS 220	Introduction to Psychology	3
	CS 211	Computer Organization I	3
	CS 315	Data Structures and Analysis of Algorithms	3
			17
FOURTH	PS 217	Engineering Physics II	4
	PS 218	Engineering Physics Laboratory I	1
	HU 219	Speech	3
	CS 311	Computer Organization II	3
	CS 317	Files and Database Systems	3
	MA 245	Applied Technical Mathematics	3
			17
FIFTH	MA 412	Probability and Statistics	3
	CS 230	Organization of Programming Languages	3
	CS 344	C Programming & Unix	3
		OR	
	CS 420	Operating Systems	3
	HU 221	Technical Report Writing	3
	HU/SS	Elective	3
			15

SIXTH	CS 350	Computer Modeling and Simulation	3
	CS 455	Artificial Intelligence	3
	Open Elective		3
	HU/SS/AF/MY	Elective (300-400 level)	3
	AT 362	National Airspace System	3
			15
SEVENTH	CS 431	Software Engineering	3
	CS 335	Introduction to Computer Graphics	3
	CS 372	Introduction to Microprocessors	3
		OR	
	CS 450	Real Time Systems	
	AS/AT	Elective	3
	Open Elective (300-400 level)		3
			15
EIGHTH	CS 470	Computer Architecture	3
	CS 465	Senior Project	3
	CS	Elective (300-400 level)	3
	Open Elective (300-400 level)		3
	HU/SS/AF/MY	Elective (300-400 level)	3
			15
		Total Hours	126

AIRWAY SCIENCE PROGRAM OPTION

Those students who seek to be recognized as a graduate from an FAA approved Airway Science Program in computer science must satisfy all the Aviation Computer Science degree requirements plus the FAA program requirements. The Airway Science-Airway Computer Science program can be completed with a minimum of 126 total credits.

The following courses are required by the FAA and may be taken to satisfy the appropriate open electives and specified electives degree requirements:

COURSE	NUMBER/TITLE	CREDITS
SF 210	Introduction to Aerospace Safety	3
AS 405	Aviation Law	3
CS 420	Operations Systems	3
MS 201	Principles of Management	3
MS 314	Human Resource Management	3
MS 317	Organizational Behavior	3

AEROSPACE STUDIES PROGRAM

Aerospace Studies

Bachelor of Science

DEGREE REQUIREMENTS

The Bachelor of Science degree in Aerospace Studies requires successful completion of a minimum of 120 credit hours.

GENERAL EDUCATION

COURSE	NUMBER/TITLE	CREDITS
MA	Electives (100-200 Level)	6
HU 122	English Composition and Literature I	3
HU 123	English Composition and Literature II OR	
HU 140	Humanities and Western Culture OR	
HU 141	Studies in the Humanities	3
HU 219	Speech	3
HU 221	Technical Report Writing	3
HU/SS	Elective (300-400 Level)	3
CS 109	Introduction to Computer Programming w/BASIC OR	
CS 115	Computer Programming I OR	
CS 210	Scientific Programming	3
PS	Electives (One course must include a Laboratory)	6
*SS	Electives	6
		36

*SS Electives must be chosen from: EC200, EC210, EC211, SS11O, SS120, SS210, SS220

CORE REQUIREMENTS

COURSE	NUMBER/TITLE	CREDITS
AS 120	Introduction to Aeronautical Science OR	
SP 110	Introduction to Space Flight OR	
FAA	Private Pilot Certificate	3
ES 100	Engineering and Society	3
MS 105	American Business Enterprise OR	
MS 201	Principles of Management	3
**HU 123	English Composition and Literature II OR	
**HU 140	Humanities & Western Culture OR	
**HU 141	Studies in the Humanities OR	
SS 204	Introduction to Geography	3

**Must be chosen from one of the courses above not utilized to satisfy general education credit.

HU/SS	Electives (Selected from HU 335, SS 325, SS 331 or SS 340)	6
HU 330	Values and Ethics OR	
HU 341	World Philosophy (If not taken for general education credit)	3
SS 220	Introduction to Psychology (If not taken for general education credit)	3
MA 222	Business Statistics (If not taken for general education credit)	3
CE 396/397	Cooperative Education	3-6
HU 475	Senior Thesis	3
		21-33

MINORS

Students must select three minor fields of study. Total credits will vary from 45-63 depending upon the minors chosen.

	CREDITS
OPEN ELECTIVES	0-18
Total Credits	120-132

AVIATION MAINTENANCE AND TECHNOLOGY PROGRAMS

Aircraft Maintenance
Aviation Maintenance Technology
Aviation Technology
AMT/Flight Option
AMT/Avionics Option
Avionics/Flight Option
Avionics Technology

Aircraft Maintenance

Associate in Science

DEGREE REQUIREMENTS

The Associate in Science degree in Aircraft Maintenance requires successful completion of the following:

ERAU Type 147 Aviation Maintenance Technology Program (60 Credits)

* TYPE 147 AVIATION MAINTENANCE TECHNOLOGY PROGRAM

COURSE	NUMBER/TITLE	CREDITS
AMT 101	Applied Science for Aerospace Technicians	2
AMT 102	Aviation Regulations, Records and Documents	2
AMT 103	Basic Electricity	3
AMT 104	Aircraft Servicing Procedures	2
AMT 105	Aviation Material	3
AMT 201	Aircraft Structures and Sheet Metal Fabrication	4
AMT 202	Non-Metallic Structures	3
AMT 203	Aircraft Instruments and Communication/Navigation Systems	2
AMT 204	Aircraft Welding, Assembly and Rigging	3
AMT 205	Aircraft Electrical Systems	4
AMT 206	Hydraulic and Pneumatic Systems	2
AMT 207	Aircraft Environmental & Fuel Systems	3
AMT 208	Aircraft Landing Gear Systems	3
AMT 209	Aircraft Reciprocating Engines	3
AMT 210	Aircraft Powerplant Systems	3
AMT 211	Engine Electrical & Ignition Systems	3
AMT 212	Propellers and Propeller Systems	3
AMT 213	Engine Installation and Operation	2
AMT 214	Reciprocating Engine Overhaul	4
AMT 215	Turbine Engines and Turbine Engine Systems	6
	TOTAL	60

*This program available only at the Daytona Beach Campus.

OR

ERAU Type 65 Aviation Maintenance Technology Program (See the Associate in Science in Aircraft Maintenance degree program for the list of courses which make up the Type 147 and Type 65 maintenance programs.)

**AMT 240	General Aeronautics and Applications	3
**AMT 260	Aircraft Electrical Systems Theory	3
**AMT 270	Airframe Structures and Applications	4
**AMT 271	Airframe Systems and Applications	3
**AMT 280	Powerplant Theory and Applications	4
**AMT 281	Aircraft Propulsion systems & Applications	
	Electives (AMT, AS, AV, CS, EL, FA, MS) OR AMT 275 and AMT 285	15
	TOTAL	36

**These courses are available only at the College of Continuing Education locations.

AND

33 designated credits as follows:

COURSE	NUMBER/TITLE	CREDITS
CS 105	Introduction to Computers in Aviation, OR	
CS 109	Introduction to Computer Programming with BASIC, OR	
CS 210	Scientific Programming	3
EC 200	An Economic Survey	3
HU 122	English Composition and Literature I	3
HU 123	English Composition and Literature II, OR	
HU 140	Humanities and Western Culture, OR	
HU 141	Study in the Humanities	3
HU 219	Speech	3
HU 221	Technical Report Writing	3
MA 111	College Mathematics for Aviation I	3
MA 112	College Mathematics for Aviation II, OR	
MA 211	Statistics with Aviation Applications, OR	
MA 222	Business Statistics	3
MS 105	American Business Enterprise, OR	
MS 201	Principles of Management	3
PS 102	Explorations in Physics	3
SS 220	Introduction to Psychology	3
		33

Total credits required vary from 69 to 93 depending upon the method of obtaining the maintenance qualification.

Aviation Maintenance Technology

Associate

This degree program is open only to Type 147 students at the Daytona Beach Campus.

DEGREE REQUIREMENTS

Degree requirements for the Associate degree in Aviation Maintenance Technology are outlined in the vertical listing below:

SEMESTER	COURSE NUMBER/TITLE	CREDITS
FIRST	(General Aeronautics)	
	AMT 101 Applied Science for Aerospace Technicians	2
	AMT 102 Aviation Regulations, Records and Documents	2
	AMT 103 Basic Electricity	3
	AMT 104 Aircraft Servicing Procedures	2
	AMT 105 Aviation Material	3
	HU 122 English Composition and Literature I	3
		15
SECOND	(Airframe I)	
	AMT 201 Aircraft Structures and Sheet Metal Fabrication	4
	AMT 203 Aircraft Instruments & Communication/Navigation Systems	2
	AMT 205 Aircraft Electrical Systems	4
	AMT 206 Hydraulic and Pneumatic Systems	2
	MA 111 College Mathematics for Aviation I OR	
	MA 111 or 140 Quantitative Methods I OR	
	MA 140 College Algebra	3
		15
THIRD	(Airframe II)	
	AMT 202 Nonmetallic Structures	3
	AMT 204 Aircraft Welding, Assembly and Rigging	3
	AMT 207 Aircraft Environmental and Fuel Systems	3
	AMT 208 Aircraft Landing Gear Systems	3
	HU 219 Speech	3
		15
FOURTH	(Powerplant I)	
	AMT 209 Aircraft Reciprocating Engines	3
	AMT 210 Aircraft Powerplant Systems	3
	AMT 211 Engine Electrical and Ignition Systems	3
	AMT 212 Propellers and Propellers Systems	3
	CS 109 Introduction to Computer Programming w/BASIC OR	
	CS 210 Scientific Programming	3
		15

FIFTH	(Powerplant II)		
	AMT 213	Engine Installation and Operation	2
	AMT 214	Reciprocating Engine Overhaul	4
	AMT 215	Turbine Engines and Turbine Engine Systems	6
	SS 110	World History OR	3
	SS 120	American History	
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
			18
		TOTAL	78

Cooperative education credits are in excess of degree requirements.

Aviation Technology

Bachelor of Science

DEGREE REQUIREMENTS

The Bachelor of Science in Aviation Technology requires successful completion of 158 to 163 credit hours. The student must complete a core program and two of the three options in avionics, flight and maintenance

*TYPE 147 AMT/FLIGHT

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	AMT 101	Applied Science for Aerospace Technicians	2
	AMT 102	Aviation Regulations, Records and Documents	2
	AMT 103	Basic Electricity	3
	AMT 104	Aircraft Servicing Procedures	2
	AMT 105	Aviation Material	3
	MA 145	College Algebra and Trigonometry	5
			17
SECOND	AMT 201	Aircraft Structures and Sheet Metal Fabrication	4
	AMT 202	Non-Metallic Structures	3
	AMT 205	Aircraft Electrical Systems	4
	AMT 206	Hydraulic and Pneumatic Systems	2
	MA 241	Calculus and Analytical Geometry I	4
			17

THIRD	AMT 203	Aircraft Instruments and Communication/Navigation System	2
	AMT 204	Aircraft Welding, Assembly and Rigging	3
	AMT 207	Aircraft Environmental and Fuel Systems	3
	AMT 208	Aircraft Landing Gear Systems	3
	HU 122	English Composition and Literature I	3
			14
FOURTH	AMT 209	Aircraft Reciprocating Engines	3
	AMT 210	Aircraft Powerplant Systems	3
	AMT 211	Engine Electrical and Ignition Systems	3
	AMT 212	Propellers and Propeller Systems	3
	CS 210	Scientific Programming	3
			15
FIFTH	AMT 213	Engine Installation and Operation	2
	AMT 214	Reciprocating Engine Overhaul	4
	FA 110	Commercial Pilot Flight Operations I	6
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	PS 103	Technical Physics I	3
			18
SIXTH	AMT 215	Turbine Engines and Turbine Engine Systems	6
	FA 200	Commercial Pilot Flight Operations II	3
	AS 240	Principles of Navigation	3
	PS 104	Technical Physics II	3
	ET 101	Engineering Graphics	2
			17
SEVENTH	FA 250	Commercial Pilot Flight Operations III	3
	AS 260	Principles of All-Weather Navigation	3
	AS 201	Meteorology I	3
	AS 309	Basic Aerodynamics	3
	HU 221	Technical Report Writing	3
			15
EIGHTH	FA 300	Commercial Pilot Flight Operations IV	2
	AS 310	Aircraft Performance	3
	AS 352	Meteorology II	3
	HU 219	Speech	3
	SS 220	Introduction to Psychology	3
	AV 301	Avionics for Aviators	3
			17

NINTH	FA 419	Airline Transport Pilot Proficiency Development	2
	AS 355	Global Navigation	3
	AS 357	Flight Physiology	3
	AS 420	Flight Technique Analysis	3
	PS 101	Basic Chemistry	3
	EC 200	An Economic Survey	3
			17
TENTH	FA 453	High Performance Aircraft Flight Crew Techniques and Procedures	2
	AS 452	Electronic Navigation and Flight Control Systems	3
	AS 408	Flight Safety	3
	HU 330	Values and Ethics	3
	HU/SS	Elective (300-400 Level)	3
		Open Elective (300-400 Level)	3
			17
TOTAL			164

* This program available only at the Daytona Beach Campus.

* TYPE 147 AMT/AVIONICS

SEMESTER	COURSE NUMBER/TITLE		CREDIT
FIRST	AMT 101	Applied Science for Aerospace Technicians	2
	AMT 102	Aviation Regulations, Records and Documents	2
	AMT 103	Basic Electricity	3
	AMT 104	Aircraft Servicing Procedures	2
	AMT 105	Aviation Material	3
	MA 241	Calculus and Analytical Geometry	4
			16
SECOND	AMT 201	Aircraft Structures and Sheet Metal Fabrication	4
	AMT 202	Non-Metallic Structures	3
	AMT 205	Aircraft Electrical Systems	4
	AMT 206	Hydraulic and Pneumatic Systems	2
	MA 242	Calculus and Analytical Geometry II	4
			17
THIRD	AMT 203	Aircraft Instruments and Communication/Navigation System	2
	AMT 204	Aircraft Welding, Assembly and Rigging	3
	AMT 207	Aircraft Environmental and Fuel Systems	3
	AMT 208	Aircraft Landing Gear Systems	3
	HU 122	English Composition and Literature I	3
			14

FOURTH	AMT 209	Aircraft Reciprocating Engines	3
	AMT 210	Aircraft Powerplant Systems	3
	AMT 211	Engine Electrical and Ignition Systems	3
	AMT 212	Propellers and Propeller Systems	3
	CS 210	Scientific Programming	3
			15
FIFTH	AMT 213	Engine Installation and Operation	2
	AMT 214	Reciprocating Engine Overhaul	4
	AMT 215	Turbine Engines and Turbine Engine Systems	6
	PS 103	Technical Physics I	3
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
			18
SIXTH	EL 106	Direct and Alternating Current Fundamentals and Circuit Analysis w/Laboratory	6
	MA 245	Applied Technical Mathematics	3
	ET 101	Engineering Graphics	2
	PS 101	Basic Chemistry	3
	PS 104	Technical Physics II	3
			17
SEVENTH	EL 220	Introduction to Pulse and Digital Circuits w/Laboratory	4
	EL 223	Solid State Fundamentals and Circuit Analysis w/Laboratory	6
	HU 221	Technical Report Writing	3
	SS 220	Introduction to Psychology	3
			16
EIGHTH	EL 225	Advanced Digital Circuits and Systems w/Laboratory	4
	EL 226	Electronic Systems Analysis w/Laboratory	5
	EC 200	An Economic Survey	3
	HU 219	Speech	3
	HU/SS	Elective (300-400 Level)	3
			18
NINTH	EL 230	Microprocessor Systems w/Laboratory	3
	AV 305	Aircraft Communication and Landing Systems	3
	AV 309	Aircraft Pulse Systems	3
	AV 339	Avionics Equipment Troubleshooting and Repair Laboratory	2
	HU 330	Values and Ethics	3
		Open Elective (300-400 Level)	3
			17

TENTH	AV 318	Low Frequency and Area Navigational Systems	3
	AV 320	Aircraft Surveillance Systems	3
	AV 324	Avionics System Integration and Flight Control	3
	AV 325	Long Range Navigation Systems	3
	AV 341	Advanced Avionics Equipment Troubleshooting and Repair Laboratory	2
			14
TOTAL			162

* This program available only at the Daytona Beach Campus.

AVIONICS/FLIGHT

SEMESTER	COURSE NUMBER/TITLE		CREDI
FIRST	MA 241	Calculus and Analytical Geometry I	4
	PS 101	Basic Chemistry	3
	HU 122	English Composition and Literature I	3
	EL 106	Direct and Alternating Current Fundamentals and Circuit Analysis w/Laboratory	6
			16
SECOND	MA 242	Calculus and Analytical Geometry II	4
	CS 210	Scientific Programming	3
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	EL 223	Solid State Fundamentals and Circuit Analysis w/Laboratory	6
			16
THIRD	MA 245	Applied Technical Mathematics	3
	PS 103	Technical Physics I	3
	ET 101	Engineering Graphics	2
	HU 221	Technical Report Writing	3
	EL 220	Introduction to Pulse and Digital Circuits	4
			15
FOURTH	PS 104	Technical Physics II	3
	HU 219	Speech	3
	EL 225	Advanced Digital Circuits and Systems w/Laboratory	4
	EL 226	Electronic Systems Analysis w/Laboratory	5
			15
FIFTH	FA 110	Commercial Pilot Flight Operations I	6
	SS 220	Introduction to Psychology	3
	AV 305	Aircraft Communication and Landing Systems	3
	AV 309	Aircraft Pulse Systems	3
	EL 230	Microprocessor Systems w/Laboratory	3
			18

SIXTH	FA 200	Commercial Pilot Flight Operations II	3
	AS 240	Principles of Navigation	3
	AS 201	Meteorology I	3
	AV 318	Low Frequency and Area Navigation Systems	3
	AV 339	Avionics Equipment Troubleshooting and Repair Laboratory	2
			14
SEVENTH	FA 250	Commercial Pilot Flight Operations III	3
	AS 260	Principles of All-Weather Navigation	3
	AS 305	Aircraft Engines-Reciprocating	3
	AS 309	Basic Aerodynamics	3
	AV 320	Aircraft Surveillance Systems	3
			15
EIGHTH	FA 300	Commercial Pilot Flight Operations IV	2
	AS 310	Aircraft Performance	3
	AS 311	Aircraft Engines-Turbine	3
	AV 324	Avionics System Integration and Flight Control	3
	AV 325	Long Range Navigation Systems	3
		Open Elective (300-400 Level)	3
			17
NINTH	FA 419	Airplane Transport Pilot Proficiency Development	2
	AS 352	Meteorology II	3
	AS 355	Global Navigation	3
	AS 357	Flight Physiology	3
	AV 341	Advanced Avionics Equipment Troubleshooting and Repair Laboratory	2
	AS 420	Flight Technique Analysis	3
			16
TENTH	FA 453	High Performance Aircraft Flight Crew Techniques and Procedures	2
	AS 356	Aircraft Systems and Components	3
	AS 408	Flight Safety	3
	EC 200	An Economic Survey	3
	HU 330	Values and Ethics	3
	HU/SS	Elective (300-400 Level)	3
			17
TOTAL			159

*This program available only at the Daytona Beach Campus.

TENTH	AV 318	Low Frequency and Area Navigational Systems	3
	AV 320	Aircraft Surveillance Systems	3
	AV 324	Avionics System Integration and Flight Control	3
	AV 325	Long Range Navigation Systems	3
	AV 341	Advanced Avionics Equipment Troubleshooting and Repair Laboratory	2
			14
TOTAL			162

* This program available only at the Daytona Beach Campus.

AVIONICS/FLIGHT

SEMESTER	COURSE NUMBER	TITLE	CREDITS
FIRST	MA 241	Calculus and Analytical Geometry I	4
	PS 101	Basic Chemistry	3
	HU 122	English Composition and Literature I	3
	EL 106	Direct and Alternating Current Fundamentals and Circuit Analysis w/Laboratory	6
			16
SECOND	MA 242	Calculus and Analytical Geometry II	4
	CS 210	Scientific Programming	3
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	EL 223	Solid State Fundamentals and Circuit Analysis w/Laboratory	6
			16
THIRD	MA 245	Applied Technical Mathematics	3
	PS 103	Technical Physics I	3
	ET 101	Engineering Graphics	2
	HU 221	Technical Report Writing	3
	EL 220	Introduction to Pulse and Digital Circuits	4
			15
FOURTH	PS 104	Technical Physics II	3
	HU 219	Speech	3
	EL 225	Advanced Digital Circuits and Systems w/Laboratory	4
	EL 226	Electronic Systems Analysis w/Laboratory	5
			15
FIFTH	FA 110	Commercial Pilot Flight Operations I	6
	SS 220	Introduction to Psychology	3
	AV 305	Aircraft Communication and Landing Systems	3
	AV 309	Aircraft Pulse Systems	3
	EL 230	Microprocessor Systems w/Laboratory	3
			18

SIXTH	FA 200	Commercial Pilot Flight Operations II	3
	AS 240	Principles of Navigation	3
	AS 201	Meteorology I	3
	AV 318	Low Frequency and Area Navigation Systems	3
	AV 339	Avionics Equipment Troubleshooting and Repair Laboratory	2
			14
SEVENTH	FA 250	Commercial Pilot Flight Operations III	3
	AS 260	Principles of All-Weather Navigation	3
	AS 305	Aircraft Engines-Reciprocating	3
	AS 309	Basic Aerodynamics	3
	AV 320	Aircraft Surveillance Systems	3
			15
EIGHTH	FA 300	Commercial Pilot Flight Operations IV	2
	AS 310	Aircraft Performance	3
	AS 311	Aircraft Engines-Turbine	3
	AV 324	Avionics System Integration and Flight Control	3
	AV 325	Long Range Navigation Systems	3
		Open Elective (300-400 Level)	3
			17
NINTH	FA 419	Airplane Transport Pilot Proficiency Development	2
	AS 352	Meteorology II	3
	AS 355	Global Navigation	3
	AS 357	Flight Physiology	3
	AV 341	Advanced Avionics Equipment Troubleshooting and Repair Laboratory	2
	AS 420	Flight Technique Analysis	3
			16
TENTH	FA 453	High Performance Aircraft Flight Crew Techniques and Procedures	2
	AS 356	Aircraft Systems and Components	3
	AS 408	Flight Safety	3
	EC 200	An Economic Survey	3
	HU 330	Values and Ethics	3
	HU/SS	Elective (300-400 Level)	3
			17
TOTAL			159

*This program available only at the Daytona Beach Campus.

AVIONICS TECHNOLOGY PROGRAM

Associate in Science

DEGREE REQUIREMENTS

The Associate in Science degree in Avionics Technology requires successful completion of 78 semester credit hours as indicated in the following outline.

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	EL 106	Direct and Alternating Current Fundamentals and Circuit Analysis with Laboratory	6
	HU 122	English Composition and Literature I	3
	MA 241	Calculus and Analytical Geometry I	4
	PS 101	Basic Chemistry	3
			16
SECOND	EL 223	Solid State Fundamentals and Circuit Analysis with Laboratory	6
	CS 210	Scientific Programming	3
	EL 220	Introduction to Pulse and Digital Circuits with Laboratory	4
	ET 101	Engineering Graphics	2
			15
THIRD	EL 226	Electronic Systems Analysis with Laboratory	5
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	EL 225	Advanced Digital Circuits and Systems with Laboratory	4
	MA 242	Calculus and Analytical Geometry II	4
			16
FOURTH	AV 339	Avionics Equipment Troubleshooting and Repair Laboratory	2
	AV 305	Aircraft Communications and Landing Systems	3
	AV 309	Aircraft Pulse Systems	3
	PS 103	Technical Physics I	3
	HU 219	Speech	3
	EL 230	Microprocessor Systems with Laboratory	3
			17

FIFTH	AV 341	Advanced Avionics Equipment Troubleshooting and Repair Lab	2
	AV 318	Low Frequency and Area Navigation Systems	3
	AV	Elective	3
	HU/SS	Elective	3
	EC 200	An Economic Survey	3
			14
TOTAL			78

AVIONICS ELECTIVES:
AV 320, AV 324, AV 325

AVIATION BUSINESS AND MANAGEMENT PROGRAMS

Aviation Business Administration
Aviation Maintenance Management
Type 147 Option
Type 65 Option
A&P Option
Avionics Option
Management of Technical Operations

Aviation Business Administration

Bachelor of Science

DEGREE REQUIREMENTS

The Bachelor of Science degree in Aviation Business Administration requires successful completion of a minimum of 126 credit hours, normally completed within eight semesters.

Students may select concentrations in Aviation Management, Airport Management, Airline Management, International Air Transportation Management, or Aviation Systems Management; or elect the Airway Science Option; or 15 credit hours of 300-400 EC/MS Aviation Management courses.

Students enrolled in the Army or Air Force ROTC program may substitute MY or AF courses for the open elective courses.

AVIATION BUSINESS ADMINISTRATION MAJOR

SEMESTER	COURSE NUMBER	TITLE	CREDITS
FIRST	SS 110	World History OR	
	SS 120	American History OR	
	SS 130	History of Aviation in America	3
	HU 122	English Composition and Literature I	3
	MA 111	College Mathematics for Aviation I	3
	MS 120	Introduction to Computer Based Systems OR	
	CS 109	Introduction to Computer Programming with BASIC	3
	MS 201	Principles of Management	3
			15

SECOND	MS 221	Computer Based Systems	3
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	MA 112	College Mathematics for Aviation II	3
	*PS	Elective	3
	EC 211	Macroeconomics	3
			15
THIRD	HU 219	Speech	3
	MA 222	Business Statistics OR	
	MA 211	Statistics w/Aviation Applications	3
	MS 210	Financial Accounting I	3
	EC 210	Microeconomics	3
	SS 220	Introduction to Psychology	3
			15
FOURTH	MS 320	Business Information Systems	3
	HU 222	Business Communication OR	
	HU 221	Technical Report Writing	3
	MA 320	Decision Mathematics	3
	MS 212	Financial Accounting II	3
	EC 315	Managerial Economics	3
	MS 317	Organizational Behavior	3
			18
FIFTH	MS 311	Marketing	3
	MS 312	Managerial Accounting	3
	MS 314	Human Resource Management	3
	MS 325	Social Responsibility and Ethics in Management	3
	MS 335	International Business	3
	*PS	Elective	3
			18
SIXTH	HU/SS	Elective (300-400 Level)	3
	MS 332	Corporate Finance I	3
	MS 390	Business Law	3
	HU 341	World Philosophy OR	
	SS 325	International Studies	3
		Concentration Courses	3
			15
SEVENTH	MS 420	Industrial Management	3
		Concentration Courses	6
		Open Electives	6
			15

EIGHTH	MS 436	Strategic Management	3
		Concentration Courses	6
		Open Electives	6
			15
TOTAL CREDITS			126

*One PS Elective must include a laboratory.

AREAS OF CONCENTRATION*

An Aviation Business Administration major is encouraged to select one of five areas of concentration which consist of five courses, or the Airway Science Option. Students who do not wish to specialize in an area of concentration must select 15 credit hours of 300-400 EC/MS aviation management courses.

Students who wish to specialize in more than one area of concentration may transfer up to 6 credit hours towards the second area of concentration.

Students who participate in the cooperative education program can substitute up to 6 credit hours toward their specified elective requirements.

AVIATION MANAGEMENT

REQUIRED COURSES		
MS 322	Aviation Insurance	3
MS 405	Aviation Marketing	3
MS 324	Aviation Labor Relations	3
SPECIFIED ELECTIVES (SELECT ANY TWO)		6
EC 420	Economics of Air Transportation	
MS 408	Airport Management	
MS 415	Airline Management	
MS 419	Aviation Maintenance Management	
MS 427	Management of the Multicultural Workforce	
MS 426	International Aviation Management	
		15

AIRPORT MANAGEMENT

REQUIRED COURSES		
MS 408	Airport Management	3
MS 412	Airport Planning and Design	3
MS 428	Airport Finance	3
SPECIFIED ELECTIVES (SELECT ANY TWO)		6
EC 420	Economics of Air Transportation	
MS 308	Public Administration	
MS 322	Aviation Insurance	
MS 424	Project Management	
MS 426	International Aviation Management	
MS 427	Management of the Multicultural Workforce	
		15

AIRLINE MANAGEMENT

REQUIRED COURSES		
EC 420	Economics of Air Transportation	3
MS 410	Management of Air Cargo	3
MS 415	Airline Management	3
SPECIFIED ELECTIVES (SELECT ANY TWO)		6
MS 322	Aviation Insurance	
MS 331	Transportation Management	
MS 324	Aviation Labor Relations	
MS 419	Aviation Maintenance Management	
MS 426	International Aviation Management	
MS 427	Management of the Multicultural Workforce	
		15

INTERNATIONAL AIR TRANSPORTATION MANAGEMENT

REQUIRED COURSES		
MS 331	Transportation Management	3
MS 426	International Aviation Management	3
MS 427	Management of the Multicultural Workforce	3
SPECIFIED ELECTIVES (SELECT ANY TWO)		6
EC 420	Economics of Air Transportation	
MS 321	Aerospace Systems Analysis Methods	
MS 408	Airport Management	
MS 410	Management of Air Cargo	
MS 415	Airline Management	
MS 419	Aviation Maintenance Management	
		15

AVIATION SYSTEMS MANAGEMENT

REQUIRED COURSES		
MS 321	Aerospace Systems Analysis Methods	3
MS 422	Life Cycle Analysis for Systems and Programs in Aviation/Aerospace	3
MS 424	Project Management	3
SPECIFIED ELECTIVES (SELECT ANY TWO)		6
MS 408	Airport Management	
MS 412	Airport Planning and Design	
MS 410	Air Cargo Management	
MS 415	Airline Management	
MS 419	Aviation Maintenance Management	
MS 427	Management of the Multicultural Workforce	
		15

*Not all Areas of Concentration/courses may be offered at all campuses.

AIRWAY SCIENCE OPTION

Those students who seek to be recognized as a graduate from the FAA Approved Airway Science program in management must satisfy the Aviation Business Administration degree requirements by including the FAA program requirements. The Airway Science — Management program can be completed with a minimum of 126 credit hours.

The following courses are required by the FAA and, for the purpose of attaining the Airway Science option in the Aviation Business Administration program, may be substituted for HU/PS/SS electives, open electives, and the courses needed for an area of concentration.

COURSE NUMBER/TITLE		CREDITS
AS 120	Principles of Aeronautical Science OR	3
FA 110	Commercial Pilot Flight Operations I	6
AS 254	Aviation Regulations	3
AS 305	Aircraft Engines — Reciprocating OR	
AT 462	Enroute/Terminal NonRadar Air Traffic Control with Laboratory	3
AT 363	Air Traffic Control in the National Airspace System	3
AS 405	Aviation Law	3
AS 409	Aviation Safety	3
AS 412	Corporate and Business Aviation	3
EC 420	Economics of Air Transportation	3
HU 330	Values and Ethics	3
MS 408	Airport Management	3
PS 103	Technical Physics I	3
PS 104	Technical Physics II	3
SS 310	Personality Development	3
SS 331	Current Issues in America	3

ASSOCIATE IN SCIENCE IN AVIATION BUSINESS ADMINISTRATION (offered through the College of Continuing Education)

Aviation Business Administration

Associate in Science

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	MS 120	Introduction to Computer Based Systems OR	
	CS 109	Introduction to Computer Programming with BASIC	3
	HU 122	English Composition and Literature I	3
	MA 111	College Mathematics for Aviation I	3
	MS 201	Principles of Management	3
	SS 110	World History OR	
	SS 120	American History OR	
	SS 130	History of Aviation in America	3
			15
SECOND	EC 211	Microeconomics	3
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in Humanities	3
	MA 112	College Mathematics for Aviation II	3
	PS	Elective	3
	SS 220	Introduction to Psychology	3
			15
THIRD	HU 219	Speech	3
	EC 210	Microeconomics	3
	MA 222	Business Statistics OR	
	MA 211	Statistics with Aviation Applications	3
	MS 210	Financial Accounting I	3
		Specified Elective	3
			15

FOURTH	HU 222	Business Communication OR	
	HU 221	Technical Report Writing	3
	MS 314	Human Resource Management	3
	MS 317	Organizational Behavior	3
	MS 212	Financial Accounting II	3
	MS 311	Marketing	3
		Specified Elective	3
			18
TOTAL CREDITS			63

SPECIFIED ELECTIVES:
EC 420
MS 322, 331, 335, 324, 405, 408, 412, 415, 425, 427

AVIATION MAINTENANCE MANAGEMENT PROGRAMS

Aviation Maintenance Management

Bachelor of Science

DEGREE REQUIREMENTS

The Bachelor of Science degree in Aviation Maintenance Management may be attained by successfully completing one of the following options:

Aviation Maintenance Management Type 147 AMT (available only at Daytona Beach)
Aviation Maintenance Management Type 65 AMT (available only at College of Continuing Education locations)
Aviation Maintenance Management Airframe and Powerplant Certificate
Aviation Maintenance Management Avionics

In addition, students who wish to be recognized as a graduate from an FAA Approved Airway Science Program in Aviation Maintenance Management must satisfy all the degree requirements plus the FAA program requirements. These are shown under the heading Airway Science Option.

* AVIATION MAINTENANCE MANAGEMENT TYPE 147 AMT

COURSE	NUMBER/TITLE	CREDITS
AMT 101	Applied Science for Aerospace Technicians	2
AMT 102	Aviation Regulations, Records and Documents	2
AMT 103	Basic Electricity	3
AMT 104	Aircraft Servicing Procedures	2
AMT 105	Aviation Material	3
AMT 201	Aircraft Structures and Sheet Metal Fabrication	4
AMT 202	Non-Metallic Structures	3
AMT 203	Aircraft Instruments and Communication/Navigation System	2
AMT 204	Aircraft Welding, Assembly and Rigging	3
AMT 205	Aircraft Electrical Systems	4

AMT 206	Hydraulic and Pneumatic Systems	2
AMT 207	Aircraft Environmental & Fuel Systems	3
AMT 208	Aircraft Landing Gear Systems	3
AMT 209	Aircraft Reciprocating Engines	3
AMT 210	Aircraft Powerplant Systems	3
AMT 211	Engine Electrical & Ignition Systems	3
AMT 212	Propellers and Propeller Systems	3
AMT 213	Engine Installation and Operation	2
AMT 214	Reciprocating Engine Overhaul	4
AMT 215	Turbine Engines and Turbine Engine Systems	6
		60
	Additional Courses (See Page 75)	90
TOTAL		150

*This program available only at the Daytona Beach Campus.

* AVIATION MAINTENANCE MANAGEMENT TYPE 65 AMT

COURSE	NUMBER/TITLE	CREDITS
**AMT 240	General Aeronautics and Applications	3
**AMT 260	Aircraft Electrical Systems Theory	3
**AMT 270	Airframe Structures and Applications	4
**AMT 271	Airframe Systems and Applications	3
**AMT 280	Powerplant Theory and Applications	4
**AMT 281	Aircraft Propulsion Systems & Applications	4
	Electives (AMT, AS, AV, CS, EL, FA, MS) or AMT 275 and AMT 285	15
		36
	Additional Courses (See Page 75)	90

**These courses are available only at College of Continuing Education locations.

AVIATION MAINTENANCE MANAGEMENT — AIRFRAME AND POWERPLANT MAINTENANCE CERTIFICATE

	CREDITS
Thirty-six credits are granted to students who possess the FAA A&P Maintenance Certificate.	36
Additional Courses (See Page 75)	90
TOTAL	126

ADDITIONAL COURSES (AMM Type 65, Type 147, Airframe and Powerplant Maintenance Certificate)

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	MS 120	Introduction to Computer Based Systems OR	
	CS 109	Introduction to Computer Programming with BASIC	3
	*PS	Elective	3
	HU 122	English Composition and Literature 1	3
	MA 111	College Mathematics for Aviation 1	3

	MS 201	Principles of Management	3
			15
SECOND	EC 210	Microeconomics	3
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	MA 112	College Mathematics for Aviation II	3
	MS 210	Financial Accounting I	3
	MS 221	Computer Based Systems	3
			15
THIRD	*PS	Elective	3
	HU 219	Speech	3
	MA 222	Business Statistics OR	
	MA 211	Statistics with Aviation Applications	3
	MS 212	Financial Accounting II	3
	SS 220	Introduction to Psychology	3
			15
FOURTH	HU 222	Business Communications OR	
	HU 221	Technical Report Writing	3
	MS 312	Managerial Accounting	3
	MS 314	Human Resource Management OR	
	MS 317	Organizational Behavior	3
	MS 320	Business Information Systems	3
	MA 320	Decision Mathematics	3
			15
FIFTH	EC 315	Managerial Economics	3
	MS 311	Marketing	3
	SS 335	Human Factors	3
	MS 332	Corporate Finance	3
	MS 325	Social Responsibility and Ethics in Management	3
			15
SIXTH	MS 390	Business Law	3
	MS 324	Aviation Labor Relations	3
	MS 419	Aviation Maintenance Management	3
	MS 420	Industrial Management	3
	MS 422	Life Cycle Analysis for Systems and Programs in Aviation/Aerospace	3
			15
TOTAL CREDITS			90

*One PS Elective must include a laboratory.
Cooperative education credits are in excess of degree requirements.

AVIATION MAINTENANCE MANAGEMENT — AVIONICS

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	EL 106	Direct and Alternating Current and Circuit Analysis with Laboratory	6
	MA 241	Calculus and Analytical Geometry I	4
	PS 101	Basic Chemistry	3
	HU 122	English Composition and Literature I	3
			16
SECOND	EL 220	Introduction to Pulse and Digital Circuits	4
	EL 223	Solid State Fundamentals and Circuit Analysis with Laboratory	6
	CS 210	Scientific Programming	3
	MA 242	Calculus and Analytical Geometry II	4
			17
THIRD	EL 225	Advanced Digital Circuits and Systems with Laboratory	4
	EL 226	Electronic Systems Analysis with Laboratory	5
	MS 201	Principles of Management	3
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities in Western Culture OR	
	HU 141	Studies in the Humanities	3
			15
FOURTH	EL 230	Microprocessor Systems with Laboratory	3
	PS 103	Technical Physics I	3
	ET 101	Engineering Graphics	2
	MA 412	Probabilities and Statistics	3
	MS 210	Financial Accounting I	3
	HU 219	Speech	3
			17
FIFTH	AV 339	Avionics Equipment Troubleshooting and Repair Laboratory	2
	AV 309	Aircraft Pulse Systems	3
	AV 305	Aircraft Communication and Landing Systems	3
	EC 200	An Economic Survey	3
	SS 220	Introduction to Psychology	3
	MS 212	Financial Accounting II	3
			17

SIXTH	AV 341	Advanced Avionics Equipment Troubleshooting and Repair Laboratory	2
	MS 312	Managerial Accounting	3
	MS 314	Human Resource Management OR	
	MS 317	Organizational Behavior	3
	AV 318	Navigation Systems	3
	AV 320	Aircraft Surveillance Systems	3
	HU 222	Business Communication OR	
	HU 221	Technical Report Writing	3
			17
SEVENTH	MS 324	Aviation Labor Relations	3
	MS 311	Marketing	3
	MS 322	Corporate Finance I	3
	AV 324	Avionics System Integration and Flight Control	3
	AV 325	Long Range Navigation Systems	3
			15
EIGHTH	MS 419	Aviation Maintenance Management	3
	HU/SS	Elective (300-400 Level)	3
	MS 420	Industrial Management	3
	MS 424	Project Management and Software Engineering	3
	MS 422	Life Cycle Analysis for Systems and Programs in Aviation/Aerospace	3
			15
TOTAL CREDITS		129	

Cooperative education credits are in excess of degree requirements.

AIRWAY SCIENCE OPTION

Those students who seek to be recognized as a graduate from an FAA Approved Airway Science Program in Aviation Maintenance Management must satisfy all the Aviation Maintenance Management degree requirements plus the FAA program requirements.

The following courses are required by the FAA and may be taken to satisfy the appropriate open electives and specified electives required for the degree:

COURSE NUMBER/TITLE		CREDITS
AS 120	Principles of Aeronautical Science	3
AS 254	Aviation Regulation	3
AS 409	Aviation Safety	3
MS 120	Introduction to Computer Based Systems	3
MS 221	Computer Based Systems	3
PS 101	Basic Chemistry	3
PS 103	Technical Physics I	3
PS 104	Technical Physics II	3

MANAGEMENT OF TECHNICAL OPERATIONS PROGRAM

Management of Technical Operations

Bachelor of Science

DEGREE REQUIREMENTS

The Bachelor of Science degree in Management of Technical Operations requires successful completion of a minimum of 126 credit hours.

A minimum of 15 semester hours of credit in an area of technical operations which has been earned at accredited postsecondary institutions or through CLEP, DANTES, or military or industrial education programs recognized by the American Council on Education is required. The credit should be related to the aviation industry and may be technical, mechanical or industrial in nature.

TECHNICAL OPERATIONS SPECIALTY	CREDITS
	15

GENERAL EDUCATION

COURSE NUMBER/TITLE		CREDITS
MA 111	College Mathematics for Aviation I	3
MA 112	College Mathematics for Aviation II	3
HU 122	English Composition and Literature I	3
HU 123	English Composition and Literature II OR	
HU 140	Humanities and Western Culture OR	
HU 141	Studies in the Humanities	3
HU 219	Speech	3
HU 222	Business Communications OR	
HU 221	Technical Report Writing	3
HU/SS	Elective (300-400 Level)	3
MS 120	Introduction to Computer Based Systems OR	
CS 109	Introduction to Computer Programming with BASIC	3
PS	Electives (One course must include a lab)	6
SS 220	Introduction to Psychology	3
EC 211	Macroeconomics	3
		36

MANAGEMENT

EC 210	Microeconomics	3
MA 222	Business Statistics	3
MA 320	Decision Mathematics OR	
MS 350	Analysis Methods for Management	3
MS 201	Principles of Management	3
MS 210	Financial Accounting I	3
MS 212	Financial Accounting II	3
MS 221	Computer Based Systems	3
MS 311	Marketing	3
MS 312	Managerial Accounting	3
MS 314	Human Resource Management OR	
MS 317	Organizational Behavior	3
MS 320	Business Information Systems	3
MS 325	Social Responsibility and Ethics in Management	3
MS 335	International Business	3
		39

SPECIFIED ELECTIVES

At least 12 semester hours selected from the following:

AS 254	Aviation Regulation	3
AS 320	Commuter Aviation	3
AS 401	Airport Development and Operations	3
AS 405	Aviation Law	3
AS 409	Aviation Safety	3
AS 412	Corporate and Business Aviation	3
EC 315	Managerial Economics	3
EC 420	Economics of Air Transportation	3
MS 324	Aviation Labor Relations	3
MS 308	Public Administration	3
MS 321	Aviation/Aerospace Systems Analysis Methods	3
MS 322	Aviation Insurance	3
MS 331	Transportation Principles	3
MS 332	Corporate Finance I	3
MS 390	Business Law	3
MS 405	Aviation Marketing	3
MS 408	Airport Management	3
MS 410	Management of Air Cargo	3
MS 411	Logistics Information Systems in Aviation/Aerospace	3
MS 412	Airport Planning and Design	3
MS 415	Airline Management	3
MS 419	Aviation Maintenance Management	3
MS 420	Industrial Management	3
MS 421	Small Business Management	3
MS 422	Life Cycle Analysis for Systems and Programs in Aviation/Aerospace	3
MS 424	Project Management and Software Engineering	3
MS 425	Trends and Current Problems in Air Transportation	3

MS 433	Management of the Sales Force	3
MS 449	Strategic Marketing Management	3
MS 436	Strategic Management	3
MS 426	International Aviation Management	3
MS 427	Management of Multicultural Workforce	3
MS 428	Airport Finance	3
SF 305	Mechanical and Structural Factors in Aviation	3
SF 310	Aircraft Crash Survival Analysis and Design	3
SF 330	Aircraft Accident Investigation	3
SF 340	System Safety in Aviation	3
		12
OPEN ELECTIVES		24
TOTAL CREDITS		126

AERONAUTICAL SCIENCE AND OTHER FLIGHT RELATED PROGRAMS

Aeronautical Science

Airline Pilot

Corporate Pilot

Aviation Studies

Associate in Airway Science

Aircraft Dispatcher Certification

Professional Aeronautics

Aeronautical Science

Bachelor of Science

FLIGHT COURSE SCHEDULING

Students enrolling in a degree program requiring flight usually begin their initial flight course sometime during the first semester in attendance. The exact date is dependent upon weather conditions, aircraft and instructor availability. All flight training courses may begin and end at any time during the academic year and may not coincide with the beginning and ending dates of the published semester schedule. Therefore, students who begin a flight course late in the semester should be prepared for training in that course to continue into the subsequent semester.

See the Academic Regulations and Procedures chapter of this catalog for additional information concerning University policies with respect to flight courses.

DEGREE REQUIREMENTS

The Bachelor of Science degree in Aeronautical Science may be attained in eight semesters. To earn the degree, successful completion of a minimum of 122-123 credit hours is required. The purpose of the Aeronautical Science degree programs is to prepare the graduate for a productive career as a professional pilot and responsible citizenship in support of the aviation and aerospace industries. Upon completion of the curriculum, the student will possess a minimum of an FAA Commercial Pilot Certificate with an instrument rating. Advanced flight training, up to and including, entry-level airline training is provided.

Students may choose one (1) of three (3) possible areas of concentration (AOC's): Airline Pilot, Corporate Pilot, or Aviation Studies. All students must complete the general education and Aeronautical Science core requirements. During their junior year, students should declare one of the

AOC's. The student then completes the required credits which make up the selected AOC.

B.S. Degree in Aeronautical Science

	HOURS
GENERAL EDUCATION	39
AERONAUTICAL SCIENCE	56
AREA OF CONCENTRATION	27-28
TOTAL CREDITS	122-123

The B.S. in Aeronautical Science program is designed to prepare the graduate for a career as a professional pilot.

There are three (3) Areas of Concentration (AOCs) which the student may choose from: Airline Pilot, Corporate Pilot, or Aviation Studies. All students must complete the General Education and Aeronautical Science Core requirements. During their junior year, students should declare one of the AOCs. The student then completes the required credits which make up the selected AOC and electives.

GENERAL EDUCATION

COURSE	NUMBER/TITLE	CREDITS
HU 122	English Composition and Literature I	3
HU 123	English Composition and Literature II OR	
HU 140	Humanities and Western Culture OR	
HU 141	Studies in the Humanities	3
HU 219	Speech	3
HU 221	Technical Report Writing	3
HU/SS	Elective (300-400 Level)	3
EC 200	An Economic Survey	3
MA 111	College Mathematics for Aviation I	3
MA 112	College Mathematics for Aviation II	3
CS 109	Introduction to Computer Programming w/BASIC OR	
CS 210	Scientific Programming	3
PS 103	Technical Physics I	3
PS 104	Technical Physics II	3
SS 220	Introduction to Psychology	3
MS 201	Principles of Management	3
		39

AERONAUTICAL SCIENCE CORE

COURSE	NUMBER/TITLE	CREDITS
FA 110	Commercial Pilot Flight Operations I	6
FA 200	Commercial Pilot Flight Operations II	3
FA 250	Commercial Pilot Flight Operations III	3
FA 300	Commercial Pilot Flight Operations IV	2
AS 201	Meteorology I	3
AS 240	Principles of Navigation	3
AS 254	Aviation Regulation	3
AS 260	Principles of All-Weather Navigation	3
AS 309	Basic Aerodynamics	3
AS 310	Aircraft Performance	3
AS 311	Aircraft Engines — Turbine	3
AS 352	Meteorology II	3
AS 355	Global Navigation	3
AS 356	Aircraft Systems and Components	3
AS 357	Flight Physiology	3
AS 408	Flight Safety	3
AS 420	Flight Technique Analysis	3
AS 452	Electronic Navigation and Flight Control Systems	3
		56

AIRLINE PILOT AREA OF CONCENTRATION

COURSE	NUMBER/TITLE	CREDITS
FA 417	Flight Training Methods and Curriculum Analysis OR	
AS 340	Instructional Design in Aviation	3
FA 419	Airline Transport Pilot Proficiency Development	2
FA 420	Airline Flight Crew Techniques and Procedures	2
AS 320	Commuter Aviation	3
AS 410	Air Carrier Operations	3
AS 411	Jet Transport Systems	3
	Open Electives	12
		28

CORPORATE PILOT AREA OF CONCENTRATION

COURSE	NUMBER/TITLE	CREDITS
AS 305	Aircraft Engines — Reciprocating	3
FA 417	Flight Training Methods and Curriculum Analysis OR	3
AS 340	Instructional Design in Aviation	
MS 210	Financial Accounting I	3
FA 419	Airline Transport Pilot Proficiency Development	2
AS 412	Corporate/Business Aviation	3
FA 453	High Performance Aircraft Flight Crew Techniques and Procedures	2
	Open Electives	12
		28

AVIATION STUDIES AREA OF CONCENTRATION

Required courses necessary to complete at least one minor and open electives sufficient to meet the requirement of 40 credits in upper division courses.	27
TOTAL CREDITS	122-123

Suggested Program of Study

Airline Pilot Area of Concentration

SEMESTER	COURSE	NUMBER/TITLE	CREDITS
FIRST	FA 110	Commercial Pilot Flight Operations I	6
	HU 122	English Composition and Literature I	3
	MA 111	College Mathematics for Aviation I	3
	CS 109	Introduction to Computer Programming w/BASIC OR	
	CS 210	Scientific Programming	3
			15
SECOND	FA 200	Commercial Pilot Flight Operations II	3
	AS 240	Principles of Navigation	3
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	MA 112	College Mathematics for Aviation II	3
	PS 103	Technical Physics I	3
			15
THIRD	FA 250	Commercial Pilot Flight Operations III	3
	AS 201	Meteorology I	3
	SS 220	Introduction to Psychology	3
	PS 104	Technical Physics II	3
		Open Elective	3
			15
FOURTH	FA 300	Commercial Pilot Flight Operations IV	2
	AS 254	Aviation Regulation	3
	AS 260	Principles of All-Weather Navigation	3
	AS 309	Basic Aerodynamics	3
	HU 219	Speech	3
	MS 201	Principles of Management	3
			17
FIFTH	FA 417	Flight Training Methods and Curriculum Analysis OR	
	AS 340	Instructional Design in Aviation	3
	AS 310	Aircraft Performance	3
	AS 311	Aircraft Engines — Turbine	3
	AS 352	Meteorology II	3
		Open Electives	3
			15
SIXTH	AS 355	Global Navigation	
	AS 356	Aircraft Systems and Components	3
	AS 357	Flight Physiology	3
	AS 420	Flight Technique Analysis	3
	HU 221	Technical Report Writing	3
			15

SEVENTH	FA 419	Airline Transport Pilot Proficiency Development	2
	AS 410	Air Carrier Operations	3
	AS 452	Electronic Navigation and Flight Control Systems	3
	AS 411	Jet Transport Systems	3
	EC 200	An Economic Survey	3
	HU/SS	Elective (300-400 Level)	3
			17
EIGHTH	FA 420	Airline Flight Crew Techniques and Procedures	2
	AS 320	Commuter Aviation	3
	AS 408	Flight Safety	3
		Open Electives	6
			14
		TOTAL CREDITS	123

Students enrolled in the Army or Air Force ROTC program may substitute MY or AF courses for the stated open elective courses.

Cooperative education credits may be used as open electives.

Corporate Pilot Area of Concentration

SEMESTER	COURSE	NUMBER/TITLE	CREDITS
FIRST	FA 110	Commercial Pilot Flight Operations I	6
	HU 122	English Composition and Literature I	3
	MA 111	College Mathematics for Aviation I	3
	CS 109	Introduction to Computer Programming w/BASIC OR	
	CS 210	Scientific Programming	3
			15
SECOND	FA 200	Commercial Pilot Flight Operations II	3
	AS 240	Principles of Navigation	3
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	MA 112	College Mathematics for Aviation II	3
	PS 103	Technical Physics I	3
			15
THIRD	FA 250	Commercial Pilot Flight Operations III	3
	AS 201	Meteorology I	3
	SS 220	Introduction to Psychology	3
	PS 104	Technical Physics II	3
		Open Elective	3
			15

FOURTH	FA 300	Commercial Pilot Flight Operations	2
	AS 254	Aviation Regulation	3
	AS 260	Principles of All-Weather Navigation	3
	AS 309	Basic Aerodynamics	3
	HU 219	Speech	3
	MS 201	Principles of Management	3
			17
FIFTH	AS 305	Aircraft Engines — Reciprocating	3
	AS 310	Aircraft Performance	3
	AS 311	Aircraft Engines — Turbine	3
	AS 357	Flight Physiology	3
	EC 200	An Economy Survey	3
			15
SIXTH	FA 417	Flight Training Methods and Curriculum Analysis OR	
	AS 340	Instructional Design in Aviation	3
	AS 352	Meteorology II	3
	AS 355	Global Navigation	3
	AS 420	Flight Technique Analysis	3
	HU 221	Technical Report Writing	3
		Open Elective	3
			18
SEVENTH	FA 419	Airline Transport Pilot Proficiency Development	2
	AS 356	Aircraft Systems and Components	3
	AS 452	Electronic Navigation and Flight Control Systems	3
	MS 210	Financial Accounting I	3
	HU/SS	Elective (300-400 Level)	3
			14
EIGHTH	FA 453	High Performance Aircraft Flight Crew Techniques and Procedures	2
	AS 408	Flight Safety	3
	AS 412	Corporate/Business Aviation	3
		Open Electives	6
			14
		TOTAL CREDITS	123

Students enrolled in the Army or Air Force ROTC program may substitute MY or AF courses for the stated open elective courses.

Cooperative education credits may be used as open electives.

Aviation Studies Area of Concentration

Flexible upper level study maintains the integrity of the core program while allowing students with career interests not directed at the airlines or corporate aviation to select an area of study more applicable to their particular needs.

SEMESTER	COURSE	NUMBER/TITLE	CREDITS
FIRST	FA 110	Commercial Pilot Flight Operations I	6
	HU 122	English Composition and Literature I	3
	MA 111	College Mathematics for Aviation I	3
	CS 109	Introduction to Computer Programming w/BASIC OR	
	CS 210	Scientific Programming	3
			15
SECOND	FA 200	Commercial Pilot Flight Operations II	3
	AS 240	Principles of Navigation	3
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	MA 112	College Mathematics for Aviation II	3
	PS 103	Technical Physics I	3
			15
THIRD	FA 250	Commercial Pilot Flight Operations III	3
	AS 201	Meteorology I	3
	SS 220	Introduction to Psychology	3
	PS 104	Technical Physics II	3
		Open Elective	3
			15
FOURTH	FA 300	Commercial Pilot Flight Operations IV	2
	AS 254	Aviation Regulation	3
	AS 260	Principles of All-Weather Navigation	3
	AS 309	Basic Aerodynamics	3
	HU 219	Speech	3
	MS 201	Principles of Management	3
			17
FIFTH	AS 310	Aircraft Performance	3
	AS 352	Meteorology II	3
	AS 357	Flight Physiology	3
	EC 200	An Economic Survey	3
	HU 221	Technical Report Writing	3
			15
SIXTH	AS 311	Aircraft Engines-Turbine	3
	AS 355	Global Navigation	3
	AS 356	Aircraft Systems and Components	3
		Open Electives	6
			15
SEVENTH	AS 408	Flight Safety	3
	AS 420	Flight Technique Analysis	3
	AS 452	Electronic Navigation and Flight Control Systems	3
	HU/SS	Elective (300-400 Level)	3
		Open Elective	3
			15

EIGHTH

Required courses necessary to complete at least one minor and open electives sufficient to meet the requirement of 40 credits in upper division courses.	15
TOTAL CREDITS	122

Students enrolled in the Army or Air Force ROTC program may substitute MY or AF courses for the stated open elective courses.

Cooperative education credits may be used as open electives.

AIRWAY SCIENCE PROGRAM OPTION

Those students who seek to be recognized as a graduate from an FAA approved Airway Science Program in Aircraft Systems Management must satisfy all requirements for a degree in Aeronautical Science by completing all required aeronautical science general education, aeronautical science core, and airway science program option courses. The Airway Science-Aircraft Systems Management program can be completed with a minimum of 125 total hours.

The following courses are required by the airway science option:

COURSE	NUMBER/TITLE	CREDITS
AS 305	Aircraft Engines — Reciprocating	3
AS 401	Airport Development and Operations	3
AS 410	Air Carrier Operations	3
AV 301	Avionics for Aviators	3
CS 115	Computer Programming	3
CS 220	Digital Logic and Computer Operations	3
FA 417	Flight Training Methods and Curriculum Analysis	3
HU/SS	Upper-level Elective	3
MA 222	Business Statistics	3
MS 317	Organizational Behavior	3
		30
	Total Credits:	125

Airway Science Associate

DEGREE REQUIREMENTS

The Associate Degree in Airway Science is intended for those pursuing aviation careers where full professional pilot preparation and a baccalaureate degree are not necessary. Normally, the required 65 credit hours can be completed in four semesters. This program includes qualification for the FAA commercial pilot certificate with an instrument-airplane rating and the flight instructor certificate with airplane single engine and instrument airplane ratings.

SEMESTER	COURSE NUMBER	TITLE	CREDITS
FIRST	FA 110	Commercial Pilot Flight Operations I	6
	HU 122	English Composition and Literature I	3
	MA 111	College Mathematics for Aviation I	3
	CS 109	Introduction to Computer Programming w/BASIC OR	
	CS 210	Scientific Programming	3
			15
SECOND	FA 200	Commercial Pilot Flight Operations II	3
	AS 240	Principles of Navigation	3
	HU 123	English Composition and Literature II OR	
	HU 140	Humanities and Western Culture OR	
	HU 141	Studies in the Humanities	3
	MA 112	College Mathematics for Aviation II	3
	PS 103	Technical Physics I	3
			15
THIRD	FA 250	Commercial Pilot Flight Operations III	3
	AS 201	Meteorology I	3
	HU 219	Speech	3
	SS 220	Introduction to Psychology	3
	PS 104	Technical Physics II	3
	HU/SS	Elective	3
			18
FOURTH	FA 300	Commercial Pilot Flight Operations IV	2
	FA 417	Flight Training Methods and Curriculum Analysis	3
	AS 254	Aviation Regulation	3
	AS 260	Principles of All-Weather Navigation	3
	AS 309	Basic Aerodynamics	3
	AS 340	Instructional Design in Aviation	3
			17
		TOTAL CREDITS	65

Aircraft Dispatcher Certification Program

INTRODUCTION

For the student interested in airline flight operations management, Embry-Riddle offers a program of instruction designed to prepare the student for Aircraft Dispatcher Certification testing. The FAA awards the Aircraft Dispatcher Airman Certificate to graduates of the approved program upon the successful completion of a standardized written examination and a practical test.

Licensed dispatchers are employed by all non-commuter airlines to manage the ground-based tasks vital to the successful execution of an airline flight. Dispatchers share responsibility with the captain for preflight planning and preparation of the dispatch release, and they are included in the decision loop involving equipment failures, weather variations, or traffic delays for monitoring the progress of the flight, issuing safety-of-flight

information to the crew, and canceling or redispatching the flight, if they or the captain deem it necessary.

To carry out these tasks properly, dispatchers must be knowledgeable in aircraft performance capabilities, meteorology, operating regulations, air traffic control, and instrument flight procedures. Furthermore, they must be able to make sound judgements incorporating company economic and scheduling considerations.

Certification Requirements

The Aircraft Dispatcher Certification Program is available only at the Daytona Beach Campus. Dispatcher preparation is predicated upon the successful completion of the following Aeronautical Science courses and the applicable prerequisites.

COURSE		CREDITS
AS 201	Meteorology I	3
AS 240	Principles of Navigation	3
AS 260	Principles of All-Weather Navigation	3
AS 310	Aircraft Performance	3
AS 352	Meteorology II	3
AT 363	ATC in the National Aerospace Systems	3
*AS 410	Air Carrier Operations	3
		21

*AS 410 serves as the capstone course to the Dispatcher Program.

In order to receive credit for any of the courses listed above toward the Aircraft Dispatcher Certification Program the student must sign up in each required course, maintain a record of 100 percent attendance throughout each course and obtain a grade of at least 70 percent.

Additional information may be obtained by contacting the Aeronautical Science Department.

Professional Aeronautics

Bachelor of Science
Associate in Science

INTRODUCTION

The Professional Aeronautics degree program was conceived and developed especially for people who have already established and progressed in an aviation career. The curriculum is designed to build upon the knowledge and skills acquired through training and experience in one of the many aviation occupations. The combination of aviation experience and required and elective courses in aeronautical science, management, computer science, economics, communications, humanities, social science, mathematics, and physical science prepares graduates for career growth and increased responsibility.

SPECIAL ADMISSION REQUIREMENTS

Admission to the Professional Aeronautics program is reserved for persons who are able to document achievement of a verifiable level of competence in an aviation occupation.

AVIATION OCCUPATIONS

Many aviation occupations have been identified and determined to be eligible for admissions to Professional Aeronautics. The major categories of eligible aviation occupations include aircraft crew members, air traffic control, aviation maintenance and manufacturing, avionics and electronics, ground support services, safety, training, and weather.

AERONAUTICAL TECHNOLOGY CREDIT

Persons who qualify for admission to, and matriculate in Professional Aeronautics are eligible for advanced standing credit, labeled aeronautical technology credit. Training and experience in closely related occupations may be combined. The number of aeronautical technology credits granted is determined by an evaluation of professional credentials and qualifications which may include: Federal Aviation Administration certificates; completion of formal technical schools; level of responsibility attained; and evidence of knowledge acquired and level of competence achieved in the aviation occupation.

The maximum amount of aeronautical technology credit granted for prior aviation learning is 36 semester hours.

Aeronautical technology credits are applicable only in Professional Aeronautics and are not transferable to any other ERAU degree program. The credit granted encompasses the prior aviation learning acquired from all training and experience related to the occupational field which established the student's eligibility for Professional Aeronautics. Other University advanced standing policies are not applicable to the prior aviation learning used to qualify for Professional Aeronautics.

Duplicate Credit

Many ERAU courses are designed to teach the same skills and knowledge which Professional Aeronautics students have acquired through experience and training. Students who complete courses in the same aviation specialty for which they were granted aeronautical technology credit would be duplicating coverage of the subject matter. Credit for completion of such courses will not be applied to degree requirements.

Evidence of Prior Aviation Learning

Just as official transcripts are required to transfer credit from one university to another, original documentation of professional training and experience must be presented to qualify for admission to Professional Aeronautics and the award of aeronautical technology credit. The documentation must be from objective, third-party sources and clearly describe the

applicant's professional training, duties, responsibilities, and achievements in detail.

DEGREE REQUIREMENTS

Bachelor of Science in Professional Aeronautics

The Bachelor of Science degree requires 126 credit hours including the aeronautical technology credit granted for professional aviation training and experience. Using each student's aviation specialty as the foundation, the curriculum adds required courses in communications, computer science, humanities, mathematics, and physical sciences to provide the essential, basic academic education found in every Embry-Riddle degree program. The remaining component of the curriculum features an opportunity for students to select courses which fit the career path they have planned.

Associate in Science in Professional Aeronautics

The Associate in Science in Professional Aeronautics requires a minimum of 63 credit hours including the aeronautical technology credit granted for prior learning from professional aviation training and experience.

Students with aviation maintenance backgrounds who wish to take the six Type 65 Aviation Maintenance Technology courses totaling 21 credits may adjust the Associate in Science curriculum in the following manner:

1. Delete the curriculum requirement for AS 405.
2. Use AMT 271 and AMT 281 as specified electives.
3. Use AMT 240, AMT 260, AMT 270, and AMT 280 as open electives.

These adjustments apply only to the Associate in Science and are not transferable to the Bachelor of Science in Professional Aeronautics curriculum. All of the credits completed using the adjustments and applied to the requirements of the Associate in Science may not fit within the minimum credits required for the Bachelor of Science.

The Type 65 courses are for those who do not possess the FAA Airframe and/or Powerplant certificate. Students who possess the Airframe OR Powerplant certificate may take the Type 65 courses which pertain to the certificate they do not possess.

The adjusted curriculum requires 75 credit hours to complete the Associate in Science.

PROFESSIONAL AERONAUTICS CURRICULUM

The curriculum to be followed by each student depends upon the amount of aeronautical technology credit granted and whether the objective is the Associate or Bachelors' degree. The column of numbers on the left specifies the requirements for the Bachelor of Science.

CURRICULUM	A.S.	B.S.
AERONAUTICAL TECHNOLOGY CREDIT (Maximum)	18	36
AERONAUTICAL SCIENCE		
AS 254 Aviation Regulation	3	3
AS 405 Aviation Law	3	3
HUMANITIES/SOCIAL SCIENCES		
HU 122 English Composition and Literature I	3	3
HU 123 English Composition and Literature II OR	3	3
HU 140 Humanities and Western Culture OR		
HU 141 Studies in the Humanities		
HU 219 Speech	3	3
HU 221 Technical Report Writing	3	3
HU/SS Electives	3	3
HU/SS Electives (300-400 level)		3
COMPUTER SCIENCE/MATHEMATICS		
CS 109 Introduction to Computer Programming w/BASIC OR		
CS 105 Introduction to Computers in Aviation	3	3
MA 111 College Math for Aviation I	3	3
*MA 112 College Mathematics for Aviation II OR		
MA 320 Decision Mathematics	3	3
MA 211 Statistics with Aviation Applications OR		
MA 222 Business Statistics		3
PHYSICAL SCIENCES		
Physical science, chemistry, physics, earth science, astronomy, geology, biology, zoology or physiology courses.	3	6
ECONOMICS/MANAGEMENT		
EC 211 Macroeconomics		3
**EC 210 Microeconomics	3	3
MS 201 Principles of Management	3	3
MS 210 Financial Accounting I		3
SPECIFIED ELECTIVES: (select from list)	3	21
OPEN ELECTIVES (any discipline)	3	15
TOTAL	63	126

SPECIFIED ELECTIVES:

AS 305, AS 320, AS 357, AS 401, AS 409, AS 412

***AS 309, AS 310, AS 311, AS 352, AS 410

****AMT 271, AMT 381

AT 363

EC 310, EC 420

MS 308, MS 311, MS 312, MS 314, MS 317, MS 320, MS 322, MS 331, MS 332, MS 335, MS 401, MS 405, MS 408, MS 410, MS 412, MS 415, MS 419, MS 420, MS 421, MS 425, MS 431, MS 433, SF 335, SF 435, SF 320, SF 330, SF 445, SF 350

*Either MA 112 or MA 211 satisfies the requirements of the Associate degree curriculum.

**Either EC 210 or EC 211 satisfies the requirements of the Associate degree curriculum.

***Prerequisite PS 104

****These courses are lower-level and do not count toward the 40 upper-level credit graduation requirement. They may be taken only if the upper-level requirement will be satisfied by the other courses completed.

Dependent upon the amount of upper level Aeronautical Technology granted, some of the open or humanities/social science electives in the B.S. degree may have to be taken in 300-400 level courses in order to satisfy the requirement of 40 credits of upper level courses.

Cooperative Education credits may be used as open electives; however, assignments may not be in the student's occupational specialty.

MINOR FIELDS OF STUDY

Minors are available through several academic departments. A minor consists of 15-21 semester hours of courses which provide a coherent sequence of study that includes both lower and upper division courses. Where specific courses are listed, these courses must be taken for award of the minor. **Course substitutions are not authorized.** Students desiring to designate minors should consult with their degree program chair. All minors are not available at all College of Continuing Education locations.

MINOR IN AIRLINE MANAGEMENT

Students may earn a Minor in Airline Management by successfully completing the following:

COURSE		CREDITS
AS 320	Commuter Aviation	3
EC 420	Economics of Air Transportation	3
MS 410	Management of Air Cargo	3
MS 415	Airline Management Specified Electives	6
Total credits required		18

SPECIFIED ELECTIVES
MS 331, MS 322, MS 335, MS 405, AS 320, AS 405, AS 410

Not open to Aviation Business Administration and Aviation Maintenance Management students.

MINOR IN AIRPORT MANAGEMENT

Students may earn a Minor in Airport Management by successfully completing the following:

COURSE		CREDITS
MS 308	Public Administration	3
MS 408	Airport Management	3
MS 412	Airport Planning and Design	3
MS 428	Airport Finance	3
	Specified Electives	6
Total credits required		18

SPECIFIED ELECTIVES
EC 420, MS 322, MS 405, MS 410, MS 415, AS 320, AS 401, AS 405

Not open to Aviation Business Administration and Aviation Maintenance Management students.

MINOR IN AIR TRAFFIC CONTROL

The ATC minor, in addition to providing the knowledge base needed for certification as an Air Traffic Control Specialist (ATCS) with the Federal Aviation Administration (FAA), also provides actual entry-level ATC skills training that would add to the graduate's qualifications for obtaining a position in many other aviation industries and businesses.

There are four required ATC courses in the Minor. Each course is taken in sequence and the delivery system combines traditional lecture with individualized instruction, self-paced learning, and independent study. The majority of scheduled class time for the ATC Minor will be in the new ATC computer laboratory. The facility accommodates both part-task training and group simulation activities.

Computer-Based Instruction (CBI) is used to augment classroom delivery and other learning experiences to provide the student with an opportunity to actually experience the work of an air traffic controller prior to making any career commitments.

COURSE		CREDITS
AS 201	Meteorology I	3
AT 363	ATC in the National Airspace System	3
AT 365	ATC Operations and Procedures	3
AT 462	Terminal/Enroute ATC with Laboratory	3
AT 464	Advanced Air Traffic Control Operations	3
One of the following is required:		
AS 120	Principles of Aeronautical Science OR	3
FA 110	Commercial Flight Operations I OR	6
	FAA Private Pilot Certificate	3
Total Credits Required		18-21

MINOR IN AIR TRANSPORTATION ECONOMICS

Students may earn a Minor in Air Transportation Economics by successfully completing the following:

COURSE		CREDITS
EC 210	Microeconomics	3
EC 211	Macroeconomics OR	
EC 200	An Economic Survey	3
EC 315	Managerial Economics	3
EC 420	Economics of Air Transportation	3
	Specified Electives	6
Total credits required		18

SPECIFIED ELECTIVES

EC 310, MS 331, MS 322, MS 405, MS 410, MS 415, AS 320, AS 405, AS 410

MINOR IN AVIATION BUSINESS ADMINISTRATION

Students may earn a Minor in Aviation Business Administration by successfully completing the following:

COURSE		CREDITS
MS 120	Introduction to Computer Based Systems	3
MS 210	Financial Accounting I	3
MS 311	Marketing	3
MS 314	Human Resources Management OR	
MS 317	Organizational Behavior	3
	Specified Electives	6
Total credits required		18

SPECIFIED ELECTIVES
EC 420, MS 332, MS 405, MS 408, MS 410, MS 412, MS 415, AS 401, AS 320, AS 412

Not open to Aviation Business Administration and Aviation Maintenance Management students.

MINOR IN AVIATION SAFETY

Students may earn a Minor in Aviation Safety by successfully completing the following:

COURSE		CREDITS
SF 210	Introduction to Aerospace Safety	3
SF 320	Human Factors in Aviation Safety	3

Nine additional credit hours must be completed from the following:

COURSE		CREDITS
SF 330	Aircraft Accident Investigation	3
SF 335	Mechanical and Structural Factors of Aviation Safety	3
SF 345	Aviation Safety Program Management	3
SF 350	Aircraft Crash and Emergency Management	3
SF 435	Aircraft Crash Survival Analysis and Design	3
SF 445	System Safety in Aviation	3
SF 499	Selected Topic in Aerospace Safety	3
Total Credits Required:		15

NOTE: Aeronautical Science students in the safety minor who complete SF 210/320 and one other upper level SF course will not be required to take AS 408. Students selecting this option will be required to take one additional upper level 3 credit hour elective from AS/AT/FA/SF/SP courses to replace AS 408.

MINOR IN AVIATION WEATHER

Students may earn a Minor in Aviation Weather by successfully completing the following:

COURSE		CREDITS
AS 201	Meteorology I	3
AS 352	Meteorology II	3
AS 363	The Thunderstorm and Its Environment	3
AS 364	Weather Information Available to Aircrews	3
AS 261	Aviation Climates of the World	3
Total Credits Required:		15

MAS 517 Advanced Meteorology may be included with prior permission of the department chair.

MINOR IN COMPUTER APPLICATIONS

Designed to provide a utilitarian knowledge of desktop computers and Local Area Networks (LAN). Students completing this minor will be able to function as the "Computer Specialist" within their domain of expertise. Open to all majors. Requires 18 credit hours of computer courses. Prerequisite knowledge to start this program is at the level of CS 109 or CS 210. The goal of the Minor in Computer Applications is to provide students with a working knowledge of:

- Computer Applications
- Window Based Systems
- Computer Hardware
- Computer Programming
- Local Area Networks
- Analysis of Computer Based Systems

COURSE		CREDITS
CS 117	Computer Based Systems	3
CS 118	Fundamentals of Computer Programming	3
CS 206	End User Computing Analysis	3
CS 207	Network Based Computing	3
CS 308	Practicum	3
Specified Electives		3
		18

Specified Electives are chosen from the following list.

CS 107	Operating Systems and Windows	1
CS 108	Word Processing	1
CS 111	Spreadsheet	1
CS 112	Database	1
CS 113	Desktop Publishing	1
CS 114	Business Graphics	1
CS 116	Recent Trends in Application Software	1

MINOR IN COMPUTER SCIENCE

Students may earn a Minor in Computer Science by successfully completing the following:

COURSE		CREDITS
CS 115	Computer Programming I	3
CS 215	Computer Programming II	3
CS 315	Data Structures	3
CS 317	Files and Database Systems	3
CS 230	Organization of Programming Languages OR	
CS	Elective (300-400 Level)	3
Total credits required		15

MINOR IN HUMANITIES

Students may earn a Minor in Humanities by successfully completing two courses from the following for a total of 6 credits:

COURSE		CREDITS
HU 123	English Composition and Literature II	3
HU 140	Humanities and Western Culture	3
HU 141	Studies in the Humanities	3
		6

One or more courses from each of the following lists for a total of 12 credits.

Narrative

COURSE		CREDITS
HU 300	World Literature	3
HU 305	Modern Literature	3
HU 310	American Literature	3
HU 325	Exploring Film	3

Speculative

COURSE		CREDITS
HU 330	Values and Ethics	3
HU 335	Technology and Modern Civilization	3
HU 341	World Philosophy	3

Religion and Fine Arts

COURSE		CREDITS
HU 320	Aesthetics of Visual and Musical Arts	3
HU 345	Religions of Mankind	3
HU 355	Creative Writing	3
		12
Total credits required		18

HU 399/HU499 Special Topics in Humanities may be included with prior permission of the department chair.

MINOR IN INTERNATIONAL AIR TRANSPORTATION MANAGEMENT

Students may earn a Minor in International Air Transportation Management by successfully completing the following:

COURSE		CREDITS
MS 335	International Business	3
MS 415	Airline Management	3
MS 426	International Aviation Management	3
MS 427	Management of the Multicultural Workforce	3
	Specified Electives	6
Total credits required		18

SPECIFIED ELECTIVES
EC 420, MS 331, MS 322, MS 405, MS 410, AS 405, AS 410, SS 325

Not open to Aviation Business Administration and Aviation Maintenance Management students.

MINOR IN MATHEMATICS

Students may earn a Minor in Mathematics by completing the following:

COURSE	CREDITS
MA 241	4
MA 242	4
MA 243	4
MA 245 or MA 345	3/4
MA electives (400/500 level)	6/5
Total credits required	21

MINOR IN PSYCHOLOGY

Students may earn a Minor in Psychology by completing the following

COURSE		CREDIT
SS 220	Introduction to Psychology	
	Plus 12 additional credits in psychology chosen from	3

COURSE		CREDITS
MS 317	Organizational Behavior	3
SS 310	Personality Development	3
SS 335	Human Factors	3
SS 350	Psychology of Relationships	3
SS 398	Applied Social Psychology	3
		12
Total credits required		15

Three credits of SS 399 Special Topics in Psychology may be included with prior permission of the department chair.

MINOR IN SECONDARY EDUCATION

Students may earn a minor in secondary education through a collaborative agreement between ERAU and the University of Central Florida (UCF) by completing the following courses at UCF:

UCF COURSES	HOURS
Sociological Foundations	4
EDG 4321 Teaching Strategies	
Psychological Foundations	3
EDF 4214 Classroom Learning Principles	
General Methods (two courses)	6
EDF 3603 Analysis of Educational Foundations	
ED 4324 Teaching in the Schools	
Special Methods (Select One)	4
MAE 4360 Mathematics Instructional Analysis	
SCE 4360 Science Instructional Analysis	
Total credits required	17

MINOR IN SPACE STUDIES

Students may earn a Minor in Space Studies by completing 15 credits from the following list:

Twelve credits selected from:

COURSE	CREDITS
SP 110 Introduction to Space Flight	3
SP 200 Planetary and Space Exploration	3
SP 210 Space Transportation System	3
SP 215 Space Station Systems and Operations	3
SP 220 Life Support Systems	3
SP 300 Introduction to Satellite and Spacecraft Systems	3
SP 400 Introduction to Space Navigation	3
In addition, all students must complete:	
SP 425 Selected Topics in Space and Aerospace	3
Total credits required	15

Course Descriptions

Courses numbered 001-099 are basic skills courses which do not apply against degree requirements. Courses numbered 100-199, 200-299, 300-399 and 400-499 are generally taken in the freshman, sophomore, junior and senior years, respectively. Because of the career orientation of Embry-Riddle's degree programs, this condition will not always apply. The student is cautioned to plan ahead so as to meet necessary prerequisites in a timely manner. Courses numbered 300 and above are upper division courses and reflect the advanced level in the technical skill and/or designated discipline. Course numbers ending in 95 identify special courses offered on a limited time basis such as courses taught by a visiting lecturer; numbers ending in 96 or 97 identify special courses which are sequential; numbers ending in 98 identify courses in which students are collectively given a unique program of learning activities by a supervising instructor, and numbers ending in 99 identify courses involving individual study with a one-to-one relationship between instructor and student.

The figures located in parentheses immediately following the course titles indicate the number of lecture and laboratory hours that the class meets each week during the semester, e.g., (3,3) indicates that the course consists of three hours of lectures and a three hour laboratory weekly.

The course offerings of the University are described below in alphabetical order by course designations:

AE	Aerospace Engineering
AF	Air Force Aerospace Studies
AMT	Aviation Maintenance Technology
AS	Aeronautical Science
AT	Air Traffic Control
AV	Avionics Technology
CE	Cooperative Education
CS	Computer Science
EC	Economics
EE	Electrical Engineering
EL	Electronics Technology
EP	Engineering Physics
ES	Engineering Science
ET	Engineering Technology
FA	Flight Academic
HU	Humanities
MA	Mathematics
MS	Management Science
MY	Military Science
PS	Physical Science
SF	Safety of Flight
SP	Space Studies
SS	Social Science

COREQUISITES AND PREREQUISITES MAY BE WAIVED ONLY BY PERMISSION OF THE RESPONSIBLE DEPARTMENT CHAIR OR ASSOCIATE DEAN OF ACADEMICS FOR THE COLLEGE OF CONTINUING EDUCATION.

Not all courses are taught every semester or at all locations.

AEROSPACE ENGINEERING

A grade of C or better is required in MA 241, MA 242, and either PS 211, PS 212 or PS 215, PS 216 for entry into all AE courses except AE 101.

AE 101 — Introduction to Aerospace Engineering (2,0) **2 Credits**
An overview of aerospace engineering. History; basic physical laws; aerodynamics and flight; stability and control; high speed flight; structures; reciprocating engines; reaction engines. To be taken during the first year. Corequisite: MA 241.

AE 301 — Aerodynamics I (3,0) **3 Credits**
The atmosphere. Incompressible and compressible one-dimensional flow. Airspeed measurement. Two-dimensional potential flow. Circulation theory of lift. Thin airfoil theory. Viscous flow. Boundary layers. Finite wing theory. Drag in incompressible flow. Wing-body interactions. Prerequisites: CS 210, ES 204, ES 206, MA 243. Corequisite: ES 305.

AE 302 — Aerodynamics II (3,0) **3 Credits**
Laminar and turbulent flows, transition point, determination of skin friction drag on an airfoil. Obtaining equations for streamline, for particle path, and for streakline in a flow field. Compressible flow, shock waves, thermodynamics of gas flow. Reversible and irreversible processes. Changes in pressure, density and temperature across shock waves. Isentropic duct flow and flow through a nozzle. Static performance and maneuvers in flight. Propeller theory. Prerequisite: AE 301.

AE 304 — Aircraft Structures I (3,0) **3 Credits**
Space structures. Introduction to fuselage truss analysis and wing structural analysis. Inertia force and load factor computation for various flying and landing conditions. Elasticity and combined stress analysis. Beam bending. Area moment of inertia tensor. Shear flow in thin-walled sections. Materials considerations. Finite-element modelling and computer-aided analysis. Prerequisites: CS 210, ES 202, ES 204.

AE 309 — Experimental Aerodynamics (1,3) **2 Credits**
This laboratory consists of a series of aerodynamic experiments using the wind tunnel, simple and multiple manometer, and a strain gauge force balance. Experiments concerning closed duct flow include diffuser efficiency tests, venturi performance and pitot-static speed calibration. Pressure measuring experiments consist of boundary layer velocity profiles, airfoil pressure coefficients, and momentum drag. Tests using the force balance include plain and flapped wing performance and complete airplane model tests. Prerequisites: CS 210, HU 221. Corequisite: AE 301.

AE 350 — Project Engineering (3,0) **3 Credits**
Role of the engineer in project management with emphasis on systematic evaluation of the benefits and costs of projects involving engineering

design and analysis. Proposal preparation and presentation, engineering contracts, negotiation techniques. Value engineering. Prerequisites: MA 345 OR MA 245, HU 219, HU 221.

AE 401 — Advanced Aerodynamics I (3,0) **3 Credits**
An advanced-level presentation of the theory and applications of incompressible aerodynamics. Kinematics and dynamics of fluid flow. Flow about a body. Shock tube flow. Thin airfoil and finite wing theory. Approximation techniques; numerical methods. Introduction to compressible flow. Prerequisites: AE 302, MA 441.

AE 404 — Aircraft Structures II (3,0) **3 Credits**
Deflection analysis of structural systems by means of virtual work principles and their energy counterparts. The Rayleigh-Ritz method. Redundant truss, frame and stiffened web structures. Thermal loads. Shear lag. Load transfer at fuselage frames and wing ribs. Cutouts in wing and fuselage members. Shear flow in multicell wing structures. Buckling considerations. Prerequisite: AE 304.

AE 407 — Matrix Structural Methods (3,0) **3 Credits**
Linear algebra. Energy methods for elastic media. Rod, beam and shear panel elements. Matrix formulation and solution procedures for structural analysis. Substructures. Free vibration. Prerequisite: AE 404.

AE 408 — Turbine and Rocket Engines (3,0) **3 Credits**
A study of the gas turbine and rocket engines. Topics include control volumes, the conservation equations, combustion processes, efficiencies, fuel consumption, nozzle flow, diffusers, ideal and real ramjets and gas turbine engines, performance of rocket vehicles, and solid and liquid propellant rocket motors. Prerequisite: AE 302.

AE 409 — Aircraft Composite Structures (3,0) **3 Credits**
Introduction to reinforced plastic composite structural materials and their use in modern aircraft. Discussion of basic material properties, testing procedures, design and analysis using classical lamination theory, and fabrication techniques, including some hands-on demonstrations. Prerequisites: ES 202, ES 307.

AE 411 — Advanced Experimental Aerodynamics (2,3) **3 Credits**
This course is a technical elective and consists of a series of advanced experiments using the wind tunnel. Model design and construction, testing procedure, control surface testing, propeller testing, use of wind tunnel data, scale effects, complete model testing. Includes introduction to supersonic testing. Prerequisite: AE 309.

AE 413 — Airplane Stability and Control (3,0) **3 Credits**
Development of longitudinal, lateral and directional stability and control equations. Control surface design. Control effectiveness and size requirements. Dynamic control theory. Handling characteristics and maneuvering stability of aircraft. Prerequisites: MA 345, CS 210. Corequisite: AE 302.

AE 415 — In-Flight Laboratory (3,1.5) **3 Credits**
Development of longitudinal and lateral-directional, static and dynamic stability and excess power, rate of climb, turn rate, and load factor performance theory, with laboratory concept validations. Prerequisite: AE 413.

AE 420 — Aircraft Preliminary Design (2,4) **3 Credits**
Airplane conceptual design principles are developed to meet modern aerodynamic, propulsion, structural and performance specifications. A complete airplane is designed, resulting in a design package consisting of specifications, aerodynamic calculations, inboard profile drawing, weight and balance, general arrangement drawing, aerodynamic drag analysis and complete performance report. Prerequisites: AE 413, ET 110.

AE 421 — Aircraft Detail Design (2,4) **3 Credits**
Principles of aircraft detail and component part design, manufacture and production are covered along with projects to give actual experience in the design of aircraft components. Carries the design of an airplane from the general layout to the design of its detail parts and the design of necessary tools. Prerequisites: AE 404, AE 420.

AE 425 — Aircraft Acoustics and Noise Control (3,0) **3 Credits**
Sound wave characteristics, levels and directivity. Hearing and psychological effects of noise. Noise control criteria and regulations. Instrumentation. Noise sources. Acoustics of walls, barriers and enclosures. Acoustical materials and structures. Noise characteristics of jet and propeller aircraft, including helicopters. Prerequisite: AE 301.

AE 430 — Control Systems Analysis and Design (3,0) **3 Credits**
Modeling, analysis, and control of dynamical systems with aerospace applications. Transfer functions, block diagram algebra. RouthHurwitz stability criteria. Introduction to system design using root locus, Bode and Nyquist diagrams. Prerequisites: ES 402, MA 441.

AE 433 — Aerodynamics of the Helicopter (3,0) **3 Credits**
The development of rotating-wing aircraft and the helicopter. Hovering theory and vertical flight performance analysis. Auto-rotation, physical concepts of blade motion and control, aerodynamics and performance of forward flight. Blade stall, stability and vibration problems. Design problems. Prerequisites: AE 302, MA 441.

AE 299, 399, 499 — Special Topics in Aerospace Engineering **1-5 Credits**
Individual independent or directed studies of selected topics in aerospace engineering. Prerequisite: Consent of instructor and the department chair. May be repeated with a change of content.

AIR FORCE AEROSPACE STUDIES

AF 101 — U.S. Military Forces
(General Military Course) (1,0) **1 Credit**
A survey course which briefly treats topics relating to the Air Force and defense. It focuses on the organizational structure and missions of the Air Force organizations; officership and professionalism; and includes an introduction to communicative skills. Corequisite: AF101L.

AF 101L, 102L, 201L, 202L — Leadership Laboratory (0,2) 0 Credit
Two hours per week. Consists of Air Force customs and courtesies, health and physical fitness, field training orientation, and drill and ceremonies. May be taken without lecture course dependent on departmental approval. These courses are graded Pass/Fail.

AF 102 — U.S. Military Forces
(General Military Course) (1,0) **1 Credit**
Continuation of AF 101. Corequisite AF 102L.

AF 201 — The Development of Air Power
(General Military Course) (1,0) **1 Credit**
Focuses on factors contributing to the development of air power from its earliest beginnings through two world wars; the evolution of air power concepts and doctrine; and an assessment of communicative skills. Corequisite AF 201L.

AF 202 — The Development of Air Power
(General Military Course) (1,0) **1 Credit**
Continuation of AF 201. Corequisite AF 202L.

AF 301 — Air Force Leadership and Management
(Professional Officers Course) (3,0) **3 Credits**
A study of leadership and management fundamentals, professional knowledge, leadership ethics, aerospace doctrine and communicative skills required of an Air Force officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical applications of the concepts being studied. Corequisite AF 301L.

AF 301L, AF302L — Leadership Laboratory (0,2) **0 Credit**
Mandatory. Provides advanced leadership experience in officer-type activities, giving students the opportunity to apply leadership and management principles. Prerequisites: Completion of the GMC or Two-year Program selection and/or approval of the PAS. These courses are graded Pass/Fail.

AF 302 — Air Force Leadership and Management
(Professional Officers Course) (3,0) **3 Credits**
Continuation of AF 301. Corequisite AF 302L.

AF 401 — National Security Forces in Contemporary American Society (Professional Officers Course) (3,0) 3 Credits
An examination of the needs for national security; an analysis of the evolution and formulation of the American defense policy and strategy; joint doctrine; an examination of the methods for managing conflict; an extensive study of alliances and regional security to preserve American interests around the world; an analysis of arms control and the threat of war; and terrorism. Special topics of interest focus on the military as a profession, officership, the military justice system, and transition from civilian to military life. Within this structure, continued emphasis is given to the refinement of communicative skills. Corequisite AF 401L.

AF 401L, AF 402L — Leadership Laboratory (0,2) 0 Credit
Mandatory. Provides advanced leadership experiences in officer-type activities. Prerequisites: Completion of the GMC or Two-year Program selection and/or approval of the PAS. These courses are graded Pass/Fail.

AF 402 — National Security Forces in Contemporary American Society (Professional Officers Course) (3,0) 3 Credits
Continuation of AF 401. Corequisite AF 402L.

AF 403L, 404L — Leadership Laboratory (0,2) 0 Credit
Mandatory. Provides advanced leadership experiences in officer-type activities. Prerequisites: Completion of the POC. These courses are graded Pass/Fail.

AVIATION MAINTENANCE TECHNOLOGY

AMT courses designated as Type 65 are available at College of Continuing Education locations only.

AMT 101 — Applied Science for Aerospace Technicians (10,0) 2 Credits
The fundamentals of mathematics and physical science appropriate to and combined with mechanical drawing necessary for the training of the aviation maintenance technician.

AMT 102 — Aviation Regulations, Records and Documents (10,0) 2 Credits
A presentation of Federal Aviation Regulations pertinent to aircraft maintenance and the associated documents, publications records and weight and balance computations.

AMT 103 — Basic Electricity (10,7.5) **3 Credits**
A study of basic electrical theory and its application to aircraft systems to include inspection and repair of aircraft circuits, and electrical components.

AMT 104 — Aircraft Servicing Procedures (10,0) **2 Credits**
A familiarization course in aircraft servicing. Standard procedures of ground operation, movement, and the safety precautions necessary to aircraft line operations.

AMT 105 — Aviation Material (10,7.5) **3 Credits**
An introduction to the tools, hardware and materials used in aircraft maintenance and repair. This course includes the processes of inspection and testing used in aviation.

AMT 201 — Aircraft Structures and Sheet Metal Fabrication (10,10) **4 Credits**
A study of aircraft structural characteristics and methods of fabrication with an emphasis on aluminum sheet metal applications. Explains metalworking processes and develops the techniques necessary for airworthy manufacture. Prerequisite: AMT 105.

AMT 202 — Non-Metallic Structures (7.5,7.5) **3 Credits**
A course of study encompassing the use of composites, plastics, wood, and fabric covering, in structural applications on aircraft. Fabrication, repairs, finishing and safety practices, relating to these materials, will be discussed and practiced. Included will be the application of dope and plastic resin, and vacuum bagging of composite parts.

AMT 203 — Aircraft Instruments and Communication/ Navigation System (8,2) **2 Credits**
This course familiarizes the student with the aircraft instruments and their functions; communication and navigation equipment, including removal and installation procedures.

AMT 204 — Aircraft Welding, Assembly and Rigging (7.5,7.5) **3 Credits**
The theory and practice of welding methods used in aircraft construction is thoroughly covered with emphasis on gas welding and advanced work in heli-arc welding. Airframe assembling operation is explained and demonstrated as well as control and rigging adjustments.

AMT 205 — Aircraft Electrical Systems (10,12.5) **4 Credits**
The types and characteristics of aircraft electrical circuits and components are compared and evaluated. Advanced electrical systems as used in corporate and airline aircraft are studied. The course includes troubleshooting and repairs of A-C and D-C electrical systems and equipment. Prerequisite: AMT 103.

AMT 206 — Hydraulic and Pneumatic Systems (5,5) 2 Credits
The operation and maintenance of aircraft hydraulic and pneumatic systems are analyzed together with the study of these systems as they are used in corporate and airline type aircraft. The methods of repair and replacement of components are examined as well as ground test and servicing equipment.

AMT 207 — Aircraft Environmental and Fuel Systems (7.5,7.5) 3 Credits
A study of the various types of systems used for cabin atmospheric control in advanced aircraft systems including those found on corporate and airline type aircraft. Heating, cooling, pressurization as well as oxygen supply are included in the study. Additional study is directed towards the various fuel storage and distribution systems used in small and large aircraft. Prerequisite: AMT 104.

AMT 208 — Aircraft Landing Gear Systems (7.5,7.5) 3 Credits
A study of aircraft landing gear structures and operating systems to include the maintenance and repair procedures for retraction systems, shock strut, brakes, wheels, tires and ground steering equipment. Included in the course are the advanced landing gear systems used in narrow and wide body jet airliners. Prerequisite: AMT 104.

AMT 209 — Aircraft Reciprocating Engines (7.5,7.5) 3 Credits
A basic study of the various types of reciprocating engines, engine systems, lubricants, and engine efficiencies. Engine diassembly, inspection, and reassembly procedures are involved.

AMT 210 — Aircraft Powerplant Systems (7,5.5) 3 Credits
A study of the operation of powerplant component systems; fuel metering and distribution, superchargers, heat exchangers, and exhaust manifolds. Inspection and repair processes are applied to operating engine systems.

AMT 211 — Engine Electrical and Ignition Systems (7.5,7.5) 3 Credits
This course consists of the study of various electrical systems used in support of the reciprocating engine to include methods of generating, timing and distributing ignition energy. Included in the course are the testing and overhaul procedures for engine electrical components to include the latest advanced magneto systems. Prerequisite: AMT 103.

AMT 212 — Propellers and Propeller Systems (7.5,7.5) 3 Credits
A study of the theory, operation and control of aircraft propellers and related systems. Includes methods of installation, maintenance and repair of propeller systems.

AMT 213 — Engine Installation and Operation (6.5,6) 2 Credits
A course of study which details the correct methods of installation, inspection and run-up check of powerplants. Includes fuel, oil and electrical

adjustments on operational aircraft engines. Prerequisites: AMT 210 and 211.

AMT 214 — Reciprocating Engine Overhaul (10,10) 4 Credits
This course contains a detailed study supported by the actual overhaul of operational reciprocating engines. Included is a study of the procedures and acceptable techniques used in engine disassembly, inspection, repair and reassembly. Advanced techniques of non-destructive testing are included in this course. Prerequisite: AMT 209.

AMT 215 — Turbine Engines and Turbine Engine Systems (12.5,12.5) 6 Credits
A study of the theory of operation of the turbine engine and the function of the engine components. Overhaul and testing procedures are covered including disassembly, inspection, repair, reassembly and operational tests of engines and accessories.

AMT 240 — General Aeronautics and Applications (3,0) 3 Credits
An introduction to general aeronautics. Includes a study of physical mathematics, weight and balance, FAA Regulations, AN hardware and aircraft servicing. (Type 65.)

AMT 260 — Aircraft Electrical Systems Theory (3,0) 3 Credits
An introduction to aircraft electrical systems. Includes a study of the principles, theories and concepts of basic DC and AC electrical theory, magnetism, batteries, generators, motors, voltage regulators, wiring, circuit protection, and electrical component installations. (Type 65.)

AMT 270 — Airframe Structures and Applications (4,0) 4 Credits
A study of aircraft wood, dope, fabric, sheet metal, welding theory and methods of fabrication. (Type 65.)

AMT 271 — Airframe Systems and Applications (3,0) 3 Credits
A study of airframe hydraulic, pneumatic, environmental, fuel, landing gear and auxiliary systems. (Type 65.)

AMT 275 — Aircraft Maintenance Practicum (0,0) 8 Credits
Enrolled students who have a minimum of 18 months on-the-job experience subsequent to technical training in an approved aircraft maintenance specialty may receive credit for this course after completion of all required Type 65 AMT course work. (This course applies only to the Type 65 AMT Program.)

AMT 280 — Powerplant Theory and Applications (4,0) 4 Credits
An in depth study of the reciprocating engine to include theory, construction, fuel metering, lubrication, exhaust, engine installation and overhaul, and operational maintenance procedures. (Type 65.)

AMT 281 — Aircraft Propulsion Systems and Applications (4,0) **4 Credits**
A comprehensive study of theory, principles of operation, controls and systems for propellers and turbine engines. (Type 65.)

AMT 285 — Advanced Aircraft Maintenance Practicum (0,0) **8 Credits**
Enrolled students who are qualified for the award of AMT 275 credit and have a minimum of 30 months on-the-job experience subsequent to technical training in an approved aircraft maintenance specialty may receive credit for this course after completion of all required Type 65 AMT course work. (This course applies only to the Type 65 AMT Program.)

AERONAUTICAL SCIENCE

AS 120 — Principles of Aeronautical Science (3,0) **3 Credits**
An introductory course in Aeronautical Science designed to provide a broad-based orientation in flight related areas appropriate to all degree programs. Subjects include theory of flight, environmental effects, aviation operations, aircraft structure and capability, elements of air navigation, basic meteorology theory, air traffic control principles and aviation safety and regulation. Available for freshman/sophomore students only.

AS 201 — Meteorology I (3,0) **3 Credits**
A survey of the basic concepts and processes of atmospheric phenomena and their relation to aeronautical conditions. Included is a systematic development of the following: thermal patterns, atmospheric moisture, horizontal and vertical pressure patterns, clouds, atmospheric circulation, local winds, tropical weather, stability, air masses, fronts, fog, icing, thunderstorms, jet streams and turbulence. Weather data studied includes: surface weather observations, surface maps, and constant pressure maps.

AS 240 — Principles of Navigation (3,0) **3 Credits**
An introduction to basic navigation for Aeronautical Science students. The course content includes aircraft instrument and system theory, aircraft performance theory, navigation theory and solution methods, navigation information sources and planning procedures, electronic navigation principles and special problems in air navigation. Prerequisite: FA 110.

AS 254 — Aviation Regulation (3,0) **3 Credits**
A survey of state, federal and international regulation of the aviation industry. Historical and current events, past and present legislation, conventions and treaties will be examined. Emphasis is on the historical and legislative aspects as they correlate to the development and control of aviation.

AS 260 — Principles of All-Weather Navigation (3,0) **3 Credits**
Theoretical relationships applicable to all-weather flight operations, including theoretical aerodynamics, precision flight control principles, all-weather application of electronic navigation systems, all-weather navigation and operations in extreme environments. Prerequisite: AS 240.

AS 261 — Aviation Climates of the World (3,0) **3 Credits**
A survey course of the varied climates of the world and the weather systems that contribute to the climates. Included is a historical perspective on the development of climates as they exist today and the atmospheric dynamics that led to the development. The course will expand upon basic concepts and atmospheric processes as they exist on a global basis. Aviation procedures and operations dictated by the various climates will be discussed as each phase is covered. Prerequisite: AS 201.

AS 305 — Aircraft Engines — Reciprocating (3,0) **3 Credits**
Mechanical relationships, components, construction, power calculations, carburetion, induction, fuel-air requirements, and federal regulations. Prerequisite: PS 103.

AS 309 — Basic Aerodynamics (3,0) **3 Credits**
Incompressible flow Airfoil theory, wing theory. Calculation of stall speed, drag and basic performance criteria. Configuration changes, high and low speed conditions. Special flight conditions. Introduction to compressible flow. Prerequisite: PS 104.

AS 310 — Aircraft Performance (3,0) **3 Credits**
Aerodynamic performance of aircraft powered by reciprocating, turboprop or jet turbine engines. Stability and control, weight and balance and operating data. Prerequisite: AS 309. Corequisite: AS 311.

AS 311 — Aircraft Engines — Turbine (3,0) **3 Credits**
Thrust factors, gas generators, Mach effects, diffusion, turbofans and turboprops. Prerequisite: PS 104.

AS 320 — Commuter Aviation (3,0) **3 Credits**
The objective of this course is to acquaint the student with the developmental, administrative and operational factors peculiar to commuter aviation, especially since passage of the Airline Deregulation Act of 1978. Relationship with major/national airlines, including the impact of mergers and acquisitions, profiles of passenger and cargo carrying commuters, and analysis of commuter airline successes and failures are treated. Emphasis is placed on the establishment of a new commuter airline which includes market and financial analyses, the company plan, aircraft selection and acquisition, route structure and timetable, marketing strategy and pertinent regulatory requirements. Prerequisite: MS 105 or MS 201.

AS 340 — Instructional Design in Aviation (3,0) **3 Credits**
The application of the method of scientific inquiry to the process of instruction in aviation is presented. This means the systematic design of

instruction, based on knowledge of the learning process, taking into consideration as many factors about the particular situation as possible. Special emphasis will be placed on examining instructional problems and needs in aviation, setting a procedure for solving them, and then evaluating the results.

AS 352 — Meteorology II (3,0) 3 Credits
An expansion of Meteorology I including the following theoretical concepts: hydrostatic instability, baroclinic instability, thermal wind, and kinematic fields. These will be integrated into real time weather analysis of synoptic patterns involving mid-latitude cyclones, frontal systems, and jet streams. The anatomy of severe thunderstorms, particularly as applied to aviation hazards, will be treated in detail through analyses of recent major aircraft accidents. Practical application will be achieved in current weather discussions, which will be given by teams of students. In addition, study of weather radar, solar aspects, and satellite meteorology will be accomplished. Prerequisites: AS 201, PS 104.

AS 355 — Global Navigation (3,0) 3 Credits
Worldwide navigation of high performance transport aircraft to include: aeronautical chart construction, time zones, coordinates, calculation of spherical distance and course; climb, enroute and descent performance of typical transport aircraft, electronic calculator solution of decision point problems, long range flight planning of transport aircraft including electronic computer solutions of most economical altitudes and flight paths, and basic principles of worldwide navigational systems. Prerequisite: AS 260. Corequisite: AS 310.

AS 356 — Aircraft Systems and Components (3,0) 3 Credits
Electrical, environmental, hydraulic, fuel, ignition and lubrication systems including theory of operation and calculations. Prerequisites: PS 104.

AS 357 — Flight Physiology (3,0) 3 Credits
Aeromedical information. Causes, symptoms, prevention and treatment of flight environment disorders. Altitude effects, spatial disorientation, body heat imbalance, visual anomalies and psychological factors are included as they relate to pilot performance and survival effectiveness.

AS 363 — The Thunderstorm and Its Environment (3,0) 3 Credits
The atmospheric conditions which produce severe local storms are investigated using real-time data from the Weather Lab. Thermodynamic charts are used to study the onset of convective activity and to determine the amount of energy released. Satellite and radar imagery are used to trace the progress of thunderstorm outbreaks. The occurrence of icing, turbulence, and lightning are studied. Weather charts and observations are used to re-construct severe weather situations which have caused aircraft accidents. Prerequisite: AS 352.

AS 364 — Weather Information Available to Aircrews (3,0) 3 Credits
Making use of the weather lab, students will collect weather data from around the world. Emphasis will be placed on decoding information contained in the "remarks" section of weather observations and on the differences between North American weather charts and those produced in other parts of the world. Surface charts will be used to make short-range forecasts while prognostic charts will be used to make longer range forecasts. The student will learn to glean important information from radar, satellite and nephanalysis charts. The course will conclude with students presenting a project involving detailed weather planning for an around-the-world flight. Prerequisite: AS 352.

AS 401 — Airport Development and Operations (3,0) 3 Credits
Managerial problems of small and medium size airports and fixed base operations. Federal, state and local obligations. Leases, internal guidelines, community relations. Prerequisite: Junior/Senior Standing.

AS 405 — Aviation Law (3,0) 3 Credits
Chronological development, federal and state regulatory functions, rights and liabilities of pilots and operators. Case histories, liens and security interest in aircraft. International conferences, bilateral and multilateral agreements, criminal statutes. Prerequisite: AS 254.

AS 408 — Flight Safety (3,0) 3 Credits
A capstone course designed to assist the student to develop an attitude and philosophy for accident prevention. The course includes: Ideal and practical, personal and organizational safety procedures and goals; safety philosophies; aircraft accident reports; human factors; principles of accident investigation; accident prevention programs and accident statistics; current events; NTSB special studies. Prerequisites: AS 309, AS 357. Corequisites: FA 250 or Commercial with Instrument.

AS 409 — Aviation Safety (3,0) 3 Credits
Aviation safety for non-flying students. Major problem areas, program evaluation, impact of accidents on industry. Human factors, accident prevention, basic principles of investigation, case surveys of accidents. Not available to Aeronautical Science students.

AS 410 — Air Carrier Operations (3,0) 3 Credits
Air Carrier Operations as related to the flight crew and dispatcher. FAR Part 121, weight and balance, manifests, planning forms, charts and graphs, performance considerations. Prerequisite: AS 310.

AS 411 — Jet Transport Systems (3,0) 3 Credits
This course will be taught by retired or active airline check airmen and will provide the student with detailed knowledge of complete turbojet systems. The aircraft systems to be covered will include Boeing 727, 737, 767, and 747 as well as the Lockhead 1011 and the Douglas MD80 series. Upon the completion of the course the student should sit for the Federal

Aviation Administration flight engineer exam. Prerequisites: Commercial/Instrument Rating, AS 309, AS 310, AS 311, AS 356 or permission of the instructor.

AS 412 — Corporate and Business Aviation (3,0) 3 Credits
Operation of a corporate flight department. Value of management mobility. Aircraft and equipment evaluation, maintenance, flight operations, administration, fiscal considerations.

AS 420 — Flight Technique Analysis (3,0) 3 Credits
Application of aerodynamic principles to the development of optimum pilot techniques and procedures, utilizing theoretical relationships and computer-simulated comparison strategies. Uniform procedures applicable to all airplanes and special procedures for high performance aircraft are analyzed, including an introduction to spacecraft stability and control and principles of flight deck resource management. Prerequisites: AS 310 and Commercial Pilot Certificate with Airplane Single Engine Land and Instrument Airplane ratings.

AS 452 — Electronic Navigation and Flight Control Systems (3,0) 3 Credits
Principles, systems analysis, operation and limitations of advanced electronic navigation, flight director and automatic flight control systems, including Inertial Navigation Systems, Inertial Reference Systems, VLF-OMEGA and NAVSTAR; Automatic Flight Control Systems with auto throttle, autoland, go-around computer, and stability augmentation; and flight directors with mechanical, CRT and head up displays. Prerequisites: AS 310 and AS 355.

AS 299, 399, 499 — Special Topics in Aeronautical Science 1-3 Credits
Individual independent or directed studies of selected topics in general aviation. Prerequisites: Consent of instructor and approval of department and program chairs. May be repeated with a change of subject.

AIR TRAFFIC CONTROL

AT 363 — ATC in the National Airspace System (3,0) 3 Credits
The National Airspace System (NAS) is in a major transitional period in which the equipment and operational practices now in use will soon be replaced by new technology and operational procedures. AT 363 addresses the interaction of the major components (e.g., air traffic control, airspace, navigation systems, communications, trained personnel, etc.) of the NAS with an emphasis on the air traffic control component. Beginning with a brief history of aviation and air traffic control, each component of the system will be studied within the perspective of how the NAS will be changed as a result of the $32 billion NAS modernization. Topic studied in

this course are those used by the Federal Aviation Administration (FAA) for certification in accordance with Federal Air Regulation (FAR) Part 65, Subpart B. The knowledge obtained in this course is relevant to any aviation career. Prerequisites: FA 110 or AS 120 or FAA Private Pilot Certificate.

AT 365 — Air Traffic Control Operations and Procedures (3,0) 3 Credits

This course covers the basic Air Traffic Control (ATC) procedures for Instrument Flight Rules (IFR) in the Enroute and Terminal ATC facilities in the National Airspace System (NAS). Knowledge and skill requirements for air traffic control specialists (ATCS) in the current ATC system are studied in the classroom and practiced in a realistic, performance-based laboratory environment. Duties and responsibilities of the air traffic controller in each of the major ATC facilities — Control Tower, Tracon, Enroute Center, and Flight Service Station — are integrated into an understanding of how the total ATC system works. Classroom delivery is augmented by practical laboratory problems using an air traffic control simulation of terminal radar operations. Prerequisites: AT 363.

AT 462 — Terminal/Enroute Air Traffic Control With Laboratory (2,3) 3 Credits

This course integrates the knowledge of air traffic control gained in previous air traffic control courses (e.g., AT 363 and AT 365) with an opportunity to actually "work" in air traffic control operating positions. Using a realistic, but "user-friendly" air traffic control simulation (TRACON/Pro®) students issue instructions to aircraft, make hands-offs, coordinate with other controllers, solve aircraft confliction problems, and do the other things controllers do. The ability to make "real-time" decisions, determine strategies for controlling aircraft, and working with a dynamic scenario are features unique to this learning experience. This course combines classroom discussion, group and team coordination, and various forms of evaluation for course credit. Student competency in the performance phase of the course is determined by computer scoring. In addition to performance scores and traditional examinations, students are also required to maintain an individual journal that chronicles their progress and responses to the learning experience in this course. Prerequisite: AT 365.

AT 464 — Advanced Air Traffic Control Operations (2,3) 3 Credits

A capstone course in the ATC Minor that expands on the skills, knowledge, and abilities the student has achieved in previous courses. More demanding and complex traffic scenarios require higher level performance and decision-making. Dynamic scenarios involving various levels of air traffic density and operational situation are provided for the development of higher level competencies. Classroom discussions and assignments parallel the research and development (R&D) interests being pursued by the FAA and the aviation industry. An emphasis on the human factor issues in automation will add to the student's analytical skills as a future aviation professional. Student should gain an appreciation for systems engineering principles in safety-related professions. Student will be expected to

demonstrate higher levels of competency in the role of an air traffic controller in any ATC facility. Upon successful completion of this course, students will be able to demonstrate the ability to perform satisfactorily at the skill level required to pass the FAA Performance Verification (PV) test used to assess acceptable entry-level qualifications for employment as an air traffic control specialist. Prerequisite: AT 462.

AVIONICS TECHNOLOGY

AV 301 — Avionics for Aviators (3,0) 3 Credits
A survey course designed to present to the student the theory of operation, evaluation, purchase, installation and utilization of various types of avionic equipment. Subject areas include radio wave propagation, VHF communication and VOR navigation systems, instrument landing system, automatic direction finder, distance measuring equipment, transponder, weather radar and area navigation systems. Prerequisite: PS 104. (Not available to Avionics Technology students.)

AV 305 — Aircraft Communications and Landing Systems (3,0) 3 Credits
An advanced study of electronic communication, navigation and landing equipment used in aircraft. Subject areas include VHF navigation, communication transceivers, instrument landing systems, microwave landing systems and audio systems. Prerequisites: EL 225, EL 226. Corequisite: EL 230.

AV 309 — Aircraft Pulse Systems (3,0) 3 Credits
An advanced study of electronic pulse type equipment used in aircraft. Subject areas include distance measuring equipment, secondary radar (transponder), and future discrete address beacon systems. Prerequisites: EL 225, EL 226. Corequisite: EL 230.

AV 318 — Low Frequency and Area Navigation Systems (3,0) 3 Credits
An advanced course in low frequency and area navigation systems on aircraft. Subject areas include Loran C, Automatic Direction Finders, and Area Navigation Systems. Prerequisites: AV 305, AV 309, EL 230.

AV 320 — Aircraft Surveillance Systems (3,0) 3 Credits
An advanced course in surveillance systems used on aircraft. Subject areas include weather radar, low frequency weather mapping systems and radar altimeter systems. Prerequisites: AV 305, AV 309, EL 230.

AV 324 — Avionics System Integration and Flight Control (3,0) 3 Credits
An advanced course in system integration and flight control used on aircraft. Subject areas include instrumentation, electronic flight instrument

systems, data base, and integrated flight control systems. Prerequisites: AV 305, AV 309, EL 230.

AV 325 — Long Range Navigation Systems (3,0) 3 Credits
An advanced course in long range navigation systems used on aircraft. Subject areas include long range low frequency navigation systems, inertial navigation and flight management systems. Prerequisites: AV 305, AV 309, EL 230.

AV 339 — Avionics Equipment Troubleshooting and Repair Laboratory (0,6) 2 Credits
A laboratory type course designed to apply both electronic and avionics theory to actual hands-on troubleshooting, alignment and repair of avionics equipment. Corequisites: AV 305, AV 309.

AV 341 — Advanced Avionics Equipment Troubleshooting and Repair Laboratory (0,6) 2 Credits
A continuation of AV 339. The student will gain additional experience in troubleshooting and repair of avionics equipment in ERAU's FAA certified Avionics Repair Station. The student will also be exposed to aircraft system trouble analysis and installation techniques. Prerequisite: AV 339.

AV 346 — Applied Reliability and Maintainability Engineering (3,0) 3 Credits
This is an introductory course in the application of probability theory and statistics to aircraft systems. Emphasis is placed on reliability and maintainability engineering. Prerequisite: MA 242.

AV 405 — Avionics Analog System Design Considerations with Laboratory (3,3) 4 Credits
An intensive study and investigation of both linear and non-linear avionics analog systems and components, using a theoretical and mathematical approach. Special topics of current or future avionics interest may be discussed and studied. Prerequisites: EL 300 and EL 309.

AV 410 — Avionics Digital Design Considerations with Laboratory (3,3) 4 Credits
An intensive study and investigation of avionic digital and microwave systems using a theoretical and mathematical approach. Special topics of current or future avionics interest may be discussed and studied. Prerequisites: EL 300 and EL 309.

AV 411 — Integrated Aviation Logistics Support (3,0) 3 Credits
An intensive study of logistics engineering in aviation support systems. Subjects include: Field service, customer service, publications, product support, training, packaging, computer resources, reliability and maintainability engineering. Prerequisites: AV 346.

AV 421 — Avionics System Integration and Design (3,0) **3 Credits**
Design application in avionic system integration in current aircraft. Subjects include: Avionics package design, aircraft mainframe effects on design, FAA regulations and certification, agencies involved in the design, licensing and standardization of avionics systems, and manufacturers specifications. Design project required. Prerequisites: AV 405, AV 410.

AV 399, 499 — Special Topics in Avionics Engineering Technology 1-6 Credits
Individual independent or directed studies of selected topics in avionics engineering technology. Prerequisites: Consent of instructor and the department chair. May be repeated with a change of content.

COOPERATIVE EDUCATION

CE — 396, 397, 398 **1 to 6 Credits**
Aerospace Engineering (AE), Aerospace Studies (AR), Aeronautical Science (AS), Aircraft Engineering Technology (ET), Aviation Management (AM), Avionics (AV), Computer Science (CS), Electrical Engineering (EE), Flight (FL), Maintenance Technology (MT). Practical learning experience in full-time or part-time employment that is related to the student's degree program and career goals. Course title and level are based on the work assignment. Prerequisite: Approval by the department chair and cooperative education administrator.

CE — 496, 497, 498 **1 to 6 Credits**
Continuation of CE — 396, 397

COMPUTER SCIENCE

CS 101 — Introduction to Keyboard Operations (1,0) **1 Credit**
Fundamental skills and techniques in the operation of the keyboard and use of computers in word processing. Emphasis is placed on the fundamentals of word processing, and the development of touch typing with speed and accuracy.

CS 105 — Introduction to Computers in Aviation (3,0) **3 Credits**
Diverse exposure to the digital computer and its uses and capabilities as a management tool in the aviation field. Topics include basic introduction to systems analysis and management information systems. Contrasts hardware capabilities, programming requirements, and systems analysis and planning.

CS 107 — Operating Systems and Windows (1,0) **1 Credit**
A overview of the Disk Operating System and Windows. Hands-on experience with basic DOS commands such as DIR, diskcopy, file copy, delete, rename, format; creating, utilizing, and removing directories; creating and utilizing batch files; and other commands are presented. The concept of a Windows environment is presented with emphasis on using a mouse, using the Windows screen, running Windows applications, working with the Windows file manager, and utilizing Windows accessories and utilities.

CS 108 — Word Processing (1,0) **1 Credit**
Word processing concepts and commands are presented and students are expected to develop an intermediate competency level in word processing. Specific word processing commands include: formatting; editing; printing; spell-checking; using the thesaurus; conducting searches; managing files; integrating files; creating tables; working with columns and performing simple math; merging and sorting files; utilizing a variety of margins, line spacing, page numbering, and page breaks; drawing lines and organizing charts; utilizing headers, footers, and footnotes; and working with simple macros.

CS 109 — Introduction to Computer Programming with BASIC (3,0) **3 Credits**
Concepts of algorithms, computers, and programming. Experience with software packages and programming in BASIC. Student develops an appreciation for the kinds of tasks that can (or cannot) be performed by the computer, and the types of analysis and programming necessary to achieve desired results. Corequisite: MA 111 or MA 140.

CS 111 — Spreadsheet (1,0) **1 Credit**
An understanding of spreadsheet applications and commands designed to develop an intermediate level of spreadsheet competency. An exploration of practical spreadsheet applications such as budgets, income taxes, profit and loss statements, calculating grades, among many others. Specific commands include creating, editing, saving, retrieving, and printing spreadsheets; utilizing statistical data, and financial functions; depicting spreadsheet information graphically in bar graphs, pie charts, and line graphs; linking and integrating spreadsheets, and utilizing spreadsheet macros.

CS 112 — Database (1,0) **1 Credit**
An understanding of database applications and commands designed to develop an intermediate level of database competency. An exploration or practical database applications such as personnel files, customer files, inventory files, library catalogs, and many others. Specific commands include planning and designing databases; creating, editing, saving, retrieving, and printing databases; querying databases and retrieving and manipulating data; indexing and sorting databases, designing and creating database reports.

CS 113 — Desktop Publishing (1,0) **1 Credit**
An overview of desktop publishing applications and an introduction to desktop publishing commands. Specific topics include: designing and creating simple brochures, fliers, resumes, newsletters, manuscripts, booklets, and presentation documents; avoiding common design errors; implementing the desktop publishing cycle of planning, setup, layout, formatting, editing, and printing; importing files; utilizing appropriate typefaces; incorporating graphics; and standardizing publication styles.

CS 114 — Business Graphics (1,0) **1 Credit**
An overview of business graphics. Emphasis is on the design and creation of professional graphics such as charts and short documents to be used to clarify information in oral and written presentations. Specific topics including planning and organizing charts and presentation documents; creating pie charts, bar charts, line charts and presentation documents; formatting, editing and printing; utilizing text, symbols, and graphics; importing artwork; creating an automated presentation of charts and documents.

CS 115 — Computer Programming I (3,0) **3 Credits**
Introduction to problem solving methods and algorithm development; program design, coding, debugging, testing and documentation; programming in a block-structured high-level language. Corequisites: MA 111 or MA 140 and MA 145.

CS 116 — Recent Trends in Application Software (1,0) **1 Credit**
The content of the course is left to the specific needs of the students and new software.

CS 117 — Computer Based Systems (3,0) **3 Credits**
Provide the student an in-dept understanding of the technical aspects of hardware and software and a study of the current trends in computing. The course will include hardware and software installations, troubleshooting, and a survey of resources in the field of personal computing.

CS 118 — Fundamentals of Computer Programming (3,0) **3 Credits**
The objective of this course is to give the student a basic understanding of programming with focus on the non-computer science (business, manufacturing, engineering,. . .etc.) environment. Topics include problem solving and algorithm development, structured programming and programming methodology.

CS 206 — End User Computing Analysis (3,0) **3 Credits**
Address various management and analysis topics in the area of End-User Computing. Topics include, but not limited to, conducting feasibility studies, designing an implementation plan, budgets, effective communication with nontechnicals, documentation, and training. Prerequisites: CS 117, CS 118, and CS 207.

CS 207 — Network Based Computing (3,0) **3 Credits**
Local area network installation and operations. Topics covered include but not limited to LAN, WAN, terminology, protocols, topologies, mail systems, network administration functions, and hardware. Prerequisites: CS 117 and CS 118.

CS 210 — Scientific Programming (3,0) **3 Credits**
Introduction to FORTRAN. Flowcharts, psuedocode, input/output, flow of control, looping, arrays, and subprograms are covered. Emphasis is on scientific/engineering programming techniques and applications. Corequisite: MA 112 or MA 241.

CS 211 — Computer Organization I (3,0) **3 Credits**
This is an introductory course familiarizing the students with the computer hardware principles such as number systems, Boolean algebra, logic gates, flip flops, design and analysis of combinatorial and sequential circuits, and basic digital computer operation. Basic components of a computer CPU, memory and internal data transmission are introduced. Prequisite: CS 115.

CS 215 — Computer Programming II (3,0) **3 Credits**
Continuation of CS 115 with emphasis on program design, style, debugging, and testing, especially for larger programs; introduction to algorithm analysis; introduction to basic aspects of string processing, recursion, and simple data structures. Prerequisite: CS 115.

CS 216 — Structured Programming (3,0) **3 Credits**
Introduction to structured programming using a structured language and emphasis on the fundamental control structures of sequence, selection and iteration, functions, and procedures. Data structures include standard data types, user defined data types, and structured data types including arrays, records, sets and files. The philosophy of top-down programming is emphasized throughout the course. Prerequisite: Permission of Instructor.

CS 220 — Digital Logic and Computer Operation (3,0) **3 Credits**
Number systems, Boolean Algebra, logic gates, design and analysis of digital circuits, digital computer components and digital computer operation. Corequisite: CS 115.

CS 222 — Introduction to Discrete Structures (3,0) **3 Credits**
An introduction to the fundamental algebric, logical, and combinatorial concepts of mathematics and logic needed in subsequent computer science courses. Prerequisites: MA 140 and CS 115.

CS 230 — Organization of Programming Languages (3,0) **3 Credits**
Specification and analysis of various programming languages; problem solution and programming in each language studied; compilation and interpretation; introduction to formal language concepts. Prerequisite: CS 215, CS 222.

CS 235 — Assembly Language Programming (3,0) 3 Credits
Introduction to computer architecture; assembler concepts and instruction format; addressing techniques; interrupt processing, especially input/output; segmentation, linkage, and external procedures; programming projects to develop understanding of assembly language concepts. Prerequisites: CS 215, CS 220.

CS 308 — Practicum (3,0) 3 Credits
Capstone Project Course — Individualized to each student, and utilizing most facets of their prior instruction. Prerequisite: All other courses required in computer applications minor.

CS 311 — Computer Organization II (3,0) 3 Credits
Introduction to microcomputer architecture; assembler concepts and instruction format; addressing techniques; interrupt processing; program segmentation and linkage; use of assembly language to solve machine-dependent problems; and basic concepts of microcomputer interfacing, testing and development. Prequisite Courses: CS 211.

CS 315 — Data Structures and Analysis of Algorithms (3,0) 3 Credits
Continuation of CS 215 with emphasis on the design, implementation, and analysis of algorithms dealing with sorting, graphs, trees, and disk files. other topics include: computer theory; space and time complexity; parallel algorithms. Prerequisite: CS 215.

CS 317 — Files and Database Systems (3,0) 3 Credits
Introduction to file and database systems. Topics include: file processing data structures and algorithms; various database models; theory behind relational database systems; design and implementation of a well structured relational database system; and the physical structure of database systems. Prerequisite: CS 315.

CS 325 — Programming in ADA (3,0) 3 Credits
Advanced systems concepts using the ADA language to implement software engineering, concurrent programming, and structured design techniques. Prerequisites: CS 215, CS 210 or consent of the instructor.

CS 335 — Introduction to Computer Graphics (3,0) 3 Credits
Introduction to computer graphics, algorithms, graphics programming, graphics design, use of graphic packages, and applications of computer graphics to aviation, business and scientific problems. Prerequisites: MA 241, CS 210 or CS 215, or permission of the instructor.

CS 344 — C Programming and UNIX 3 Credits
This course is an introduction to the C programming language and the UNIX programming environment and provides basic information about the general principles of operating systems. It begins with an introduction to the UNIX operating system, followed by an in-depth study of the C

programming concepts and techniques in the UNIX environment. In addition, topics such as the function and structure of operating systems, process management, memory management, concurrency, UNIX system programming, and UNIX programming tools will be covered. Prerequisite Courses: CS 215.

CS 350 — Computer Modeling and Simulation (3,0) **3 Credits**
Introduction to system simulation and modeling; types of models basic to any simulation; techniques of simulation; continuous and discrete simulation, queuing; objected oriented methodology; Monte Carlo simulation. Prerequisites: MA 412 or MA 222; knowledge of a high level programming language.

CS 372 — Introduction to Microprocessors (3,1) **3 Credits**
Basic concepts of CPU architecture and operation; CPU interface and memory system design; microcomputer system hardware input/output techniques; applications of microprocessors; laboratory experiments involve microprocessor hardware and software. Prerequisite: CS 311.

CS 420 — Operating Systems (3,0) **3 Credits**
Development, structure, and functions of operating systems; demand service models; development of concurrent models. Prerequisite: CS 315.

CS 431 — Software Engineering (3,0) **3 Credits**
Introduction to the principles, techniques, mehtodologies and tools of software engineering. Study of various aspects of the software life-cycle and work within a team environment. Prerequisites: CS 317, HU 221.

CS 441 — Database Management Systems Design (3,0) **3 Credits**
Introduction to database concepts, data models, data normalization and data description languages. Regional database design using entity-relationship model or other appropriate tools. Conversion of the design to a particular DBMS. Prerequisite: CS 317.

CS 445 — Interfacing (3,1) **3 Credits**
Introduction to microcomputers and microcontrollers, effect of the microprocessor on the system, memory, and microcomputer input/output methods. The subject of interface components and their characteristics, designing interface components, interfacing to standard buses and peripherals. Interface layout and construction. Interface software design and implementation. Prerequisite: CS 311 or equivalent.

CS 450 — Real-time Systems (3,0) **3 Credits**
Interfacing real-time devices with computers, computer-to-computer communications, timing interrupt processing and queuing. Hands-on implementation of an application to an aviation project. Prerequisite: CS 311, CS 315.

CS 455 — Artificial Intelligence (3,0) **3 Credits**
An introduction to how computers can be applied to solve problems, and the principles of human intelligence. Topics include representation mechanics such as procedural and nonprocedural control strategies, searching strategies, predicate calculus and rule based deductions, goal directed planning, applications of understanding, representation of knowledge frames and scripts, programming languages and database for artificial intelligence, knowledge based systems, and robotic systems. Prerequisite: CS 315.

CS 460 — Telecommunications Systems (3,0) **3 Credits**
Techniques and applications in telecommunications. Types of data communication versus line discipline methodology. Hardware requirements and constraints. Speed versus quality. Security and encoding algorithms. Prerequisite: CS 311, Permission of the instructor.

CS 465 — Senior Project (0,0) **3 Credits**
A computer science project involving a practical application to aviation/aerospace will be carried out. Students are involved in management, analysis, design, implementation, and testing of an aviation/aerospace software system. Students work in teams to develop or modify a software product. Project work is assessed using modern industrial software standards and review techniques. Prerequisites: CS431, senior standing, and instructor permission.

CS 470 — Computer Architecture (3,0) **3 Credits**
Computer system organization to include processors, memory, input/output and transfer of information; examples of conventional machine language architecture to include instruction format and types, addressing, representation and flow of data; microprogramming level, operating system level, and assembly language level. Prerequisites: CS 311, CS 315.

CS 299, 399, 499 — Special Topics in Computer Science **1-6 Credits**
Individual independent or directed studies of selected topics in computer science. Prerequisite: Consent of the instructor and the department chair.

ECONOMICS

EC 200 — An Economic Survey (3,0) **3 Credits**
An introduction to macro- and microeconomic principles, problems, and policies with a view to current economic problems.

EC 210 — Microeconomics (3,0) **3 Credits**
An introduction to economic principles, problems and policies with emphasis on microeconomic theory and current domestic problems. Prerequisite: MS 201.

programming concepts and techniques in the UNIX environment. In addition, topics such as the function and structure of operating systems, process management, memory management, concurrency, UNIX system programming, and UNIX programming tools will be covered. Prerequisite Courses: CS 215.

CS 350 — Computer Modeling and Simulation (3,0) **3 Credits**
Introduction to system simulation and modeling; types of models basic to any simulation; techniques of simulation; continuous and discrete simulation, queuing; objected oriented methodology; Monte Carlo simulation. Prerequisites: MA 412 or MA 222; knowledge of a high level programming language.

CS 372 — Introduction to Microprocessors (3,1) **3 Credits**
Basic concepts of CPU architecture and operation; CPU interface and memory system design; microcomputer system hardware input/output techniques; applications of microprocessors; laboratory experiments involve microprocessor hardware and software. Prerequisite: CS 311.

CS 420 — Operating Systems (3,0) **3 Credits**
Development, structure, and functions of operating systems; demand service models; development of concurrent models. Prerequisite: CS 315.

CS 431 — Software Engineering (3,0) **3 Credits**
Introduction to the principles, techniques, mehtodologies and tools of software engineering. Study of various aspects of the software life-cycle and work within a team environment. Prerequisites: CS 317, HU 221.

CS 441 — Database Management Systems Design (3,0) **3 Credits**
Introduction to database concepts, data models, data normalization and data description languages. Regional database design using entity-relationship model or other appropriate tools. Conversion of the design to a particular DBMS. Prerequisite: CS 317.

CS 445 — Interfacing (3,1) **3 Credits**
Introduction to microcomputers and microcontrollers, effect of the microprocessor on the system, memory, and microcomputer input/output methods. The subject of interface components and their characteristics, designing interface components, interfacing to standard buses and peripherals. Interface layout and construction. Interface software design and implementation. Prerequisite: CS 311 or equivalent.

CS 450 — Real-time Systems (3,0) **3 Credits**
Interfacing real-time devices with computers, computer-to-computer communications, timing interrupt processing and queuing. Hands-on implementation of an application to an aviation project. Prerequisite: CS 311, CS 315.

CS 455 — Artificial Intelligence (3,0) **3 Credits**
An introduction to how computers can be applied to solve problems, and the principles of human intelligence. Topics include representation mechanics such as procedural and nonprocedural control strategies, searching strategies, predicate calculus and rule based deductions, goal directed planning, applications of understanding, representation of knowledge frames and scripts, programming languages and database for artificial intelligence, knowledge based systems, and robotic systems. Prerequisite: CS 315.

CS 460 — Telecommunications Systems (3,0) **3 Credits**
Techniques and applications in telecommunications. Types of data communication versus line discipline methodology. Hardware requirements and constraints. Speed versus quality. Security and encoding algorithms. Prerequisite: CS 311, Permission of the instructor.

CS 465 — Senior Project (0,0) **3 Credits**
A computer science project involving a practical application to aviation/aerospace will be carried out. Students are involved in management, analysis, design, implementation, and testing of an aviation/aerospace software system. Students work in teams to develop or modify a software product. Project work is assessed using modern industrial software standards and review techniques. Prerequisites: CS431, senior standing, and instructor permission.

CS 470 — Computer Architecture (3,0) **3 Credits**
Computer system organization to include processors, memory, input/output and transfer of information; examples of conventional machine language architecture to include instruction format and types, addressing, representation and flow of data; microprogramming level, operating system level, and assembly language level. Prerequisites: CS 311, CS 315.

CS 299, 399, 499 — Special Topics in Computer Science **1-6 Credits**
Individual independent or directed studies of selected topics in computer science. Prerequisite: Consent of the instructor and the department chair.

ECONOMICS

EC 200 — An Economic Survey (3,0) **3 Credits**
An introduction to macro- and microeconomic principles, problems, and policies with a view to current economic problems.

EC 210 — Microeconomics (3,0) **3 Credits**
An introduction to economic principles, problems and policies with emphasis on microeconomic theory and current domestic problems. Prerequisite: MS 201.

EC 211 — Macroeconomics (3,0) **3 Credits**
An introduction to economic principles, problems and policies with emphasis on macroeconomic theory, business fluctuation, fiscal and monetary policy, and economic growth. Prerequisite: MS 201.

EC 310 — Labor Economics (3,0) **3 Credits**
A survey of the economics of the labor market to include wage determination and employment theory, Labor organization, labor legislation and current developments in labor relations. Prerequisites: EC 210, EC 211.

EC 312 — Money and Banking (3,0) **3 Credits**
A preliminary investigation of the financial institutions of the United States and the relationship of monetary policy to income and price stabilization. Some analysis of international capital flows will also be undertaken. Prerequisites: EC 211, MA 222.

EC 315 — Managerial Economics (3,0) **3 Credits**
An analytical approach to the manager's role in understanding pricing, costing, production and forecasting. Concentrates on simple quantitative models to explain the firm's position in the market and how the manager can react to and control this information. Prerequisites: EC 210, MA 211 or MA 222.

EC 420 — Economics of Air Transportation (3,0) **3 Credits**
A study of the economic aspects of airline service with consideration given to the impact of federal aid and regulation, types of aircraft, airport problems, consumer interests and competitive practices. Prerequisite: EC 200 or EC 210 or EC 211.

EC 299, 399, 499 — Special Topics in Economics **1-4 Credits**
Individual independent or directed studies of combinations of selected topics in economics. Prerequisites: Consent of the instructor and the department chair.

ELECTRICAL ENGINEERING

A grade of C or better is required in MA 241, MA 242, PS 140, PS 141, and PS 211, PS 212 for entry into all EE courses.

EE 220 — Digital Circuit Design (3,0) **3 Credits**
Introduction to logic design and interfacing digital circuits. Boolean algebra, combinational logic circuits, digital multiplexers, circuit minimization techniques, flip-flop storage elements, shift registers, counting devices and sequential logic circuits.

EE 222 — Digital Circuits Laboratory (1,2) **1 Credit**
Laboratory experiments in the measurement and verification of digital circuits. Discrete and integrated logic circuits design analysis and measurements. Corequisite: EE 220.

EE 223 — Linear Circuits Analysis I (3,0) **3 Credits**
Volt-ampere characteristics for passive circuit elements. Resistive network circuit theory and simplification. Kirchoff's current and voltage laws. Introduction to linear network theorems and transformations. Transient response of RC, RL and RLC circuits. Steady state and impedance circuit analysis for sinusoidal sources. Prerequisite: PS 202. Corequisite: MA 345.

EE 224 — Electrical Engineering Laboratory I (1,2) **1 Credit**
Problem sessions, electrical instrumentation and measurement, verification of theory presented in EE 223, working knowledge of electronic test equipment. Corequisite: EE 223.

EE 300 — Linear Circuits Analysis II (3,0) **3 Credits**
Continuation of EE 223. The Laplace and Fourier transforms, Fourier analysis, complex plane, resonance and coupled circuits, Bode diagrams. Introduction to magnetic circuits and transformer. Prerequisite: EE 223. Corequisite: MA 441.

EE 301 — Electrical Engineering Laboratory II (1,2) **1 Credit**
Problem sessions, analysis and simulation of analog and digital circuits using computer aided design and analysis tools. Prerequisite: EE 223. Corequisite: EE 300.

EE 302 — Electronic Devices and Circuits (3,0) **3 Credits**
Diode, bipolar transistor, and FET circuit models for the design and analysis of electronic circuits. Single and multi-state analysis and design. Amplifier operating point design, frequency response and Bode plots. Switching of transistors as applied to digital characteristics. Prerequisite: PS 110. Corequisite: EE 300.

EE 303 — Signals and Filters (3,0) **3 Credits**
Mathematics for filtering and spectral analysis of continuous and discrete systems. Solutions to filtering approximations via Butterworth, Chebyshev, elliptic and others. Introductions to Z-transforms and digital filter design methods. Prerequisites: CS 210, MA 441. Corequisite: EE 305.

EE 304 — Electronic Circuits Laboratory (1,2) **1 Credit**
Laboratory experiments in the measurement of electronic device characteristics. Design of biasing networks, small signal amplifiers and switching circuits. Corequisite: EE 302.

EE 305 — Operational Amplifiers and A/D — DA Circuits (3,1) **3 Credits**
Design and analysis of operational amplifiers and their use as a building block in many different applications. Terminal characteristics of operational amplifier devices used to perform a variety of signal functions. Introduction to basic components found in analog instrumentation systems. Components considered include transducers, thermocouples, various sensors and other signal processing devices. Analysis and design of various analog-to-digital and digital-to-analog circuits. Study of analog-to-digital and digital-to-analog circuit requirements. Laboratory experiments involving operational amplifiers and A/D — D/A circuits. Measurement and analysis of these circuits. Prerequisites: EE 300, EE 302.

EE 320 — Introduction to Computer Engineering (3,0) **3 Credits**
Study of digital computer organizations. Introduction to microcomputer systems using a current microprocessor. Assembly language programming techniques for microcomputers will be used to study digital computer operation. Input and output techniques, memory devices, RS 232 and other interfacing techniques will be studied. Hardware and software relationships will also be discussed. Prerequisites: EE 220.

EE 322 — Computer Engineering Laboratory (1,2) **1 Credit**
"Hands-on" experience with a microcomputer is provided through weekly experiments involving hardware and software techniques. Prerequisite: CS 210. Corequisite: EE 320.

EE 340 — Electric and Magnetic Fields (3,0) **3 Credits**
Electrostatics and magnetostatics. Magnetic and dielectric material properties. Maxwell's equations. Energy and radiation of plane waves. Introduction of electromagnetic waves, transmission lines, the Smith chart, and radiation from antennas. Prerequisites: EE 300, MA 441.

EE 401 — Control Systems Analysis and Design (3,0) **3 Credits**
Analysis and design of linear feedback systems. Frequency response and root locus techniques and state variable feedback. Analysis and design of digital and sampled control systems, applying z-transforms, stability, design and synthesis. Prerequisites: EE 303, EE 305, EE 320.

EE 402 — Control Systems Laboratory (1,2) **1 Credit**
Laboratory experiments involving the principles of operation and design of linear control systems. Experiments to support theory introduced in EE 401. Corequisite: EE 401.

EE 410 — Communication Systems (3,0) **3 Credits**
Theory and application of electronic communications systems; spectral analysis; modulation and demodulation techniques; transmitting and receiving systems. Behavior of receivers and transmitters in the presence of noise. Study of avionic radio systems presently in use such as VLF, OMEGA, ACARS, voice and others. Prerequisites: EE 303, EE 340, MA 441.

EE 412 — Communication Systems Laboratory (1,2) 1 Credit
Laboratory experiments involving design and analysis of electronic communication circuitry and measuring performance characteristics and limitations of various communication systems. Corequisite: EE 410.

EE 420 — Avionics Preliminary Design (3,1) 3 Credits
Study of FAA requirements governing the design of airborne electronic equipment. Study of component and subsystem specification and design practices. Application of the above in the preparation of a proposal/design plan for an airborne electrical/electronic subsystem. Prerequisites: Senior Standing, EE 410. Corequisite: EE 450.

EE 421 — Avionics Detail Design (1,5) 3 Credits
Continuation of EE 420. Senior level project. Students will work as members of a team in the execution of winning proposals from EE 420. Prerequisite: EE 420.

EE 450 — Elements of Power Systems (3,0) 3 Credits
Fundamental concepts and operation considerations of avionic power systems. Basic component model representations, steady state performance, operating strategies, and control of avionic power systems. Prerequisites: EE 401, EE 410.

EE 452 — Power Systems Laboratory (1,2) 1 Credit
Laboratory experiments involving avionic power systems. Analysis and measuring characteristics of avionic power systems. Corequisite: EE 450.

EE 460 — Advanced Control and System Integration (3,0) 3 Credits
Continuation of EE 401. Study of modern control methods including state variables, controllability and observability, and modern design techniques. Integration of avionics systems by different avionics buss protocols including ARINC-429, ARINC-629, Mil Std 1553 and RS-232. Study avionics systems common to modern aircraft. Design project. Prerequisites: EE 401 or equivalent.

EE 299, 399, 499 — Special Topics in Electrical Engineering 1-3 Credits
Individual independent or directed studies of selected topics in electrical engineering. Prerequisite: Consent of instructor and the department chair. May be repeated with change of content.

ELECTRONICS TECHNOLOGY

EL 106 — Direct and Alternating Current Fundamentals and Circuit Analysis with Laboratory (5,5) 6 Credits
A detailed study of basic D.C. and A.C. theory and circuit concepts. Subject areas include the physical nature of matter, Ohm's Law, D.C. and A.C. components, series and parallel circuits, reactance, resonance, and

transformer theory. Prerequisites: MA 140, MA 142, HU 006, or MA 145, HU 017. Corequisites: MA 241 and HU 122.

EL 220 — Introduction to Pulse and Digital Circuits (3,3) 4 Credits

An introductory course in electronic pulse and digital circuit fundamentals. Subject areas include waveform analysis, RC, RL, and RLC circuit analysis and their use in pulse circuits, integrating and differentiating circuits, pulse transformers, delay lines, diode and transistor switching circuits, logic gates, families of integrated circuits (including TTL, ECL, MOS and CMOS), bistable, monostable and free running multivibrators. Prerequisites: EL 106, MA 241. Corequisites: EL 223, CS 210, or CS 109.

EL 223 — Solid State Fundamentals and Circuit Analysis with Laboratory (4,6) 6 Credits

An introductory course in solid state fundamentals and circuit analysis. Subject areas include semiconductor construction, biasing, small and large signal amplifier analysis, active devices, op amps, oscillators, and frequency considerations. Prerequisites: EL 106, MA 241, PS 101. Corequisites: CS 210 or CS 109.

EL 225 — Advanced Digital Circuits and Systems with Laboratory (3,3) 4 Credits

A continuation of EL 220. Subject areas include shift registers, counting circuits, comparator circuits, memories, arithmetic logic, and an introduction to computer organization. Prerequisite: EL 220.

EL 226 — Electronic Systems Analysis with Laboratory (4,3) 5 Credits

Introduction to communications and microwave devices, circuits, and systems. Subject areas include AM, FM, and SSB modulation and receivers, transmission lines, wave propagation, antennas, wave guides, microwave devices, data communications and radar fundamentals. Prerequisite: EL 223.

EL 230 — Microprocessor Systems with Laboratory (2,3) 3 Credits

An advanced digital course designed to acquaint the student with microprocessor architecture, software, and hardware. Subject areas include: microprocessor organization, instructions, selection, software and hardware. Microprocessor system design and interfacing to buses, I/O devices, memories, registers, and other digital devices. Prerequisite: EL 225.

EL 300 — Electronics Communications Systems with Laboratory (3,3) 4 Credits

An introductory course in communications techniques. Topics include modulation and demodulation; receivers and transmitters; transmission lines and antennas; microwave and radar fundamentals; noise factors;

propagation of radio waves, and digital communications. Prerequisites: EL 305 and EL 230.

EL 305 — Linear Systems Analysis (3,0) 3 Credits
An intensive study of linear electronic circuits and control systems using theoretical and mathematical approaches. Topics include the use of the Fourier and Laplace transforms and mathematical modeling to predict: Signal spectrum, circuit bandwidth and output; circuit frequency response and control system performance. Prerequisites: PS 217, PS 218, MA 345, EL 223, EL 225. Corequisite: EL 230.

EL 309 — Elements of Engineering Design and Laboratory Procedures (2,3) 3 Credits
This course is intended to familiarize the student with various theoretical and empirical design procedures including CAD/CAE to translate these designs into laboratory breadboard hardware; and to observe and practice acceptable laboratory investigative procedures. The student will be required to provide and utilize an engineering laboratory notebook throughout this course. Project documentation will include a final, scholarly written, engineering report. Prerequisites: EL 305 and EL 230.

EL 299, 399 — Special Topics in Electronics 1 Credit
Individual independent or directed studies of selected topics in electronics technology. Prerequisite: Consent of instructor or department chair.

ENGINEERING PHYSICS

A grade of C or better is required in MA 241, MA 242, PS 140, PS 141 and either PS 211 and PS 212 or PS 215 and PS 216 for entry into all EP courses.

EP 320 — Electro-Optical Engineering (3,0) 3 Credits
Geometrical optics of mirrors, thin and thick lenses, prisms and systems. Ray tracing with optical CAD. Fiber optics applications. Physical optics including interference, diffraction and polarization. Phaser methods. Engineering considerations in choice of different types of detectors. Space systems applications. Image Processing. Emphasis on design. Prerequisites: PS 303, CS 210.

EP 400 — Thermodynamics and Statistical Mechanics (3,0) 3 Credits
Basic Thermodynamics; Entropy; Kinetic Theory; Distribution of Molecular Velocities; Maxwell-Boltzmann Statistics; Bose-Einstein Statistics; Fermi-Dirac Statistics; Microcononical Ensemble; Cononical Ensemble. Prerequisites: CS 210, ES 305, MA 345.

EP 410 — Space Physics (3,0) 3 Credits
Origin, evolution and structure of neutral and ionized terrestrial atmosphere. Effect of sun's electromagnetic radiation on ozone shield. Photo

ionization and thermal structure of the neutral atmosphere as well as the Ionosphere and Magnetosphere. Solar disturbances and their effects on satellite orbit decay and on long distance communication. Studies of composition, thermodynamics and physical processes of the near-earth space environment. Rocket and satellite monitoring and remote sensing. Numerical and instrument design projects. Prerequisite: EP 320.

EP 420 — Planetary Science (3,0) 3 Credits
Study of the planetary system: origin, evolution, composition, present configuration, dynamics, interiors, surfaces, atmospheres, and magnetospheres of the planets and where appropriate, similar aspects of the satellites, asteroids, and comets. Interpretations of existing data and definition of future experiments to aid in determination of the origin and evolution of the solar system are stressed. Prerequisite: PS 303.

EP 440 — Engineering Electricity and Magnetism (3,0) 3 Credits
Solutions of electrostatics problems using Poisson's equation and Laplace's equation, Electrostatic Energy, Electric Current, Magnetic Field, Electromagnetic Induction, Physics of Plasmas, Maxwell's Equations, Application of Maxwell's Equations (reflection, refraction, waveguides, antenna radiation). Students will write some simple computer programs. Prerequisites: CS 210, MA 442.

EP 450 — Space Systems Engineering (3,0) 3 Credits
Development of the fundamental principles used in the design and engineering development of satellites, planetary probes, and space systems. Optimization of a complete system including trajectory analysis, entry dynamics, propulsion systems, structural design, thermal protection, weight estimation, environmental control, equipment selection, support systems, and cost estimates. Students participate in teams in the design of a complex space system, with each team responsible for one of several subsystems, providing experience in project organization, interaction between disciplines, and methods by which individuals and teams work together. Prerequisite: EP 320.

EP 455 — Quantum Physics (3,0) 3 Credits
The Schrodinger equation in 1 and 3 dimensions and its solutions for step potentials, the harmonic oscillator, and the hydrogen atom. Operators and their matrix representations: Dirac bra-ket formalism, angular momentum and spin, spin-orbit interaction. Identical particles and exchange symmetries. Time independent and time dependent perturbation theory and approximation methods: transition rates; Fermi's Rule, Scattering theory. Classical and quantum statistical distributions. Prerequisite: PS 320.

EP 490 — Senior Design Project I (1,6) 3 Credits
A program of undergraduate research, supervised by physics or engineering faculty, leading to the writing of a technical design report in an area of current interest in engineering physics.

EP 491 — Senior Design Project II (2,6) 4 Credits
Continuation and completion of EP 490. Prerequisite: EP 490.

ENGINEERING SCIENCE

A grade of C or better is required in MA 241, MA 242, PS 140, PS 141 and either PS 211 and PS 212 or PS 215 and PS 216 for entry into all ES courses.

ES 100 — Engineering and Society (3,0) **3 Credits**
A survey of the engineering profession and its role in society. Historical technological milestones. The various engineering disciplines and the range of jobs engineers do, especially in aerospace industries and research centers. Engineering ethics and responsibilities. Qualitative consideration of the basic mathematical and physical concepts, terminologies and laws underlying the engineering sciences. Qualitative consideration of the form and function of selected modern systems or devices made possible by engineering. The design process. Future engineering challenges. Prerequisites: None.

ES 201 — Statics (3,0) **3 Credits**
A vector treatment of the concepts and characteristics of forces and couples. Distributed forces. Center of mass; centroid. Equilibrium of particles and rigid bodies. Trusses and frames. Internal forces. Shear and moment distribution in beams. Area moments of inertia; tensor properties. Prerequisites: PS 211, PS 212 or PS 215, PS 216; ET 110 or consent of Department chair. Corequisite: MA 243.

ES 202 — Solid Mechanics (3,0) **3 Credits**
The concepts of stress and strain and their tensor properties. Elastic stress-strain relations. Analysis of stress and deformation in members subject to axial, torsional, bending and combined loading. Column stability. Prerequisites: ES 201, CS 210.

ES 204 — Dynamics (3,0) **3 Credits**
A vector treatment of the kinematics and kinetics of particles and rigid bodies. Acceleration, momentum, work, energy and power. Prerequisites: ES 201, CS 210.

ES 206 — Fluid Mechanics (3,0) **3 Credits**
Physical characteristics of the fluid state. Fluid statics. Kinematics of fluid motion. Flow of an incompressible ideal fluid. The impulse-momentum principles. Similitude and dimensional analysis; fluid measurements. Prerequisites: CS 210, ES 201.

ES 305 — Thermodynamics (3,0) **3 Credits**
A study of the concepts of heat and work and their transformation as governed by the first and second laws of thermodynamics. Properties of pure substances. Ideal gas behavior and relationships. Reversible processes and temperature-entropy diagrams. Conventional power cycles. Properties of ideal gas mixtures. Combustion. Prerequisite: CS 210; PS 217 and PS 218 or PS 208.

ES 307 — Engineering Materials Science with Laboratory (3,1.5) **3 Credits**
Materials used in aeronautical engineering applications. Properties of materials and their measurements. Metals and their structures. Characteristics of metallic phases. Equilibrium diagrams. Processing of metals and alloys. Plastics, their structures and characteristics. Ceramics and their characteristics. Composite materials. Corrosion. Prerequisites: CS 210, PS 140, PS 141, PS 217, PS 218, HU 221.

ES 402 — Electrical Engineering I with Laboratory (2,3) **3 Credits**
Introduction of the fundamentals of electrical engineering. Circuit theory and variables. Voltage-current relationship for passive elements — resistance, capacitance and inductance. Circuit analysis and network solutions for resistance-capacitance networks. Phasors and frequency-domain analysis. Time-domain analysis via differential equations and using the Laplace transform. Equivalent circuits. Graded sequence of applicable laboratory experiments. Prerequisites: PS 217, PS 218, MA 345, CS 210, HU 221.

ES 403 — Heat Transfer (3,0) **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. Prerequisites: CS 210, ES 206 or permission of instructor, ES 305, MA 345.

ES 405 — Electrical Engineering II (3,0) **3 Credits**
Continuation of the principles of electrical engineering. Systems block diagrams, feedback and transfer functions. Computer principles-analog computer programming, Boolean algebra and logic gates. Rotating electrical machines, transformers and other electro-magnetic energy conversion devices. Automatic control systems-dynamic response, feedback control and transducers. Prerequisite: ES 402.

ES 409 — Space Mechanics (3,0) **3 Credits**
The mathematics and physics of the two-body problem. Orbits, satellite launch, orbit transfer, interception and rendezvous, and celestial astronomy. Gyrodynamics; gyroscopic instruments; precession and nutation; inertial navigation. This course is based heavily on vector dynamics, differential equations and spatial geometry, as well as computer programming skills, which are used in writing computer program solutions of selected two-body problems. Prerequisites: CS 210, ES 204, MA 441.

ES 410 — Structures and Instrumentation Laboratory (1,3) **2 Credits**
Principles of modern laboratory test instrumentation. Basic electrical measurements and devices such as strain gages, piezoelectric sensors and thermocouples. Measurement of fluid pressure and flow; temperature; thermal and transport properties; strain; motion; vibration; force and torque. Experimental static and dynamic analysis of structures. Processing and

analyzing experimental data; report writing and data presentation. Prerequisites: AE 404, ES 305, ES 402, HU 221.

ES 412 — Structural Dynamics (3,0) **3 Credits**
Simple harmonic motion. Undamped and damped free vibration; Forced vibration. Multiple degrees of freedom. Multi-mass torsional and transverse systems. Equivalent torsional systems. Balancing. Dynamic damping. Computer analysis using finite element modeling. Prerequisites: ES 202, ES 204, MA 345.

ES 413 — Engineering Fundamentals Review (1,2) **1 Credit**
This course is a technical elective and is a review of Fundamental Engineering principles. Problem-solving tutorial sessions help engineering students prepare for the National Fundamental Engineering or Engineering-In-Training Examination. Prerequisite: Senior status.

ES 299, 399, 499 — Special Topics in Engineering Science **1-6 Credits**
Individual independent or directed studies of selected topics in engineering science. Prerequisite: Consent of instructor and department chair. May be repeated with change of content.

ENGINEERING TECHNOLOGY

ET 101 — Engineering Graphics (1,3) **2 Credits**
Principles of lettering. Drawing instruments and their use. Linework code and drafting techniques. Geometrical construction. Multiview projection. Sectional and auxiliary revolutions. Dimensioning, shop processes and tolerances. Threads and fasteners.

ET 110 — Drafting and Descriptive Geometry (1,3) **2 Credits**
Dimensioning, tolerancing, threads, fasteners. Introduction to descriptive geometry. Airplane general arrangement and airfoil layout drawings. Prerequisite: A completed high school course in mechanical drawing with a grade of B or better or ET 101 Engineering Graphics.

ET 200 — Machine Shop Laboratory (0,3) **1 Credit**
Introduction to basic machining techniques.

ET 201 — Technical Mechanics (4,0) **4 Credits**
Statics and dynamics. Systems of forces and moments, free body diagrams, equilibrium, truss structures, friction, distributed forces, centroids, and moments of inertia. Kinematics and kinetics of particles and rigid bodies. Prerequisites: PS 211, PS 212, MA 242.

ET 303 — Aircraft Drafting (1,3) **3 Credits**
General arrangement of layout, detail and assembly drawings. Dimensioning, local and general notes, and specification of shop processes. Drafting

of formed sheet metal parts; riveted, bolted, bonded and welded assemblies; control cable, push-pull rod, and torque tube assemblies. Hydraulic and electrical schematic and drafting. Prerequisites: ET 110, ET 309.

ET 305 — Applied Thermodynamics with Laboratory (3,3) **4 Credits**
Definitions of heat and work, first and second laws of thermodynamics. Thermodynamic cycles used in engines and engine components. Introduction to compressible flow. Laboratory demonstrations of engines and performance measurements. Prerequisites: MA 242, PS 217, PS 218.

ET 307 — Manufacturing Processes and Materials with Laboratory (3,3) **4 Credits**
The nature of production processes and how they influence detail design decisions. Topics include process selection, milling, turning, numerical control processes, forging, bending and forming, heat treatment, surface finishing, finishes and coatings, plastic and composite materials. Laboratory work includes sheet metal forming, machining, riveting, composite fabrication, welding. Prerequisite: ET 309.

ET 309 — Applied Strength of Materials with Laboratory (3,3) **4 Credits**
Concepts of stress and strain. Stress and deflections of members subject to axial, torsional and bending loads. Laboratory experiments augment coursework. Prerequisite: ET 201.

ET 310 — Applied Fluid Mechanics (3,0) **3 Credits**
An introduction to fluid statics, kinematics of fluid motion, flow of noncompressible ideal fluids, fluid flow, measurements, and aircraft hydraulic systems. Prerequisite: ET 201.

ET 312 — Applied Electrical Science with Laboratory (3,3) **4 Credits**
Basic D.C. and A.C. circuit theory with applications to instrumentation. Familiarity with instrumentation techniques will be gained in the laboratory. Prerequisite: PS 217, PS 218.

ET 315 — Applied Aerodynamics I (3,0) **3 Credits**
The atmosphere; one and two dimensional flow; effect of viscosity; drag; airflow measurement; airfoil theory; and airplane performance. Prerequisites: ET 201, MA 242.

ET 320 — Aircraft Structural Analysis (4,0) **4 Credits**
Analytical techniques for determining loads and stresses in trusses, beams and thin sheet structures. Prerequisites: ET 309, MA 245.

ET 325 — Applied Aerodynamics II (2,3) **3 Credits**
Compressible flow, shock waves, supersonic flow, airfoil characteristics, nozzle flow. Prerequisites: ET 315, MA 245.

ET 401 — Mechanical Design (3,0) **3 Credits**
Study of machine motion, velocity, acceleration and cycling. Sizing of machine elements under operational conditions. Application and design of mechanical linkages, springs, clutches, brakes, cams, sprockets, gears and gear trains, bearings and lubrication. Other selected topics. Prerequisite: ES 202 or ET 309.

ET 402 — Applied Instrumentation Laboratory (2,3) **3 Credits**
Selection and operation of standard instrumentation components to measure and record force, strain, temperature, and pressure. Analysis of test data. Prerequisites: PS 217, PS 218, ET 309.

ET 403 — Aircraft Detail Design (2,3) **3 Credits**
Design of load bearing structures representative of those employed in aircraft, along with supporting stress analysis and production, drawings. Prerequisites: ET 201, ET 303, ET 320.

ET 404 — Aircraft Performance and Design (2,3) **3 Credits**
Aircraft static performance, introduction to stability and control. Application of aerodynamics through aircraft preliminary design project, including performance specification, general arrangement, weight and balance, and drag estimation. Prerequisite: ET 315.

ET 405 — Non-Destructive Testing and Quality Assurance with Laboratory (2,3) **3 Credits**
Inspection procedures, proof-of-design requirements per FAR Part 23, material inspection techniques (magnetic particle, X-ray, visual), dimensional checking and use of inspection instruments. Statistical analysis of test data. Prerequisite: ET 307.

ET 406 — Aircraft Systems Analysis and Design (3,0) **3 Credits**
Definition and functional description of aircraft systems. Analysis and design of dynamic systems to meet performance requirements. Prerequisites: ET 201, ET 303, ET 305, ET 312.

ET 407 — Aircraft Gas Turbines (3,0) **3 Credits**
A study of the gas turbine fundamentals, including various gas turbine cycles, components and component efficiency, thrust, specific fuel consumption, duct flow and inlet diffuser, centrifugal and axial compressors, combustion chambers and jet nozzles for aircraft propulsion. Prerequisites: ET 305, MA 245.

ET 408 — Applied Structural Dynamics (3,0) **3 Credits**
Free, damped and forced motion of linear SDOF systems. Multi-DOF system topics include modeling of stiffness, flexibility and consistent mass

matrices, solution of the eigenvalue problem, and the prediction of transient response of loads. Prerequisites: MA 245, ET 320. Corequisites: ET 402 or permission of the instructor, ET 410.

ET 410 — Aircraft Structures Test Laboratory (0,3) 1 Credit
Introduction to test engineering technology. Scenarios include all aspects of a test program from the test proposal through the final test report. Prerequisites: ET 303, ET 320, and ET 402. Corequisite: ET 403.

ET 299, 399, 499 — Special Topics in Engineering Technology 1-3 Credits
Individual independent or directed studies of selected topics in engineering technology. Prerequisite: Permission of program chair.

FLIGHT-ACADEMIC

Students enrolled in flight courses should expect to spend an average of approximately 12 to 15 hours per week in flight training. The actual weekly training time will vary based upon specific syllabus requirements, aircraft and instructor availability, weather, and individual student performance. Training time consists of flight and simulator training, observer flights, preflight and post flight inspections and briefing, oral instruction, and ground training. It does not include required outside study time.
Flight courses are offered on a continuous basis. Course start and completion dates may or may not coincide with the beginning and end of an academic semester/term. Credit is awarded based upon the semester/term in which the course is begun. The length of time required to complete a course will also vary based upon the factors identified above.

FA 109 — Commercial Pilot Flight Operations I 3 Credits
A review of elementary commercial pilot flight operations including basic aircraft control, elementary radio navigation, air traffic control procedures, cross-country operations, and solo flight. Associated ground instructions will include a review of knowledge areas required for Private Pilot certification. This course is specifically designed for students entering Embry-Riddle's Commercial Pilot program with a Private Pilot certificate and desiring advanced standing. Prerequisite: FAA Private Pilot Certificate with Airplane Single Engine Land Class rating.

FA 110 — Commercial Pilot Flight Operations I 6 Credits
An introduction to commercial pilot flight operations including basic aircraft control, elementary radio navigation, air traffic control procedures, cross-country operations, and solo flight. Associated ground instruction will include completion of the Private Pilot written examination. At the successful completion of this course the student will have gained the aeronautical knowledge and experience necessary to apply for an FAA Private Pilot Certificate.

FA 200 — Commercial Pilot Flight Operations II **3 Credits**
Flight, simulator and ground instruction in basic attitude instrument flight techniques, maximum performance and precision commercial flight maneuvers, and advanced cross-country operations. Prerequisites: FA 110 and an FAA Private Pilot Certificate with Airplane Single-engine Land class rating.

FA 250 — Commercial Pilot Flight Operations III **3 Credits**
Flight and simulator training in those instrument pilot operations necessary to safely and accurately operate an airplane under instrument flight rules within the National Airspace System. Associated ground instruction will include completion of the Instrument Pilot written examination. At the successful completion of this course the student will have gained the aeronautical knowledge necessary for the addition of an instrument-airplane rating to his/her existing pilot certicate. Prerequisite: FA 200.

FA 300 — Commercial Pilot Flight Operations IV **2 Credits**
A review of selected pilot operations required of a commercial pilot including maximum performance and precision commercial flight maneuvers. Associated ground instruction will include completion of the Commercial Pilot written examination. At the successful completion of this course the student will have gained the aeronautical knowledge and experience necessary to apply for an FAA Commercial Pilot Certificate with Instrument-Airplane and Single-Engine Land ratings. Prerequisite: FA 250.

FA 340 — Multi-Engine Class Rating **1 Credit**
Instruction and flight training to provide the aeronautical skill and knowledge to meet the requirements for the addition of a multi-engine land class rating with instrument privileges to the student's existing pilot certificate. Prerequisite: FAA Commercial Pilot Certificate with an instrument rating.

FA 417 — Flight Training Methods and Curriculum Analysis **3 Credits**
Instruction, flight training and practice teaching that will allow the student to obtain the aeronautical skill and knowledge necessary to apply for an FAA Flight Instructor Certificate with both Airplane Single-Engine & Instrument-Airplane ratings. Associated ground instruction will include completion of the Fundamentals of Instruction, the Flight Instructor-Airplane, and the Flight Instructor-Instrument written examinations. Prerequisites: FA 300 or FA 325 and an FAA Commercial Pilot Certificate with Single-engine and Instrument-Airplane ratings.

FA 419 — Airline Transport Pilot Proficiency Development **2 Credits**
Certified Commercial and Instrument rated pilots are initially prepared for the Multi-Engine Land Class rating followed by extensive detailed instrument oriented training to airline transport pilot proficiency standards. Emphasis is placed on precision attitude flying techniques including configuration change procedures, attitude and thrust setting determination,

and velocity transitions; precise instrument approach and departure procedures; and integration of applicable emergency procedures during all phases of instrument flight. Prerequisites: FAA Commercial Pilot Certificate with Airplane Single-engine Land and Instrument-Airplane ratings. Corequisite: AS 420.

FA 420 — Airline Flight Crew Techniques and Procedures **2 Credits**

Instruction in airline flight crew operations with emphasis on the transition of the professionally qualified pilot into a highly skilled member of an air carrier flight management team. Course topics include cockpit resource management, high speed and high altitude transport aircraft flight techniques, turbojet operations, flight crew training techniques, utilization of advanced avionics, and programming of automatic flight control systems. Prerequisites: FA 419, AS 420, and an FAA Commercial Pilot Certificate with Airplane Single and Multi-engine Land and Instrument-Airplane ratings. Corequisite: AS 452.

FA 453 — High Performance Aircraft Flight Crew Techniques and Procedures **2 Credits**

Instruction in advanced flight crew operations with emphasis on the transition of the professionally qualified pilot into a highly skilled member of a corporate aircraft flight management team. Course topics include cockpit resource management, high speed and high altitude aircraft flight techniques, turbine-powered aircraft operations, flight crew training techniques, utilization of advanced avionics, and programming of automatic flight control systems. Prerequisites: FA 419, AS 420, and an FAA Commercial Pilot Certificate with Airplane Single and Multi-engine Land and Instrument-Airplane ratings. Corequisite: AS 452.

FA 460 — Advanced Multi-Engine Flight Crew Training Methods 2 Credits

Certified Flight Instructors are initially prepared for the addition of a multi-engine flight instructor rating followed by instruction in advanced multi-engine flight crew training techniques to include cockpit resource management, line-oriented flight training, and the use of advanced training devices. Prerequisites: FA 417, FA 453, an FAA Commercial Pilot Certificate with Airplane Multi-engine Land and Instrument-Airplane ratings and an FAA Flight Instructor Certificate with an Instrument-Airplane rating.

FA 199, 299, 399, 499 — Special Topics in Flight **0-2 Credits**

Flight training in selected areas for the purpose of gaining proficiency in required pilot operations for various certificates and ratings. Prerequisite: Approval of chief flight instructor and department chair.

HUMANITIES

HU 003 — Writing English as a Second Language (3,0) 3 Credits
This course is designed for those non-native speakers of English who are found to need special practice in written English. Emphasis is on fundamental writing skills (organization, development, and mechanics), with added practice in spoken English. Cultural topics of particular interest to the class are included when necessary. (Credit not applicable to any degree.)

HU 004 — Speaking and Listening Skills in English as a Second Language (3,0) 3 Credits
This course deals with the verbal production and listening reception skills necessary to help the non-native English speaker comprehend spoken English and to speak appropriately and proficiently as a student within the American culture, especially in academic and social situations. Students will learn to discriminate and produce the sounds, intonation, and stress patterns of American English, make use of the visual and aural environmental signals that contribute to successful listening and speaking, and be familiar with the language and accompanying behavior associated with academic and social situations. Listening and speaking skills will be studied in context to familiarize students with the patterns of English use which determine what is appropriate in verbal communication. (Credit not applicable to any degree.)

HU 006 — Developmental English (3,0) 3 Credits
Designed to improve competence in writing and speaking the English language, through the study of grammar and mechanics, sentence and paragraph construction, and vocabulary building. (Credit not applicable to any degree.)

HU 013 — Reading English as a Second Language (3,0) 3 Credits
This course is designed for those non-native speakers of English who are found to need special practice in reading English. Emphasis is on vocabulary enrichment and improvement of comprehension and reading skills. Cultural topics of particular interest to the class are included when necessary. (Credit not applicable to any degree.)

HU 017 — Reading and Study Skills (3,0) 3 Credits
Individual and group instruction in the development of a variety of reading and study techniques. Emphasis is placed on the development of reading-study skills, comprehension, word attack, vocabulary improvement, and efficient, flexible reading habits. (Credit not applicable to any degree.)

HU 122 — English Composition and Literature I (3,0) 3 Credits
Expository writing (interpretation, analysis, and synthesis) in response to nonfiction and fiction. Writing and reading assignments aid the student in developing communicative, evaluative, critical thinking, and research

writing skills. Prerequisite: Satisfactory completion of Basic Skills Requirements.

HU 123 — English Composition and Literature II (3,0) 3 Credits
A continuation of HU 122 with emphasis on a survey of literature. Reading materials include selected novels, poems and plays. Prerequisite: HU 122.

HU 130 — Elementary Spanish I (3,0) 3 Credits
Basic grammar and reading. Introduction to conversation. Not open to students with two or more years of high school Spanish or equivalent.

HU 135 — Elementary Spanish II (3,0) 3 Credits
A continuation of HU 130.

HU 140 — Humanities and Western Culture (3,0) 3 Credits
A continuation of HU122 with interdisciplinary emphasis. Material studied will be primarily from the Western humanistic tradition — Antiquity through Medieval period — including literature, philosophy, history, and art. Prerequisite: HU 122.

HU 141 — Studies in the Humanities (3,0) 3 Credits
A continuation of HU 122 with interdisciplinary emphasis. Materials studied will be primarily from the Western Humanistic tradition — Renaissance through Twentieth century — including literature, philosophy, history, and art. Prerequisite: HU 122.

HU 150 — Elementary Arabic I (3,0) 3 Credits
Elementary oral-aural introduction to Arabic, including such topics as courtesy phrases, basic vocabulary, and patterns for questions and answers. Not open to students with two or more years of high school instruction or the equivalent, or native speakers of the language.

HU 151 — Elementary Arabic II (3,0) 3 Credits
A continuation of HU 150. Prerequisite: HU 150 or permission of the instructor.

HU 152 — French I (3,0) 3 Credits
Elementary oral-aural introduction to French including such topics as courtesy phrases, basic vocabulary, and patterns for questions and answers. Not open to students with two or more years of high school instruction or the equivalent, or native speakers of the language.

HU 153 — French II (3,0) 3 Credits
A continuation of HU 152. Prerequisite: HU 152 or permission of the instructor.

HU 154 — German I (3,0) 3 Credits
Elementary oral-aural introduction to German including such topics as courtesy phrases, basic vocabulary, and patterns for questions and

answers. Not open to students with two or more years of high school instruction or the equivalent, or native speakers of the language.

HU 155 — German II (3,0) **3 Credits**
A continuation of HU 154. Prerequisite: HU 154 or permission of the instructor.

HU 156 — Japanese I (3,0) **3 Credits**
Elementary oral-aural introduction to Japanese including such topics as courtesy phrases, basic vocabulary, and patterns for questions and answers. Not open to students with two or more years of high school instruction or the equivalent, or native speakers of the language.

HU 157 — Japanese II (3,0) **3 Credits**
A continuation of HU 156. Prerequisite: HU 156 or permission of the instructor.

HU 158 — Russian I (3,0) **3 Credits**
Elementary oral-aural introduction to Russian including such topics as courtesy phrases, basic vocabulary, and patterns for questions and answers. Not open to students with two or more years of high school instruction or the equivalent, or native speakers of the language.

HU 159 — Russian II (3,0) **3 Credits**
A continuation of HU 158. Prerequisite: HU 158 or permission of the instructor.

HU 219 — Speech (3,0) **3 Credits**
A continuation of the study of communication with emphasis on speaking effectively. Modern and traditional theory and methods, study and practice of informative, persuasive and symposium rhetorical forms are included. Prerequisite: HU 122.

HU 221 — Technical Report Writing (3,0) **3 Credits**
Preparation of formal and informal technical reports, abstracts, resumes and business correspondence. Major emphasis placed on the long technical paper and the acquisition of advanced writing skills. Prerequisites: HU 123 or HU 140 or HU 141.

HU 222 — Business Communication (3,0) **3 Credits**
An introduction to effective business communication. Topics in oral, written, nonverbal, and intercultural communication are covered. Research methods, effective speaking, and the preparation of letters, memoranda, and reports are emphasized. Prerequisites: HU 123 or HU 140 or HU 141.

HU 250 — Introduction to Logic (3,0) **3 Credits**
Principles of valid thinking; the nature of inductive and deductive inferences and their applications. Prerequisite: HU 123 or HU 140 or HU 141.

HU 300 — World Literature (3,0) 3 Credits
Major works and literary trends in world literature. Prerequisites: HU 123 or HU 140 or HU 141.

HU 305 — Modern Literature (3,0) 3 Credits
The mainstreams of literature of this century. The specific content — genre and major writers — to be studied will vary from semester to semester. Prerequisites: HU 123 or HU 140 or HU 141.

HU 310 — American Literature (3,0) 3 Credits
A survey of intellectual backgrounds, major works and literary trends in American literature. Prerequisite: HU 123 or HU 140 or HU 141.

HU 320 — Aesthetics of Visual and Musical Arts (3,0) 3 Credits
Provides a survey of the major artistic monuments of Western culture and discusses the methods by which artistic productions are analyzed. Prerequisites: HU 123 or HU 140 or HU 141.

HU 325 — Exploring Film (3,0) 3 Credits
A survey of the art of the film. History of the cinema. Basic elements, photography, continuity and rhythm, movement, imaging, music and sound, script writing, directing, editing, acting, great film artists — directors, cinematographers, actors, etc. Prerequisite: HU 123 or HU 140 or HU 141.

HU 330 — Values and Ethics (3,0) 3 Credits
Designed to help one identify and resolve ethical problems. Status and scope of ethics, the understanding and solving of moral problems are included. This study is based on the assumption that no person can live a fulfilling life if he has not set up for himself some scale of values. Ethics as a study of human values, attempts to stimulate the moral sense, discover the best values of life, and motivate a quest for these values. Prerequisite: HU 123 or HU 140 or HU 141.

HU 335 — Technology and Modern Civilization (3,0) 3 Credits
A humanistic analysis of technology, with special attention to its influence upon modern American culture in a global context. Topics include the history and development of technology; the influence of technology upon certain philosophies such as determinism and utilitarianism; the influence of technology on the ecosphere; and the depiction of technology in imaginative literature. Prerequisite: HU 123 or HU 140 or HU 141.

HU 341 — World Philosophy (3,0) 3 Credits
An in-depth study of prominent philosophers and major philosophical movements in America, Europe, and Asia, showing their interrelatedness, emphasizing their contributions to the world of thought, and demonstrating the importance of reason in the contemporary world. Prerequisite: HU 123 or HU 140 or HU 141.

HU 345 — Religions of Mankind (3,0) **3 Credits**
A survey of the major religions of the world, including Judaism, Christianity, Islam, Hinduism, Buddhism, and Confucianism as well as a brief examination of the development of religion as a vital aspect of man's experience in history. Prerequisite: HU 123 or HU 140 or HU 141.

HU 351 — Journalism (3,0) **3 Credits**
Theory and practice of the techniques of journalism, familiarizing the student with the functions, skills and responsibilities required in writing, editing and producing news and technical publications. Prerequisite: HU 123 or HU 140 or HU 141.

HU 355 — Creative Writing (3,0) **3 Credits**
The course culminates the interpretive and expressive elements of communications classes. The study, practice and utilization of a personal style of creative composition, examples of contemporary literature and submittal of publications are included in this course. Prerequisites: HU 123 or HU 140 or HU 141.

HU 475 — Senior Thesis **3 Credits**
As the culmination of the student's experience in the interdisciplinary Aerospace Studies program, Senior Thesis requires the student to complete documented research under the guidance of a faculty advisor, involving subject matter that is demonstrably tied to at least two of the student's three chosen minor fields of study. A series of seminar discussions or extended individual consultations with the faculty advisor may accompany the guided writing of the thesis.

HU 299, 399, 499 — Special Topics in Humanities **1-6 Credits**
Individual independent or directed studies of selected topics in the humanities. Prerequisites: Consent of instructor and approval of the department chair.

MATHEMATICS

MA 005 — Quantitative Skills (3,0) **3 Credits**
Fundamentals and theory of algebra including exponents, radicals, factoring, linear equations, rational expressions, quadratic equations, polynomial arithmetic, and solutions to applied problems. (Credit not applicable to any degree.) Required of all students who are placed in this course.

MA 006 — Intermediate Algebra (3,0) **3 Credits**
An intermediate level algebra course. Topics include fundamental concepts of algebra; linear equations and inequalities; polynomials; rational expressions; exponents and radicals; quadratic equations; functions and graphing; systems of linear equations and inequalities. Prerequisite: MA 005 or Placement. (Credit not applicable to any degree.)

MA 106 — Basic Algebra and Trigonometry (3,0) **3 Credits**
A study of the basic laws of fractions, exponents, radicals, inequalities, quadratic equations, complex numbers and the elements of trigonometry.

MA 111 — College Mathematics for Aviation I (3,0) **3 Credits**
A pre-calculus course designed for the student of aviation. Review of the fundamentals of algebra; linear equations and inequalities; quadratic equations; variation; polynomial, rational, exponential, logarithmic and trigonometric functions; radian measure; right triangle solutions, vectors, and the laws of sines and cosines. Prerequisite: MA 006, MA 106 or placement.

MA 112 — College Mathematics for Aviation II (3,0) **3 Credits**
Basic calculus designed for the student of aviation. Differentiation and integration of algebraic functions; applications to velocity, accelerations, area, curve sketching and computation of extreme values. Prerequisite: MA 111.

MA 125 — Space Mathematics (3,0) **3 Credits**
Units of measure used in Space Technology, launch and re-entry velocities and accelerations, force and acceleration of gravity on the moon and on an asteroid, "g forces" on an astronaut, analysis of the behavior of sounding rockets both when launched and when returned to earth, the reliability of spacecraft systems, multi-stage rocket design, tracking of model rockets, investigation of the movement of celestial bodies on the celestial highways. Prerequisite: MA 111.

MA 140 — College Algebra (3,0) **3 Credits**
Fundamentals of exponents, radicals, linear, quadratic and absolute value equations, inequalities and complex numbers. Introduction to functions, curve sketching, elementary theory of equations, sequences and series, matrix algebra and systems of equations. Prerequisite: MA 006, MA 106, or placement.

MA 142 — Trigonometry (3,0) **3 Credits**
Trigonometric functions and their graphs; identities; radian measure with applications; compound, half and double angle identities; solving elementary trigonometric equations, right and oblique triangles; law of sines and cosines; exponential, logarithmic and inverse trigonometric functions; vectors and trigonometric form of a complex number. Prerequisites: MA 006, MA 106, or Placement. Corequisite: MA 140.

MA 145 — College Algebra and Trigonometry (5,0) **5 Credits**
Fundamentals of exponents, radicals, linear and quadratic equations, inequalities, elementary theory of equations, sequences and series, functions, exponential, logarithmic and trigonometric functions, radian measure, trigonometric identities and equations, vectors, laws of sines, cosines, solutions of right triangles, and complex numbers. Prerequisites: MA 006, MA 106 or Placement.

MA 211 — Statistics with Aviation Applications (3,0) 3 Credits
Descriptive statistics; populations and samples; measures of central tendency and dispersion; elementary probability; binomial and normal distributions and their interrelationship; random variables; one and two sample hypothesis testing involving proportions and means for large and small samples; estimation and confidence intervals; Chi-square distribution; correlation coefficient; least squares line. Prerequisite: MA 111.

MA 222 — Business Statistics (3,0) 3 Credits
Measures of central tendency and dispersion; histograms; algebra of probability; sample spaces; dependent events; Bayes' Theorem with applications; binomial, Poisson, normal distributions and their interrelationships; sampling distributions; hypothesis testing; confidence intervals. Prerequisite: MA 220 or MA 112 or MA 140.

MA 241 — Calculus and Analytical Geometry I (4,0) 4 Credits
Graphs and functions; limits and continuity; differentiation and integration of algebraic and elementary trigonometric functions; applications of first and second derivatives. Prerequisite: MA 140 or MA 145 or equivalent. Corequisite: MA 142.

MA 242 — Calculus and Analytical Geometry II (4,0) 4 Credits
Differentiation and integration of transcendental functions; special integration techniques; polar coordinates; applications of the definite integral; numerical methods. Prerequisite: MA 241.

MA 243 — Calculus and Analytical Geometry III (4,0) 4 Credits
Solid analytical geometry; vector functions in three dimensions; elements of infinite series; partial differentiation; directional derivative and gradient; multiple integrals. Prerequisite: MA 242.

MA 245 — Applied Technical Mathematics (3,0) 3 Credits
Applied treatment of ordinary differential equations; Laplace transforms; matrix algebra and applications; computer techniques; numerical methods; least squares fit; normal distribution and applications. Prerequisites: MA 242, CS 210. (Not for Bachelor of Science degree in Aeronautical Engineering credit.)

MA 320 — Decision Mathematics (3,0) 3 Credits
The mathematical concepts and applications in mathematical model building and problem solving. Included are mathematical areas which are basic to decision theory. Prerequisite: MA 211 or MA 222. (Not open to engineering students.)

MA 345 — Differential Equations and Matrix Methods (4,0) 4 Credits
Treatment of ordinary differential equations to include principal types of first and second order equations; methods of substitution on simple higher order equations; linear equations and systems of linear equations with constant coefficients; methods of undetermined coefficients and variation of

parameters; Laplace transforms; series solutions; linear algebra and matrix methods of solutions; applications to physics and engineering. Prerequisite: MA 243.

MA 412 — Probability and Statistics (3,0) 3 Credits
Finite sample spaces; conditional probability and Bayes' Theorem; discrete and continuous random variables and their functions; expected value, variance and standard deviation; systematic study of the major discrete and continuous distributions; moment generating functions; hypothesis testing and estimation. Prerequisite: MA 242.

MA 432 — Linear Algebra (3,0) 3 Credits
Review of vector and matrix operations including matrix inverses, eigenvectors and eigenvalues. Equations of lines and planes, vector spaces including basis and dimensions, linear transformations, change of basis, diagonalization of matrices, inner products and orthonormal bases, applications. Prerequisite: MA 245 or MA 345.

MA 438 — Numerical Analysis I (3,0) 3 Credits
Floating point arithmetic, error analysis, algorithms in interpolation, integration, differentiation, matrix algebra, approximation and solution of equations, use of numerical software packages. Prerequisite: CS 210 or CS 215, MA 245 or MA 345.

MA 441 — Advanced Engineering Mathematics I (3,0) 3 Credits
Line and surface integrals; vector fields with the study of Green, Gauss and Stokes Theorems; applications of vector field theory; Fourier series. Prerequisite: MA 345.

MA 442 — Advanced Engineering Mathematics II (3,0) 3 Credits
The solution of linear differential equations with variable coefficients; study of the derivation, characteristics and solutions of partial differential equations; Fourier series, Fourier transform, Laplace transform and Green's function; applications in science and engineering. Prerequisite: MA 441.

MA 443 — Complex Variables (3,0) 3 Credits
Algebra of complex numbers; complex functions, analytic functions; mapping by elementary functions; conformal mappings and their applications; additional topics may include complex integration, power series expansion. Prerequisite: MA 441.

MA 299, 399, 499 — Special Topics in Mathematics 1-6 Credits
Individual independent or directed studies of selected topics in mathematics. Prerequisites: Consent of instructor and approval of the department chair.

MANAGEMENT SCIENCE

MS 105 — American Business Enterprise (3,0) **3 Credits**
The role of business in American society. Examines the issues, foundations and environment of the business enterprise system. Business financing, production, marketing and employee relations are stressed. Not available to Aviation Business Administration students.

MS 120 — Introduction to Computer Based Systems (3,0) **3 Credits**
An overview of computers as processors of information and the form that both the information and the processor take, where this fits into organizations, and how people get involved. Introduction to some of the tools, techniques and strategies used in computer-system development. Computer use in the analysis, design and writing spreadsheets for business applications.

MS 201 — Principles of Management (3,0) **3 Credits**
Provides an overview of relevant management principles and practices as applied in contemporary organizations. Focuses on management theories, philosophies and functions.

MS 210 — Financial Accounting I (3,0) **3 Credits**
Fundamental principles applicable to the accounting cycle, asset valuation, income determination, financial reporting, and owners equity. Prerequisite: MS 201.

MS 212 — Financial Accounting II (3,0) **3 Credits**
Fundamental principles applicable to financial statement analyses, funds and cash flow reporting, price level changes and income tax interperiod allocation. Prerequisite: MS 210.

MS 221 — Computer Based Systems (3,0) **3 Credits**
This course analyzes the design and use of spreadsheets in business information systems. Covers advanced concepts for database management, graphics and reports. Structured programming concepts applied to menu-driven applications, macro and command language programming. Use of add-ins and spreadsheet compilers. Prerequisite: MS 120.

MS 308 — Public Administration (3,0) **3 Credits**
Characteristics of organization and management in government; impact of political processes and public pressures on administrative action; role of regulatory agencies; governmental personnel and budgetary procedures; unique qualifications of the public administrator. Prerequisite: MS 201.

MS 311 — Marketing (3,0) **3 Credits**
Marketing theory; marketing management, sales management; market research. Public and customer relations, advertising, distribution. Prerequisites: EC 200 or EC 210, MA 222.

MS 312 — Managerial Accounting (3,0) **3 Credits**
Emphasizes the conceptual, measurement, and communication aspects essential for the interpretation and use of accounting information for management purposes. These aspects will be stressed by treating three areas of cost within the field of management accounting: full cost accounting; differential accounting; and responsibility accounting. Prerequisite: MS 212.

MS 314 — Human Resource Management (3,0) **3 Credits**
This course will examine the functions to be accomplished in effectively managing human resources. An in-depth study of the interrelationship of managers, organizational staff and/or specialists, will assist the student in understanding and applying management theories to real world human resource planning. Areas of concentration include human resource planning; recruitment and selection; training and development; compensation and benefits; safety and health; and employee and labor relations. Prerequisites: SS 220, MS 201.

MS 317 — Organizational Behavior (3,0) **3 Credits**
A basic course in the analysis of various behavioral concepts affecting human behavior in business organizations, with emphasis on research, theory and practice. Prerequisites: SS 220, MS 201.

MS 320 — Business Information Systems (3,0) **3 Credits**
A management approach to understanding business information systems. The general characteristics, potential and limitations of business systems are covered. The major emphasis is on understanding the inputs, processing and outputs of a variety of business systems; the ways in which business systems are interrelated and the inherent management problems involved in the implementation and control of such systems. Prerequisites: MS 210, MS 221, MA 220.

MS 321 — Aviation/Aerospace Systems Analysis Methods (3,0) **3 Credits**
Overview of the system development life cycle. Emphasis on current system documentation through the use of both classical and structured tools/techniques for describing process flows, data flows, data structures, file designs, input and output designs and program specifications. Prerequisite: MS 221.

MS 322 — Aviation Insurance (3,0) **3 Credits**
An introduction to the basic principles of insurance and risk with its special application to the aviation industry. An in-depth review of the aviation insurance industry in the United States including the market and types of aviation insurers. Prerequisite: MS 201.

MS 323 — Office Automation and Telecommunications with Aviation/Aerospace Applications (3,0) **3 Credits**
Office information and decision support systems are examined. Emphasis is given to information processing considerations at the systems level, including analysis and management of support activities such as records

management, electronic filing and retrieving systems, word processing, micro and reprographics, and telecommunications. Prerequisite: MS 221.

MS 324 — Aviation Labor Relations (3,0) 3 Credits
An investigation of labor-management relations in the aviation industry. Examined are the history of unionism, structure unions, legal environment and the Railway Labor Act, collective bargaining, public sector relationships, grievance procedures, and conflict resolution. Prerequisite: MS 201.

MS 325 — Social Responsibility and Ethics in Management (3,0) 3 Credits
A comprehensive inquiry into the major components of social responsibility including economic, legal, political, ethical and societal issues involving the interaction of business, government and society. Prerequisite: MS 201.

MS 331 — Transportation Principles (3,0) 3 Credits
Basic principles of the several modes of transportation — air, sea, rail, highway, and pipeline — including problems of competition, the importance of each in the economy, and future developmental prospects. Prerequisites: EC 200 or EC 210 or EC 211; MS 201.

MS 332 — Corporate Finance I (3,0) 3 Credits
The finance function, financial analysis and control, financial planning, short term and intermediate term financing, long term financing and financial strategies. Prerequisites: MS 312; EC 200 or EC 211 or EC 210.

MS 333 — Personal Financial Planning (3,0) 3 Credits
A study of the Personal Financial Planning process. Includes taxes, investments, purchase of housing/auto, insurance needs and analysis, use of credit and retirement and estate planning. Student will develop a personal financial plan and will invest in a $500,000 portfolio of securities. Prerequisite: Junior Standing.

MS 335 — International Business (3,0) 3 Credits
An analysis of economic development and international trade in modern times, with an examination of current US relations with other nations. Attention will be focused on the impact of foreign trade on the aviation industry and the industry's contribution to economic development. Prerequisites: EC 200 or EC 210 or EC 211; MS 201.

MS 350 — Analysis Methods for Management (3,0) 3 Credits
The application of mathematical methods to the solution of management problems. Probabilities; decision making using marginal, cost, profit and volume analysis; linear programming; forecasting; introduction to simulation. Prerequisite: MA 211 or MA 222. (Offered by College of Continuing Education only.)

MS 390 — Business Law (3,0) **3 Credits**
A survey of the legal aspects of business transactions. Areas covered include contracts, agency, bailment, negotiable instruments, partnerships, corporations, consumer credit, and the government's influence on business law. Prerequisite: MS 201.

MS 405 — Aviation Marketing (3,0) **3 Credits**
Basic marketing concepts and procedures involved in the aviation industry to include commercial, general, and corporate aviation. Prerequisites: EC 200 or EC 210 or EC 211; MS 201.

MS 408 — Airport Management (3,0) **3 Credits**
Comprehensive examination of the major functions of airport management including master planning. Study of the socioeconomic effects of airports on the communities they serve. Prerequisites: EC 200 or EC 210 or EC 211; MS 201.

MS 410 — Management of Air Cargo (3,0) **3 Credits**
Intensive study of the practices and problems of management with respect to air cargo. Importance of air cargo service to the economy, rate and tariff problems, terminal facilities, competition, and future prospects. Prerequisite: EC 200 or EC 210 or EC 211; MS 201.

MS 411 — Logistics Information Systems in Aviation/Aerospace (3,0) **3 Credits**
This course examines ways to optimize the physical flow of goods and materials within a firm from acquisition through production, and movement through channels of distribution. It focuses on applying logistics theory to aviation management problems in materials handling, managing inventory, planning capacities, and locating distribution centers. It includes case studies with aviation/aerospace applications using computer models. Prerequisites: MA 222, MA 320, and HU 221 or permission of instructor.

MS 412 — Airport Planning and Design (3,0) **3 Credits**
The principles of airport master planning and system planning will be studied. Fundamental principles of airport layout and design are covered, including geometric design, airport drainage, pavement design, passenger and cargo terminal layout and capacity and delay effects. Prerequisite: MS 408.

MS 415 — Airline Management (3,0) **3 Credits**
An introduction to the administrative aspects of airline operation and management. Topics include the annual profit plan, uniform system of accounts and reports, demand analysis, scheduling, the theory of pricing, fleet planning, facilities planning and airline financing. Prerequisites: EC 200 or EC 210 or EC 211; MS 201.

MS 419 — Aviation Maintenance Management (3,0) 3 Credits
Comprehensive examination of organizational maintenance policies, programs and procedures. Emphasis on maintenance planning, forecasting and cost control; reliability; safety and flight schedule performance. Prerequisites: MS 312; MA 320 or MA 412.

MS 420 — Industrial Management (3,0) 3 Credits
An intensive study of management in all organizations — service oriented and product oriented. Scheduling, inventory control procurement, quality control and safety are investigated. Particular attention to applications of these to aviation oriented activities. Prerequisites: MS 312; MA 320 or MA 412.

MS 421 — Small Business Management (3,0) 3 Credits
An analysis of the theoretical and practical knowledge necessary to be successful in conceiving, initiating, organizing and operating a small business. Special focus will be placed on small businesses in the aviation field. Prerequisite: MS 311, MS 332.

MS 422 — Life Cycle Analysis for Systems and Programs in Aviation/Aerospace (3,0) 3 Credits
This course is a study of system theory and its relationship to aviation/aerospace systems management. It covers a brief history of system theory and system life cycle, and presents the major activities in each phase of a system's life cycle. Also covered are specific topics related to system design and support, including reliability, maintainability, availability, testing, quality control, customer support, product improvement program analysis and the role of data collection and analysis in the operational phase. Related topics covered are cost effectiveness analysis and project management. The course examines applications and case studies specific to aviation/aerospace, including military applications and computer simulation models. Prerequisites: MS 311; MA 320 or MA 412.

MS 423 — Artificial Intelligence and Expert Systems in Business (3,0) 3 Credits
This course surveys application of artificial intelligence and expert systems in a business environment. Areas include problem solving, knowledge representation, search strategies, natural language processing, perception and learning, and AI computer languages. Reading in cognitive psychology, philosophy and social issues as applied to AI. Building a knowledge system project. Prerequisite: MS 221.

MS 424 — Project Management and Software Engineering (3,0) 3 Credits
This course analyzes procedures for planning, managing, and developing software and for controlling the configuration of the developed product and its documentation. It provides computer-based tools to determine cost, schedule and technical validity of a project. Other topics include estimating software effort and using software metrics. Prerequisite: MS 201; MS 120 or CS 109 or CS 210.

MS 425 — Trends and Current Problems in Air Transportation (3,0) **3 Credits**

Analysis of selected contemporary issues, problems and trends facing management in various segments of the aviation industry including general aviation and the airlines. Students apply previously learned concepts to practical problems to develop increased understanding and demonstrate knowledge of the subject. Prerequisite: MS 415.

MS 426 — Strategic Management (3,0) **3 Credits**

Aviation Business Administration capstone course. Strategic management principles involving strategy formulation, implementation, evaluation, and organization analysis are studied. Case analysis, employing strategic management principles, is used to solve and examine organization problems. Total Quality Management concepts are studied for improvement of organizational effectiveness. Prerequisites: MS 314, MS 317, MS 332, MS 335, MA 320.

MS 427 — International Aviation Management (3,0) **3 Credits**

An investigation of international aviation management and its three elements: the nature of international aviation business; working within a foreign environment; and managing within an international environment. Prerequisites: EC 200 or EC 210, MS 201, MS 335, MA 222 or by permission of Department Chairman.

MS 428 — Management of the Multicultural Workforce (3,0) **3 Credits**

An investigation into the management of the multicultural workforce. The elements of cultural anthropology and international business, communicating across cultures, contrasting cultural values, and managing and maintaining organizational culture, are addressed within the context of international aviation management. Prerequisites: MS 201, SS 210 or SS 220, EC 200 or EC 210 or EC 211, or permission of Department Chairman.

MS 433 — Management of the Sales Force (3,0) **3 Credits**

Organization of the sales department within aviation organizations and its relation to other departments. Topics to be covered include: planning, forecasting, quota setting, selection and training of sales persons, sales policies, sales analysis and evaluation. Prerequisite: MS 311, MS 317.

MS 434 — Corporate Finance II (3,0) **3 Credits**

A study of modern portfolio investment theory including traditional financial analysis, technical analysis, efficient market theory and the capital asset pricing model. Theories will be explored in the context of practical application to investment and financial decision-making in aviation industry corporations; analysis of specific companies involved in leasing, mergers, bankruptcies and other reorganizations. Student projects include the selection of an investment portfolio of $100,000 and analysis of the investment over time. Prerequisite: MS 332.

MS 435 — Taxation (3,0) **3 Credits**
An introduction into the areas of Federal Taxation and its relationship with business management decisions. Areas of emphasis will be placed on identifying tax aspects concerning: 1) Selection of business entity, 2) Rules of capital gains and losses, 3) Acquisition, use, and disposition of fixed assets and 4) others. Prerequisite: MS 312.

MS 436 — Airport Finance (3,0) **3 Credits**
Examination of the structure of airport finances, the financing of U.S. airports, types of financing, airport revenue and expense sources, financial management information systems, life-cycle costing, performance indicators, business plans, and current airport trends and problems. Prerequisite: MS 408.

MS 445 — Aviation/Aerospace Database Management Systems (3,0) **3 Credits**
Introduction to application program development in a database environment with an emphasis on loading, modifying and querying the database using a host language. Discussion and application of data structures, indexed and direct file organizations, models of data including hierarchical, network and relational. Discussion of storage devices, data administration and data analysis, design and implementation. Prerequisite: MS 221.

MS 447 — Information Resource Management (3,0) **3 Credits**
A seminar course providing a broad overview of the information systems management function. The course emphasizes information systems management, with particular attention on planning, organizing and controlling user services and managing the computer information systems development process. Coverage of the subject matter through lectures, readings, discussions and case study analysis. Prerequisite: MS 221.

MS 449 — Strategic Marketing Management (3,0) **3 Credits**
A capstone marketing course which focuses on strategic analysis and planning by aviation marketing managers. Emphasis will be given to corporate and marketing strategy; market analysis and targeting; strategic marketing programming; and marketing control. Prerequisite: MS 311.

MS 299, 399, 499 — Special Topics in Management **1-4 Credits**
Individual independent or directed studies of selected topics in management. Prerequisites: Consent of the instructor and approval of the department chair. May be repeated with change of content.

MILITARY SCIENCE ARMY ROTC

MY 103 — Basic Military Science (1,0) **1 Credit**
A study of the defense establishment and the organization and development of the United States Army. A study of military courtesy, discipline, customs and traditions of the service. A historical perspective of the role of the different branches of the United States Army and the role they have played in the freedom of our nation. An introduction to physical readiness training. Course includes lectures and laboratory. Field Training Exercises normally include M16-A1 rifle firing, rappelling training, and airmobile helicopter operations. Corequisite: MY 103 Laboratory.

MY 103L — Basic Military Science Laboratory (0,2.5) **0 Credit**
Leadership laboratory with emphasis on military leadership and small unit tactics. Students develop leadership abilities through hands-on practical experiences. Training is introductory in scope and includes operations and tactics and land navigation subjects. Practical training exercises familiarize students with the field environment and field survival skills. The Army Physical Fitness Test (APFT) is administered to assess the state of physical development.

MY 104 — Basic Military Science (1,0) **1 Credit**
Fundamentals of land navigation that include map reading, terrain identification, intersection, resection and polar coordinates. A study of the roles the active Army Forces, the Army Reserve Forces and the Army National Guard play in our nation's defense. Continued emphasis on physical readiness training. Course includes lecture and laboratory. Field Training exercises normally include M16-A1 rifle firing, rappelling training, and airmobile helicopter operations. Corequisite: MY 104 Laboratory.

MY 104L — Basic Military Science Laboratory (0,2.5) **0 Credit**
Leadership laboratory with emphasis on military leadership and small unit tactics. Students develop leadership abilities through hands-on practical experiences. Training continues the leader development process while remaining introductory in scope and develops basic operations and tactics and land navigation skills acquired in MY 103 Laboratory. Practical training exercises continue cadet field orientation with the focus being on individual training. Special topics including stream crossing techniques, field survival skills, and bivouac techniques are covered. The Army Physical Fitness Test (APFT) is administered to assess the state of physical development.

MY 203 — Basic Military Leadership I (1,0) **1 Credit**
A review of the customs and traditions of the Service. The fundamentals of leadership development and the importance of understanding the principles that are important to effective leadership. The course requires mandatory physical training and includes lecture and laboratory. Two

weekend training exercises normally include M16-A1 rifle firing, rappelling training, and airmobile helicopter operations. Corequisite: MY 203 Laboratory.

MY 203L — Basic Military Leadership I Laboratory (0,2.5) 0 Credit
Leadership laboratory with emphasis on military leadership and small unit tactics. Students develop leadership abilities through hands-on practical experiences. Training continues the development of cadet leadership and critical skills while remaining basic in scope and includes operations and tactics, land navigation, first aid, and general military subjects. Practical training exercises stress development of basic skills with the focus on soldier-team development at the squad/team level. The Army Physical Fitness Test (APFT) is administered to assess the state of physical development.

MY 204 — Basic Military Leadership II (1,0) 1 Credit
The fundamentals of Military Geography and their application in the use of navigational aids for the military forces. A study of preventative medicine countermeasures and first aid techniques that every leader must know. The course requires mandatory physical training and includes both lecture and leadership laboratory. Two weekend training exercises normally include M16-A1 rifle firing, rappelling training, and airmobile helicopter operations. Corequisite: MY 204 Laboratory.

MY 204L — Basic Military Leadership II Laboratory (0,2.5) 0 Credit
Leadership laboratory with emphasis on military leadership and small unit tactics. Students develop leadership abilities through hands-on practical experiences. Training continues development of basic skills acquired in MY 203 Laboratory and includes operations and tactics, land navigation, first aid, and general military subjects. Practical training exercises continue development of basic skills with the focus on soldier-team development at the squad/team level. The Army Physical Fitness Test (APFT) is administered to assess the state of physical development.

MY 303 — Officership I (3,0) 3 Credits
This course examines the foundations of officership, the character, responsibilities, and status of being a commissioned officer. It is dynamic, challenging, and stressful for it is the course that emphasizes the warrior ethic. The course covers a wide spectrum of subjects, from training in common military skills to fostering a value system that emphasizes service to the nation, readiness to persevere in the face of obstacles, and willingness to make personal sacrifices in pursuit of the greater good. This course includes lecture, advanced leadership laboratory, physical training, and practical field training exercises. Prerequisites: Completed basic military science (or given constructive credit) and be a contracted Army ROTC cadet. Corequisite: MY 303 Laboratory.

MY 303L — Officership I Laboratory (0,2.5) **0 Credit**
Leadership laboratory with emphasis on military leadership and small unit tactics. Students develop leadership abilities through hands-on practical experiences. Training continues development of cadet competencies and confidence through intermediate leadership and technical/tactical instruction. Practical training exercises are supplementary in scope and include operations and tactics, land navigation, and weapons training. Special topics including tactical bivouac techniques, individual tactical techniques, tactical foot march techniques, squad tactics, and small unit patrolling are covered. The Army Physical Fitness Test (APFT) is administered to assess the state of physical development.

MY 304 — Officership II (3,0) **3 Credits**
A continuing development of the processes that distinguish commissioned military service from other professional endeavors. The main emphasis of this class will be the preparation of cadets for the six-week advanced camp they normally attend at the end of the junior year. Here their capability to conceptualize, innovate, synthesize information, and make sound decisions while under stress will be evaluated. This course includes lecture, advanced leadership laboratory, enhanced physical training and practical field training exercises. Prerequisite: MY 303. Corequisite: MY 304 Laboratory.

MY 304L — Officership II Laboratory (0,2.5) **0 Credit**
Leadership laboratory with emphasis on military leadership and small unit tactics. Students develop leadership abilities through hands-on practical experiences. Training continues development of intermediate leader and critical skills in preparation for Advanced Camp. Practical training exercises focus on soldier-team development at squad/patrol level. Training is supplementary and includes tactics, land navigation, and weapons subjects. Special topics include tactical bivouac techniques, small unit patrolling, a mini-STRAC exercise, and drownproofing. The Army Physical Fitness Test (APFT) is administered to assess the state of physical development.

MY 403 — Advanced Military Leadership I (3,0) **3 Credits**
A study of military professionalism with emphasis on command and staff relationships, organizational functions and duties of various staff officers that assist in the leadership of the organization. A study of personnel and logistical systems and the role they play in helping the organization optimize operations and improve life in the Army community. Training in staff briefings will be used as an introduction to military procedures. This course includes lecture, laboratory, and physical readiness training. Corequisite: MY 403 Laboratory.

MY 403L — Advanced Military Leadership I Laboratory (0,2.5) **0 Credit**
Leadership laboratory with emphasis on military leadership and small unit tactics. Students develop leadership abilities through hands-on practical experiences. Training culminates the leader development process at the

precommissioning level. Training is supplementary and includes operations and tactics, land navigation, and radio wire communication subjects. Students perform as subject matter experts and are responsible for conducting and evaluating training. The Army Physical Fitness Test (APFT) is administered to assess the state of physical development.

MY 404 — Advanced Military Leadership II (3,0) 3 Credits
A study of ethics and professionalism in the military and the role they play in carrying out the defense policy of the United States. The fundamentals of Military Law, its impact on the American military society and its place in the jurisdictional system. A history of the military courts martial as it relates to the jurisdictional process of American society. A study of the Law of Land Warfare and its relationship to the conduct of soldiers in combat. This course includes lecture, laboratory, and physical readiness training. Corequisite: MY 404 Laboratory.

MY 404L — Advanced Military Leadership II Laboratory (0, 2.5) 0 Credit
Leadership laboratory with emphasis on military leadership and small unit tactics. Students develop leadership abilities through hands-on practical experiences. Training culminates development of leader skills emphasizing the transition from cadet to second lieutenant. Expands the frame of reference and gradually shifts it to orient on future assignments as an officer. Training is supplementary and includes operations and tactics, land navigation, and radio wire communication subjects. Students perform as subject matter experts and are responsible for conducting and evaluating training. The Army Physical Fitness Test (APFT) is administered to assess the state of physical development.

PHYSICAL SCIENCE

PS 101 — Basic Chemistry (3,1.5) 3 Credits
Elementary chemical theory. Covers basic atomic theory, elements, compounds, and mixtures, calculation of weight and weight volume relationships, basic descriptive chemistry. One 1.5 hour lab session per week. (Cannot be used for credit in chemistry toward degrees in Aerospace or Electrical Engineering.) Prerequisite: MA 111 or corequisite: MA 140.

PS 102 — Explorations in Physics (3,0) 3 Credits
Survey course in elementary physics. Stress will be placed on basic concepts, principles and history of the development of physics. Presentations will include selected topics in mechanics, heat, light, sound, electricity and magnetism, and modern physics. (Cannot be used for credit in physics toward degrees in Aerospace or Electrical Engineering, Aircraft Engineering Technology, Aeronautical Science, or Avionics Technology.) Prerequisite: MA 111.

PS 103 — Technical Physics I (3,1) **3 Credits**
Survey course in elementary physics. Stress will be placed on basic physics principles. Problem solving and problem solving logic will be an important, integral part of this course. Topics will include Newton's Laws, projectile motion, circular motion, work, energy, conservation laws, momentum. One one-hour lab session per week. (Cannot be used for credit in physics toward degrees in Aerospace Engineering, Electrical Engineering, or Aircraft Engineering Technology.) Prerequisite: MA 111 or MA 140. Corequisite: MA 112 or MA 241.

PS 104 — Technical Physics II (3,1) **3 Credits**
Application of basic physics principles discussed in PS 103. Other areas will include fluids, properties of matter, thermodynamics, wave motion, sound, simple harmonic motion, kinetic theory, basic electromagnetic theory and elementary circuits. One one-hour lab session per week. (Cannot be used for credit in physics toward degrees in Aerospace Engineering, Electrical Engineering, or Aircraft Engineering Technology.) Prerequisites: PS 103, MA 112 or MA 241.

PS 107 — Elements of Biological Science (3,0) **3 Credits**
A physical science course with emphasis on anatomy and physiology of man including chemical and cellular basis of life, biology of organisms, and ecology.

PS 108 — Contemporary Chemistry (3,1) **3 Credits**
Elementary Chemical Theory. The origins and development of chemistry with an overview of the present applications of chemistry and its future potential in human affairs. Applications to scientific decision-making in the business and industrial environment. One one-hour lab session per week. Students who take PS 108 may not also take PS 101.

PS 109 — Current Topics in Space Sciences (1,0) **1 Credit**
A survey seminar intended to explore contemporary topics encountered in the exploration of the upper atmosphere and near space environment.

PS 140 — Chemistry for Engineers (4,0) **4 Credits**
Chemical stoichiometry; states of matter; solutions; thermodynamics; rate of reaction; equilibrium; oxidation-reduction; corrosion; organic compounds; and polymers. Prerequisites: High school chemistry and placement or PS 101. Corequisite: PS 141

PS 141 — Chemistry for Engineers Laboratory (0,3) **1 Credit**
One three hour laboratory session per week, with experiments paralleling the material of PS140. Corequisite: PS 140

PS 208 — Physics II (3,0) **3 Credits**
Fluids; Temperature; Heat; First and Second Laws of Thermodynamics; Wave Motion; Acoustics. Prerequisites: PS 215, PS 216, MA 242. Corequisite: MA 243.

PS 211 — Engineering Physics I (4,0) **4 Credits**
Vector and scalar quantities. Newton's Laws of motion and gravitation. Friction. Work, energy and power. Torque and rotational motion. Linear and angular momentum. Harmonic motion. Fluid statics and dynamics. Wave motion and sound. Prerequisite: MA 241. Corequisite: MA 242, PS 212.

PS 212 — Engineering Physics Laboratory I (0,3) **1 Credit**
One three hour session per week, with experiments paralleling the material of PS 211: mechanics, fluid mechanics, and waves. Corequisite: PS 211.

PS 215 — Physics (3,0) **3 Credits**
Estimations; order of magnitude analysis; Newton's Law; Gravitation; Kinematics; Work and Energy; Momentum; Rotation; Harmonic Motion. Prerequisite: MA 241. Corequisite: MA 242, PS 216.

PS 216 — Physics Laboratory I (0,3) **1 Credit**
One three hour laboratory session per week, with experiments chosen primarily from mechanics. Corequisite PS 215.

PS 217 — Engineering Physics II (4,0) **4 Credits**
Basic thermodynamics and kinetic theory of gases. Electric forces, 4 electric field and Gauss's Law. Electric potential and electrostatic potential energy. Capacitance. Simple D-C circuit theory. Magnetic forces, magnetic field and Ampere's Law. Faraday's Law. Inductance. Electromagnetic oscillations and wave propagation. Geometrical optics. Prerequisite: PS 211, PS 212. Corequisite: PS 218.

PS 218 — Engineering Physics Laboratory II (0,3) **1 Credit**
One three hour laboratory session per week, with experiments paralleling the material of PS 217: thermodynamics, kinetic theory, electricity and magnetism, and geometric optics. Prerequisites: PS 211 and PS 212. Corequisite: PS 217.

PS 219 — Physics III (3,0) **3 Credits**
Static Electricity, Gauss's Law, Potential, Ohm's Law, Direct Current circuits, Magnetic Fields, Induced Electromotive Force, Inductance, EM Waves, the nature of Light, images by a single surface, lenses and optical instruments. Prerequisites: PS 208, MA 243. Corequisite: PS 220.

PS 220 — Physics Laboratory III (0,3) **1 Credit**
One three hour laboratory session per week with experiments chosen primarily from thermodynamics, electricity and magnetism, and geometric optics. Prerequisites: PS 208 and MA 243. Corequisite: PS 219.

PS 290 — Physics Laboratory Practicum (0,1) **0 Credits**
Required, non-credit course. Requires the student to direct the operation of a basic laboratory for one semester. Includes laboratory preparation, laboratory discussion, and grading of laboratory reports. Students receive pay at the current rate approved for Student Assistants. Prerequisite: HU219.

PS 301 — Astronomy (3,0) **3 Credits**
A descriptive course dealing with the structure and evolution of the physical universe. Topics include the solar system (Earth, Moon, Sun, and planets), stars, black holes, galaxies, quasars, cosmology and exobiology. Planetarium trips and night observing sessions optional. Prerequisite: PS 102 or PS 103 or PS 211, PS 212 or PS 215, PS 216.

PS 302 — Evolution of Scientific Thought (3,0) **3 Credits**
Traces the development of science from the earliest times through the modern period, with particular emphasis given to our changing concepts of nature and of science itself. (Also offered as SS302. Students receive either social science elective credit or physical science elective credit, but not both.) Prerequisites: Either HU 123 or HU 140 or HU 141 and either PS 101 or PS 102 or PS 103 or PS 211, PS 212.

PS 303 — Modern Physics (3,0) **3 Credits**
Modern concepts in physics including optics. Topics include refraction, diffraction, and scattering of electromagnetic radiation, special relativity, wave-particle duality, the uncertainty principle, quantum theory of atomic structure, X-rays, lasers and nuclear reactions. Prerequisite: PS 217 and PS 218, or PS 219 and PS 220.

PS 304 — Man and His Environment (3,0) **3 Credits**
A survey course in the environmental problems arising from man's use and abuse of his environment. Ecological, economic, sociologic and technologic principles will be applied to the management control of pollution of the atmosphere, land and water resources of the earth. Prerequisite: PS 101, or PS 140 and PS 141.

PS 305 — Modern Physics Laboratory (0,3) **1 Credit**
Experiments in atomic and nuclear physics, including spectroscopy, nuclear particle analysis, X-Ray analyses, and laser applications. Corequisite: PS 303.

PS 320 — Classical Mechanics (3,0) **3 Credits**
Fundamentals of Mechanics; oscillatory motion; systems of particles; varying Mass; motion under central forces; motion in three dimensions; gyroscopic motion; generalized coordinates; normal coordinates; Lagrangian and Hamiltonian Formulations. Students will write some simple computer programs. Prerequisites: MA 345, ES 204.

PS 401 — Astrophysics (3,0) **3 Credits**
Study of the basic physical processes operating in the astronomical environment; stellar structure and evolution, the interstellar medium, galaxies, cosmology. Astrophysical concepts are emphasized, thus underlining the common features operating within many astronomical systems. Prerequisites: PS 303, MA 441.

PS 299, 399, 499 — Special Topics in Physical Science 1-4 Credits
Individual independent or directed study of topics within the fields of the physical sciences impinging on aerospace engineering development or practices and which are of current or anticipated interest. Prerequisites: Consent of instructor and approval of the department chair.

SAFETY OF FLIGHT

SF 210 — Introduction to Aerospace Safety (3,0) 3 Credits
An introduction and overview of the theories, concepts, applications, and practices of the field of aerospace safety. The course is designed for the beginning safety student and is a prerequisite for most of the higher-level safety courses. Material presented covers the major specialty areas such as Human Factors, Mechanical Factors, Accident Investigation, Safety Programs, Safety Statistics, etc.

SF 320 — Human Factors in Aviation Safety (3,0) 3 Credits
An examination of the major causative agent in aircraft accidents; the human being. Emphasis is placed on psychologic and physiologic factors which enhance the accident probability. Included is a detailed analysis of Ergonomics (human engineering) and its influence. Prerequisite: SS 220.

SF 330 — Aircraft Accident Investigation (3,0) 3 Credits
A detailed evaluation of methods and procedures involved in aircraft accident investigation. The organization, duties and procedures of the Aircraft Accident Board are analyzed. The student explores procedures for determining accident causes through analysis of such elements as the function and techniques employed by the trained accident investigator and the role of the specialized laboratory. Analyses are also made of reporting procedures and the all-important follow-up work designed to avoid like or related aircraft accidents. Prerequisite: SF 210. Recommended: AS 120 or FA 110 or knowledge at the private pilot level.

SF 335 — Mechnical and Structural Factors in Aviation Safety (3,0) 3 Credits
Examination of design, manufacturing, metallurgy and maintenance as to the influence each has on aircraft accidents. A detailed analysis of the "Failure Process" will be conducted. Additional topics include: stress and design loading, fatigue, corrosion, and the envelope of operation. Prerequisite: SF 330. Recommended: AS 309.

SF 345 — Safety Program Management (30) 3 Credit
A study of the principles of the development and management of an effective safety program. The philosophy and historical development of major concepts are examined with particular emphasis on areas of special concern in organizational accident prevention. Students analyze the influence of morale, education and training, the role of the supervisor, and other

substantial program elements of value to the safety manager. Prerequisites: SF 210 and MS 201.

SF 350 — Aircraft Crash and Emergency Management (3,0) **3 Credits**
Theory, practices, and techniques utilized in the response phase of aircraft crashes and emergencies. Designed as a "real world" introduction to the field of emergency response at the CFR agency level, the airport response and administration levels, and the related and associated entities involved in aircraft mishaps. Prerequisite: SF 210.

SF 435 — Aircraft Crash Survival Analysis and Design (3,0) **3 Credits**
An in-depth analysis of the accident environment with particular emphasis on the protection of the occupants. The injury mechanisms and causes will be analyzed as will the physics and kinematics of the impact sequence. The intent of the course is to familiarize the student with what can be done to minimize the effects of an accident. Prerequisite: SF 335.

SF 445 — System Safety in Aviation (3,0) **3 Credits**
"System Safety" entails specialized integration of skills and resources in all phases of the life cycle of a given system in furtherance of accident prevention. Its heritage is systems engineering and management theory but amplified to include modern safety practices derived from numerous disciplines. Accordingly, this course reviews the development and implementation of system safety technology in aviation, both civil and military. Students will acquire an understanding of how accident prevention is designed into an aircraft under development, evaluated and enhanced during flight test, and assured or otherwise controlled during operational use; this in juxtaposition with other elements of the total aviation system. Prerequisite: SF 345.

SF 499 — Special Topics in Aviation Safety (3,0) **1-3 Credits**
Individual independent or directed studies of selected topics in aviation safety. Prerequisites: Consent of Instructor, approval of Department and Program Chairs and 12 hours of SF courses.

SPACE STUDIES

SP 110 — Introduction to Space Flight (3,0) **3 Credits**
A survey of the major aspects of space flight. Topics covered include the history of space flight, Space Shuttle operations, and present and future commercial, industrial, and military applications in space.

SP 200 — Planetary and Space Exploration (3,0) **3 Credits**
This is a survey course of U.S. and international space programs. The student will be introduced to the Earth and its space environment, to methods

of scientific exploration and to spacecraft and payload criteria at the introductory physics level.

SP 210 — Space Transportation System (3,0) 3 Credits
A survey course of the Space Transportation System (STS) at the introductory physics level. Included are manned space flight operations, supporting systems and the Space Shuttle mission, both present and future. A review of Space Shuttle flight profiles, guidance and navigation control, proximity operations and rendezvous and a brief review of hypersonic orbiter aerodynamics are included. Also covered are future STS applications to space station logistical operations, commercial applications and Department of Defense operations.

SP 215 — Space Stations Systems and Operations (3,0) 3 Credits
This course is designed to provide a brief study of the Space Station flight operations, its supporting elements and planned systems. The survey study will include commercial applications, logistical support, maintenance and servicing design concepts at the introductory level. Prerequisite: MA 112.

SP 220 — Life Support Systems (3,0) 3 Credits
This course is a survey, at the elementary physics level, of the requirements and design considerations for life support systems in space and on other planets. Included are an introduction to basic human physiology, a description of the space envionment and a survey of historical life support systems, and a presentation of spacecraft limitations and requirements. Prerequisites: PS 102 or PS 103 or PS 201.

SP 300 — Satellite and Spacecraft Systems (3,0) 3 Credits
Orbital satellites and spacecraft are discussed according to their application, design and environment. The power system, shielding and communication systems are reviewed along with their missions, space environment and limitations. The course will be taught at the introductory physics (PS 104) level. Prerequisites: MA 112 and MA 125.

SP 400 — Introduction to Space Navigation (3,0) 3 Credits
This course will introduce the student to basic elements of space navigation at the introductory physics level. The consequences of Newton's law of gravitation and central force motion, including Kepler's three laws of planetary motion are explained. The physical characteristics of the solor system and the Earth/Moon system are reviewed. The basic methods and techniques of navigating in near-earth orbit and the moon and planets are described. Prerequisites: MA 125 and MA 112 and PS 103 or PS 201.

SP 425 — Selected Topics in Space and Aerospace (3,0) 3 Credits
This course introduces students to problems in space operations, space flight or other space-related topics which can be critically addressed from a knowledge base of elementary calculus, elementary physics and the subject matter of any two Space Studies courses. The specific topics will be selected by the course monitor and instructor and published in the **Schedule of Courses** in the preceding semester. This is a required course for the

Space Studies minor. Prerequisites: MA 125, PS 104 or PS 202, and any two SP courses.

SOCIAL SCIENCES

SS 102 — College Success (2,0) **1 Credit**
A course in which students assess and develop the personal, interpersonal, intellectual and social skills necessary to succeed in college. Time management, study skills, goal clarification, career concerns, and college resources will be included. This course is graded Pass/Fail and is available to Freshmen only.

SS 110 — World History (3,0) **3 Credits**
Designed primarily as a survey of the development and evolution of Western Civilization from 1500 to the present. Emphasis is placed on the effect of Western influence on the world.

SS 120 — American History (3,0) **3 Credits**
From 1865 to the present. Reconstruction, the age of big business, the United States as a world power. World War I, World War II, the Great Depression and its aftermath.

SS 130 — History of Aviation in America (3,0) **3 Credits**
A survey of the history of America in the Twentieth Century, emphasizing the explosive growth of aviation as a major influence upon the economic, military and societal development of the United States.

SS 204 — Introduction to Geography (3,0) **3 Credits**
A survey course designed to acquaint the student with types of maps, map reading and utilization, as well as to show relationships between geography and economics, culture and geopolitics. Man and his use of his environment are stressed, along with the usual emphasis on place, names and locations. Ancillary topics will include climate, demography and transportation. The course is a lower level elective open to students in all degree programs. There are no pre- or corequisites.

SS 210 — Introduction to Sociology (3,0) **3 Credits**
Integrated survey of the fundamental concepts of culture, forms of collective behavior, community and social organization, social interaction and social change. The social effects of aviation and the impact of science on the social order living in an air-age will also be investigated.

SS 220 — Introduction to Psychology (3,0) **3 Credits**
Designed to help the student become aware of the many factors influencing human behavior and social interaction, and to understand the context of emotional disturbances.

SS 302 — Evolution of Scientific Thought (3,0) **3 Credits**
Traces the development of science from the earliest times through the modern period, with particular emphasis given to our changing concepts of nature and of science itself. (Also offered as PS 302. Students receive either social science elective credit or physical science elective credit, but not both.) Prerequisites: Either HU 123 or HU 140 or HU 141 and either PS 101 or PS 102 or PS 103 or PS 201.

SS 305 — American Military History (3,0) **3 Credits**
Military history with emphasis on military policy, organization and technology as they relate to political, economic, and social developments from 1775 to the present. Prerequisite: SS 110 or SS 120 or SS 130.

SS 310 — Personality Development (3,0) **3 Credits**
A course to acquaint the individual with the environmental factors that affect personality development, emotional stability, and interpersonal relationships in our society. Through an understanding of these factors, the individual will have discovered new modes of adjustment, both in his own life and in his family and occupational setting. Prerequisite: SS 220.

SS 320 — American National Government (3,0) **3 Credits**
Basic issues of American democracy, constitutional principles and the executive, legislative and judicial branches of government. Prerequisite: SS 110 or SS 120.

SS 325 — International Studies (3,0) **3 Credits**
An overview of the land, the people, the culture and the history of one region of the world, with emphasis on current events and policies on the world scene. Specific content varies from year to year. Prerequisite: SS 110 or SS 120.

SS 331 — Current Issues in America (3,0) **3 Credits**
A course in selected political-economic issues of national and international importance. Extensive use of journals, magazines and newspapers to supplement lectures and discussions. Prerequisite: SS 110 or SS 120.

SS 335 — Human Factors (3,0) **3 Credits**
This course provides the student, particularly those with a limited background in psychology, with an understanding of the basic principles of human factors psychology. The course will focus on the research, principles, and methods that are beneficial (and essential) in optimizing the interactions between people and machine elements of the system, while taking the environment into account. This course places particular emphasis upon the importance of the role of human factors in aviation and aerospace systems. Prerequisite: SS 220.

SS 340 — American Foreign Policy (3,0) **3 Credits**
A survey of the evolution of present American foreign policy, stressing the factors which affect and shape this policy. Attention is given to present governmental offices, agencies and departments and the role each plays in

policy formulation. Emphasis is on the period since World War II. Prerequisite: SS 110 or SS 120.

SS 350 — Psychology of Relationships (3,3) 3-4 Credits
The course will provide theoretical and practical knowledge of the intrapersonal and interpersonal components of successful relationships. Lectures and discussions will focus on research, theory and applications of Social, Behavioral, Psychoanalytic, Family and Humanistic Psychology to interpersonal, romantic, marital and family relations in contemporary society. Class will also focus on self-knowledge and skills conducive to successful relationships. A voluntary, one-credit laboratory offers students role-playing and other practice of successful relationship skills. Prerequisite: SS 220.

SS 398 — Applied Social Psychology (3,0) 3 Credits
Students will do volunteer work for a community service agency, where they will learn to apply basic sociological and psychological principles to social issues and become familiar with community services. Under the supervision of both community agency personnel and the course instructor, students will gain experience and understanding of the operation of the agency, as well as of the client population and of themselves in a helping role. Prerequisite: SS 210 or SS 220.

SS 299, 399, 499 — Special Topics in the Social Sciences 1-6 Credits
Individual independent or directed study of selected topics in the areas of history, sociology, psychology and human culture in general. Prerequisites: Consent of instructor and approval of the department chair.

Academic Regulations And Procedures

(NOTE: College of Continuing Education students should read and be familiar with all of the information contained in this chapter. However, term schedule, course offering, and administrative differences between the College and the Daytona Beach and Prescott campuses make some differences in procedures and practices necessary. Those differences are described in a section of the catalog titled College of Continuing Education. An asterisk (*) appears after the title of the sections in this chapter referring the reader to a note after the section which directs the reader to the College of Continuing Education section on Page XXX).

STUDENT RESPONSIBILITY

The student is responsible for being informed of all regulations and procedures required for continued attendance at the University. These are generally embodied in this catalog, the **Student Handbook,** the Flight Operations Manual, the Residence Hall Regulations Pamphlet, Curriculum Manual, and Academic Policies and Procedures that are published by the University. These documents are available for reference at resident centers, campus records offices, student government offices, and academic departments throughout the University. University regulations will not be waived because a student pleads ignorance of established policies and procedures. A student who is unsure of any regulation should seek help or clarification from his or her academic advisor, program chair, or the Office of Records and Registration.

Academic regulations, curricula and procedures are subject to change without notice or obligation. If such changes occur, they will be published either in an addendum, or in the next catalog to be issued.

For academic regulations pertaining to graduate students, see the **Graduate Catalog.**

REGISTRATION

Students are required to register for each semester in which they plan to enroll. Tuition deposits, registration and payment of fees must be made in accordance with the instructions published by the campus records office or resident center. Students are not officially enrolled until they complete all the requirements of registration, including financial requirements.

Penalties will be charged for late registration and late payment of fees. Late registration will be allowed during the first three days of classes (See the University calendar) if unusual circumstances prohibit the student from registering during the scheduled period. Except for flight courses, registration will not be allowed under any circumstances after the last day for registration, as designated in the academic calendar of this catalog or the resident center schedule, whichever applies.

Because of the unique scheduling requirements associated with flight training, flight course registration continues throughout the semester.

For information on registration procedures at College of Continuing Education locations, contact the appropriate resident center.

CONTINUED ENROLLMENT

College of Continuation students should refer to the College of Continuing Education section of this catalog for the procedure which they must follow.

Students are considered to be continuing students, regardless of the number of hours for which they register, unless they

1. Enroll at another institution without prior written approval. If prior approval is obtained, students may not earn more than eleven semester (or equivalent) credit hours with other educational institutions between periods of attendance at the University and remain in continuing student status.
2. Fail to enroll in at least one ERAU course in any two consecutive semesters (excluding summer terms) if they are Daytona Beach or Prescott Campus students. College of Continuing Education students must enroll in at least one class in a two calendar year period.
3. Have been suspended or dismissed from the University.

Students failing to maintain continuous enrollment for any reason are required to reapply for admission. Students failing to maintain continuous enrollment for any reason are required to reapply for readmission under the current catalog. Continuously enrolled students who have left the University for one or more semesters are required to inform the Office of Records and Registration at the campus they wish to attend of the degree program desired at least 60 calendar days prior to the beginning of the semester for which they wish to re-enter.

SCHEDULE OF CLASSES

A schedule of classes is prepared for each semester/term at all locations served by the University. The University reserves the right to make adjustments to the published schedule to include cancellation or rescheduling of any class, when deemed necessary and appropriate.

ACADEMIC ADVISING

At the Daytona Beach and Prescott campuses, each new student is assigned an academic advisor. At College of Continuing Education locations, the resident center director is responsible for academic advisement. The academic advisor assists the student in determining and scheduling an academic program to meet the student's educational aims and goals. The advisor's signature is required on all registration and add/drop forms before they will be processed.

Academic advisors post a schedule of office hours, and all students should feel free to call on their advisors at any time assistance or discussion is appropriate.

CLASS ATTENDANCE

Regular attendance and punctuality, in accordance with the published class schedule, are expected at all times in all courses. Accordingly, attendance may be included in the grading criteria of an individual class. There are minimum "contact hour requirements" imposed by the FAA for certain classes leading to FAA certificates; these requirements are rigorously enforced. An explanation of the cause of all absences should be given the instructor in advance when possible. Absences are counted from the first scheduled meeting of the class.

An examination is normally given in each course at the end of the semester/term. A student who misses a final examination without advance permission of the instructor may be assigned a grade of F for the course. A grade of incomplete (I) may be given if the student has obtained advance permission from the instructor or can show satisfactory evidence that the absence could not be prevented.

UNIT OF CREDIT

The semester credit hour is the unit of credit used throughout the University system. Quarter hours transferred will be converted to semester credit hours on the following basis: a quarter hour equals two-thirds of a semester hour.

CLASSIFICATION OF STUDENTS

College of Continuing Education students should refer to the College of Continuing Education section of this catalog for the procedure which they must follow.

All audited courses and courses taken for credit are counted in determining the student's load for a semester/term.

Twelve semester hours constitute the minimum load for full-time student status during the fall and spring semesters at the Daytona Beach and Prescott campuses. The minimum load for full-time student status during each summer term is six semester hours. Students carrying less than the minimum full-time load are classified as part-time students. The normal maximum load for students is 18 hours per semester, or nine hours per summer term.

At all locations, a student whose cumulative GPA is 3.00 or higher may enroll for an overload with prior approval of the appropriate Dean or his designee.

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

Freshmen:	27 hours or less
Sophomores:	28-57 hours
Juniors:	58-87 hours
Seniors:	88 hours or more

GRADING SYSTEM

The following grades are used by the faculty to indicate the quality of work performed by students. Grade designations and grade points for each hour of academic credit are listed below:

A	Superior	4
B	Above Average	3
C	Average	2
D	Below Average	1
F	Failure	0
AU	Audit	0
I	Passing, but incomplete	0
P	Passing (credit)	0
S	Satisfactory (noncredit)	0
X	Credit by examination or advanced standing	0
T	Accepted by transfer	0
N	No grade submitted by instructor	0
W	Withdrawal from course	0
WF	Withdrawal from the University — Failing	0
XP	Course Equivalency Examination passed and advanced standing granted	0
XF	Course Equivalency Examination failed and advanced standing not granted	0

The I grade is temporary and may be given only at the end of a course when students cannot complete the required work because of severe hardship beyond their control, as determined by the instructor. At the Daytona Beach and Prescott campuses, a grade of I must be made up no later than 30 class days (15 class days for summer terms) after the last scheduled class day of the semester in which the I was assigned. College of Continuing Education students should refer to the College of Continuing Education section of this catalog for the procedure which they must follow. When an I grade is not made up within the prescribed time period, it will be changed to an F.

Flight students may receive a grade of F for excessive unexcused no-shows as determined by the Flight Technology department.

If students stop attending class and fail to complete the official withdrawal procedure, a grade of F will be assigned for each course in which they were enrolled.

A grade point average (GPA) is computed for each student at the end of each semester/term. The semester/term GPA is determined by dividing the number of grade points earned during the semester/term by the number of semester credit hours attempted. Only courses for which grades of A, B, C, D, F and WF are awarded count as hours attempted. In addition to the semester/term GPA, a cumulative GPA is computed for each student for all credit work completed at the University with the exception of Basic Skills

courses. These courses do not apply to a student's degree program and are not computed into the GPA.

Except for flight and basic skills courses, a course may be repeated as often as necessary or as desired with the second grade replacing the first, and the third replacing the second. The third and all subsequent grades will be used in computing GPA. All attempts will remain on the student's permanent record. Flight courses may be repeated only once. Students are responsible for indicating courses being repeated at the time of registration.

AUDITING AND WITHDRAWING FROM A COURSE

College of Continuing Education students should refer to the College of Continuing Education section of this catalog for the procedure which they must follow.

A student may change registration from audit to credit only during the "Add" period at the beginning of the semester/term. A change from credit to audit may be made only during the authorized withdrawal period (see below). When a student auditing a course fails to maintain satisfactory attendance, as determined by the instructor, a grade of W will be assigned.

A Daytona Beach or Prescott campus student may withdraw from a course at any time during the first 40 class days of a semester and during the first 20 class days of a summer term and receive a grade of W. A student may not drop a course after the official date listed in the Schedule of Classes. Basic skills courses cannot be dropped without the approval of the appropriate department chair. At these campuses, the student must file a change of registration with the campuses records office.

Flight courses may be dropped at any time prior to the first attempt of any stage or phase check. A grade of W will be awarded if withdrawal is accomplished prior to the first attempt of any stage or phase check provided the student has not previously received a grade of F due to performance difficulties or no-shows.

GRADE REPORTS

Grade reports are issued at the end of each semester/term. All reports of grades are mailed directly to the student at the most current address on file in the Office of the 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 semester/term, as blanket authorizations are prohibited by law.

WARNING, PROBATION, SUSPENSION AND DISMISSAL

A student at the Daytona Beach or Prescott campuses whose cumulative GPA is less than 2.0 for one semester will be placed on academic warning. A student whose cumulative GPA is less than 2.0 for two consecutive

semesters will be placed on academic probation. Students on probation are classified as students not in good standing and may not serve as an elected member of the Student Government Association, may not participate in intercollegiate athletics as a member of a University team, may not serve on the editorial staff of a campus publication or work on campus and shall lose eligibility for financial aid programs. The academic program of a student on warning or probation may be restricted by the Dean. When academic probation is removed by converting a grade of I to a grade of A, B, C, or D, the academic probation will not become part of the student's permanent academic record.

A student whose cumulative GPA is less than 2.0 for three consecutive semesters, or a student on academic probation whose cumulative GPA at the end of the subsequent semester is below 2.0, will be suspended from the University unless the student maintains a semester/term GPA greater than 2.0.

Any student who has a semester/term GPA of less than 1.0 may be suspended or placed on academic probation at the discretion of the Academic Dean.

Students who are unable to successfully complete any Basic Skills course in two attempts will be suspended from the University and must apply for readmission. In order to be readmitted, the student must have earned transferable credit at another accredited institution in an appropriate first-level English or Mathematics course equivalent to the ERAU course required by the student's degree program.

A student who has been suspended and readmitted will be on probationary status until the cumulative GPA has been raised to 2.0. If the semester/term GPA falls below 2.0 during the probationary period, the student will be dismissed. Any previously suspended student who has been restored to good standing and whose academic performance subsequently deteriorates to a level which would qualify for initial suspension, will be dismissed.

Once confirmed, academic dismissal is final and the student will not be readmitted to the University.

College of Continuing Education students should refer to the College of Continuing Education section of this catalog for the procedure which they must follow.

The University reserves the right to suspend or dismiss a student at any time and without further reason, if the student's conduct, academic standing or other performance is regarded as undesirable. "Undesirable conduct" is defined by the University as any conduct which poses a risk of danger 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 him or herself; or conduct which is disruptive of the educational process of the University; or any other just cause.

Success in aviation training 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 ERAU that using or possessing

marijuana, or any narcotic, stimulant or hallucinogenic drug will be cause for immediate suspension or dismissal.

Embry-Riddle Aeronautical University is committed to intellectual integrity in all its academic pursuits. Sanctions may, therefore, be imposed by faculty, departments, divisions, or campuses of the University for cheating (defined as using inappropriate sources of information on a test), or being a party to obtaining or possessing an examination prior to the time the examination is scheduled, or plagiarism (defined as presenting as one's own, the ideas, words, or products of another).

Such sanctions may involve a failing grade on the assignment, a failing grade for the course, suspension or even dismissal from the University.

Academic dishonesty is further defined to include the following:

1. Forgery and unauthorized alteration or misuse of one's own or another's academic records or transcripts.
2. Knowingly furnishing fake or misleading information to the University when seeking admission to the University or campus.
3. Forging, altering, falsifying, destroying, or unauthorized use of a University document, record, or identification. (Utilizing ERAU stationery, business cards, logo, or otherwise identifying oneself as an agent of the University for personal, non-University business.)
4. Misuse of computing facilities and/or security violations (including attempted violations) of computing facilities.

Any student who has been suspended or dismissed from the University for any reason must file for readmission with the appropriate admissions office. (A student suspended for poor scholarship may apply for readmission subsequent to completing a minimum of fifteen hours of academic credit with a GPA of 2.5 or more from an institution with accreditation acceptable to ERAU, or twelve calendar months after the date of suspension.)

The University reserves the right to refuse admission to students from other colleges or universities where they were on probationary status or were academically dismissed. If the University admits such students, they will be admitted on probationary status.

CATALOG APPLICABILITY

College of Continuing Education students should refer to the College of Continuing Education section of this catalog for the procedure which they must follow.

For a student enrolled at either the Daytona Beach or Prescott campus, the catalog in effect at the initial matriculation is applicable as long as the student remains in his or her original degree program and major/area of concentration. If the student leaves the University and must reapply for admission, the catalog in effect at the time of readmission will apply. (Circumstances requiring readmission to the University are listed under the Readmission to the University heading of the General Information chapter.)

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

Students who fail to complete the curriculum requirements of the degree program in which they enroll within a period of ten calendar years from the date of original enrollment will become subject to the curriculum requirements of the catalog in effect on the last day of the ten-year period.

GRADUATION HONORS

Graduation honors are awarded only to students completing a baccalaureate program and recognize excellence of performance throughout the student's academic career. To be eligible, the student must have completed at least 45 credit hours in residence at ERAU. The level of graduation honors will be based on the cumulative grade point average for all courses taken at ERAU and those courses transferred from other institutions which are directly applicable to the student's degree program. The honors level will appear on the student's academic transcript along with the degree information

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

Honors Level	Cumulative GPA
Summa Cum Laude	3.90-4.00
Magna Cum Laude	3.70-3.89
Cum Laude	3.50-3.69

To be recognized for honors at the Commencement Ceremony, the student shall have completed all courses for the degree except, possibly, for the last flight course and the student must be enrolled in the last flight course.

DEAN'S LIST AND HONOR ROLL

College of Continuing Education students should refer to the College of Continuing Education section of this catalog for the procedure which they must follow.

Recognition of academic excellence is provided on a semester basis for full-time students at the Daytona Beach and Prescott campuses. A Dean's List and Honor Roll are published at the end of each semester. In order to be eligible for semester honors, the student must have earned an overall cumulative GPA of at least 2.00 and a semester GPA of 3.50-4.00 for the Dean's List or 3.20-3.49 for the Honor Roll. A student will not be awarded semester honors if a grade of D or F has been received during the semester/term.

GRADUATION REQUIREMENTS

All students must complete the general requirements as prescribed by the University and the specific requirements for the degree sought. 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. In the event the graduating student will not attend a scheduled graduation exercise, the diploma will be mailed to the address requested by the student.
2. All required courses for a particular degree listed in the applicable catalog must be successfully completed.
3. The minimum number of credit hours required for the degree as listed in the applicable catalog must be successfully completed.
4. For students pursuing their degrees at the Prescott or Daytona Beach campuses, the last 30 academic credit hours must be completed with Embry-Riddle for a bachelor's degree; the last 15 academic credits must be completed with Embry-Riddle for an associate degree. College of Continuing Education students should refer to the College of Continuing Education section of this catalog for the procedure which they must follow.
5. For a baccalaureate degree, a minimum of 40 credit hours in upper division (300 and 400 level) courses must be successfully completed. For transfer courses, the course level is determined by the educational institution which initially granted the credit. Exceptions to the 40-hour upper division requirement are authorized only when the specified required courses preclude achievement within the minimum credit hour requirements in the catalog listing for the degree.
6. A minimum cumulative GPA of 2.00 for all work completed with the University is required for any undergraduate degree. Candidates for the award of the B.S. in Aerospace Engineering, the B.S. in Electrical Engineering, and the B.S. in Aircraft Engineering Technology degrees must also earn a minimum cumulative GPA of 2.00 in all required AE, EE, ES or ET core courses.
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 their behavior is in good standing, according to University policies and regulations. This includes, but is not limited to, not being on disciplinary probation.

TWO DEGREES OF THE SAME RANK

In order for a student to earn a second baccalaureate degree, a minimum of 30 credit hours of ERAU course work over and above that which is required for the declared primary degree must be completed.

At least 60 credit hours must be ERAU courses and at least 20 of the thirty additional credit hours must be in upper-division courses.

To earn a second associate degree, the student must complete at least 15 credit hours of ERAU course work over and above that which is required for the primary degree; at least 30 credit hours must be ERAU courses.

AREA OF CONCENTRATION/MINOR

Areas of concentration and minors are designed to provide preparation in a specialized field. Students should consult with their Program Chair for information concerning designating an area of concentration or minor. The area of concentration/minor elected will be entered on the student's academic transcript when the degree information is posted at the time of graduation.

A number of minors in areas such as Aviation Business Administration, Aviation Safety, Mathematics, etc. are available to students in bachelors degree programs. Minors are optional; however, if one is elected, it should be declared not later than the beginning of the student's Senior year (88 credit hours) and be approved by the student's Academic Advisor/Center Director. The student becomes subject to the requirements of the minor as stated in the catalog in effect when the minor is declared. Whenever a specific course is listed for a minor, that course must be successfully completed or the minor will not be awarded. **Course substitutions will not be authorized.**

The Department/Program Chair responsible for a particular minor is the authority to certify that the student is qualified to receive the minor and determine how many deficits in credits will be satisfied.

CHANGE OF DEGREE PROGRAM

At the Daytona Beach and Prescott campuses, students may apply to change their degree programs if they meet academic qualifications and the degree program capacity is not full. At least one semester (minimum of 12 credit hours) must be completed in the original degree program before applying. Students should contact their current program chair to initiate a change of degree program.

When a student elects to change degree programs, or to change to a different area of concentration or major within a degree program, the requirements of the catalog currently in effect at the time the request was approved apply except for certain programs. Students considering such changes should contact their academic advisor or department chair to determine how they will be affected.

Students at College of Continuing Education locations should contact their Resident Center representative for information on changing their degree programs.

ATTENDANCE AT OTHER INSTITUTIONS

College of Continuing Education students should refer to the College of Continuing Education section of this catalog for the procedure which they must follow.

Once admitted to the University as degree candidates, students are required to complete all work to be applied toward their degrees with the University unless prior written authorization is granted to take courses and/or training at other institutions. Students desiring to take academic courses (including all flight courses) at other institutions while enrolled at Embry-Riddle must process a "Petition to take Courses at Another Institution" form obtained from the campus records office.

In considering a petition to take courses at another institution, the student's GPA, the availability of the course or courses in the ERAU curriculum, and the availability of substitutable courses will be taken into account. Students may be authorized to enroll in a course or courses at another local institution only when it is essential that a course or courses be taken at a specific time and schedule conflicts preclude completion of the work within the University.

Students who wish to acquire certification at the secondary level have the opportunity to satisfy both education and internship requirements through collaborative agreements with local institutions.

Students who attend other schools without proper authorization will not receive transfer credit for the courses taken and are subject to dismissal from the University. Acceptable standards for transfer of courses are listed in the Admission to the University chapter of this catalog.

FLIGHT TRAINING AT OTHER INSTITUTIONS

Once a student has enrolled at Embry-Riddle, all subsequent flight training must be completed in residence at the University. Flight training at other schools while enrolled at Embry-Riddle is not permitted without **advanced written authorization** from the appropriate authority. When permission to fly outside of Embry-Riddle is granted, no academic credit will be accepted or awarded by Embry-Riddle except that academic credit may be granted for helicopter training completed at an approved Part 141 school. Credit will be awarded for successful completion of this program on a PASS/FAIL basis if prior written permission is obtained from the appropriate authority. Credit will not exceed one credit hour for the flight portion or three credits for the academic portion. Enrolled students who receive flight training outside Embry-Riddle without proper prior approval are subject to dismissal from the University. This applies to currently enrolled students and to students not currently enrolled but maintaining "continuous enrollment." (For a definition of continuous enrollment, see the Continued Enrollment heading of this chapter.)

In degree programs requiring flight training, at least one flight course must normally be completed in residence at Embry-Riddle, regardless of any advanced standing or transfer credits which may be granted.

Exceptions may be made for currently qualified military trained pilots possessing FAA certification or for currently qualified, fixed-wing airline pilots.

Only those FAA Flight Certificates and ratings awarded as the result of flight training received at ERAU will be recorded on the student's transcript.

SUMMER FLIGHT

All Aeronautical Science and Aviation Technology students majoring in flight may be required to attend one full summer semester, A and B terms, or divide this into two summers — taking A term one year and B term another year.

WITHDRAWAL

A Daytona Beach or Prescott campus student who leaves the University for any reason must officially process a withdrawal clearance. Students withdrawing must do so through the Office of Records and Registration. When a student files an official withdrawal from the university after the end of the scheduled withdrawal period, a WF grade will be assigned for all courses for which the student is enrolled unless an exception is granted for medical reasons or other extenuating circumstances by the Academic Dean.

College of Continuing Education students should contact their Resident Center representative for information on withdrawal.

PRIVACY OF STUDENT RECORDS

The rights and privacy of students are the subject of Public Law 93-380 which became effective in 1974. The law requires that a student sign individual release forms for each company, school, or individual to whom he or she desires that information be released. The University may disclose certain items of directory information without prior written consent, unless notified in writing to the contrary by the student. Directory information consists of the following: student 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, most recent previous school attended and photograph. Additionally, the law authorizes students to review their files. Any student desiring additional information concerning the law should contact the Dean of Students Office.

MANDATORY STUDENT DRUG TESTING

Purpose

Embry-Riddle seeks to maintain a work and educational environment that is safe for its employees and students. Consequently, the University has implemented a mandatory student drug testing program.

Scope

This program applies to all students whose catalog applicability is 1990-91 and later, and who engage in Flight Training at Embry-Riddle on or after January 1, 1991. Students who have a catalog applicability prior to the 1990-91 academic year have the option of participating in the random testing program.

As outlined by regulations set by the Department of Transportation (D.O.T.) and the Federal Aviation Administration (F.A.A.), Embry-Riddle tests for the following drugs: Marijuana, cocaine, opiates, amphetamines, and phencyclidine (PCP).

The cost of drug testing is the responsibility of Embry-Riddle. The University provides the following types of drug testing:

1. Random testing of students engaged in flight training.
2. Post-accident testing is required for any student who is involved in an aircraft accident. The student will be tested for drugs within 32 hours after an accident.
   An accident is defined as any occurrence associated with the operation of an aircraft which 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 incident can occur at any point between the time any person boards the aircraft with the intention of flight and the time all such person(s) have disembarked.

In the event that a student refuses to be tested, fails to comply with testing procedures, or tests positive, then the following actions will be taken:

1. 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 suspended from the University.
2. Refusal to be tested when requested by the University will result in the student being suspended from the University.
3. When testing is required, the student will comply with all University directives concerning the place of testing, the manner in which the student is to arrive at the place of testing, and any other related matter. Failure to comply will result in the student being subject to disciplinary action up to and including suspension from the University.

Testing

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, testing, reporting and specimen retention in accordance with proposed D.O.T. and F.A.A. regulations.

Notification

Students applying to attend the Daytona Beach and Prescott campuses are notified of the drug testing requirement. Also, as part of Orientation,

all matriculating students are given a copy of ERAU's "Substance Abuse Policy and Mandatory Drug Testing Policy and Procedures."

The drug testing policy is also explained on the appropriate flight course registration forms.

Student Education and Assistance

Embry-Riddle seeks to promote awareness of substance abuse by sponsoring educational programs on the subject and through literature distribution.

The University is committed to assisting students in the resolution of problems associated with substance abuse, and encourages students to seek additional help through referrals from ERAU's Health Services and Counseling Departments.

Financial Assistance

FINANCIAL AID INFORMATION

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

Embry-Riddle believes the primary responsibility for financing an education lies first with the student and the student's family. Therefore, the student should begin preparing for educational costs by applying for financial aid early, saving money, looking for ways to reduce costs, and becoming 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.

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;
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.

Students receiving asssistance from the State of Florida must also take the College Level Academic Skills Test (CLAST) before the end of the semester in which they will complete 60 credit hours in order to be eligible for such assistance at junior and senior levels. Florida students should register to take the CLAST test by the posted deadline date and receive course counseling from an advisor in order to assure adequate preparation for the exam. Failure to take the test will result in the suspension of eligibility for state aid.

THE APPLICATION PROCESS

Applications are mailed to students after they apply for admission to the University. Returning students 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 College of Continuing Education locations may request their financial aid materials through the Resident Center or contact the Financial Aid Office directly.

PROGRAMS AVAILABLE

The major categories of financial assistance programs include loans, grants and 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 financial need of the student, however there are programs designed to assist the higher income family also.

Loans

Federal —
- SSL (Stafford Student Loan — formerly Guaranteed Student Loan)
- PLUS Loan (Parent Loans for Undergraduate Students)
- SLS (Supplemental Loans for Students)
- Perkins Loan

Embry-Riddle —
- REAL (Embry-Riddle Repayable Educational Assistance Loan)

Grants

Federal —
- Pell Grant
- Supplemental Educational Opportunity Grant

State —
- Arizona State Student Incentive Grant
- Florida Tuition Voucher Program
- Florida Student Assistance Grant
- Florida Undergraduate Scholars Fund
- Florida Vocational Gold Seal Endorsement Scholarship
- Grants from other states

Employment

Federal —
- College Work-Study Program

Embry-Riddle —
- Off-Campus referral program
- Resident Advisor Program

Financing Options

- EXCEL Loan
- Knight Extended Repayment Plan
- Educational Line of Credit
- Knight Insured Tuition Payment Plan
- Flight Funds

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 g.p.a. of at least 3.00. Scholarships are very competitive. A limited number of scholarships are awarded to entering freshmen and community college transfers who possess outstanding academic credentials. For further information about scholarships, contact the Financial Aid Office of the campus you plan to attend.

A detailed explanation of all financial assistance programs, requirements, application procedures and deadline dates can be found in the publication entitled ***Financial Assistance Programs for Embry-Riddle Students.***

OTHER FINANCIAL ASSISTANCE PROGRAMS

- AIR FORCE ROTC

  Air Force ROTC (AFROTC) offers yearly scholarships covering a student's college education for two, three, and four years. Each scholarship pays for tuition, laboratory and incidental fees, and textbooks and also includes a $100 per month (tax free) allowance for the academic years.

  Students never enrolled in a college or university as a full-time student are eligible for the four-year scholarship, provided they can complete their four-year degree before their 25th birthday. High school students interested in a four-year scholarship must apply to Air Force ROTC Headquarters, Maxwell Air Force Base AL, 36112, before **December 1st of their senior year.** Application forms for the scholarship are available at any university AFROTC Department, or from your local Air Force recruiter.

  Freshmen and Sophomores enrolled in the Air Force ROTC program at Embry-Riddle are also eligible for other Air Force ROTC scholarships. Freshmen can compete for three-year scholarships, while sophomores compete for two-year scholarships. Students apply for these scholarships through the AFROTC Department at Embry-Riddle.

  Junior college transferees can also compete for two-year scholarships. These scholarships are on a competitive basis; however, students must apply through the AFROTC Department before January of their entering junior year.

- ARMY ROTC

  Four-, three-, and two-year scholarships are available to those who qualify. Academic excellence is essential to any future career and especially in a highly technical Army. Naturally, the higher the GPA and test scores, the better chance exists of being selected as a scholarship recipient, however the minimum requirements are:
  - US Citizen
  - Be under 25 years of age the year of college graduation (waivers possible for prior service)
  - Have a cumulative academic GPA of 2.5
  - Have a SAT score of 850 or ACT score of 19

  Scholarship benefits include:

  $32,000 — Tuition paid at the rate of up to $8,000 per year.

$ 4,000 — Subsistence allowance paid at the rate of $100 per month, up to ten months of the school year.
$ 1,800 — Books paid at the rate of $225 per semester.
$ 1,600 — Miscellaneous fees paid at the rate of $200 per semester.
$39,400 — TOTAL not including uniforms and other items of military equipment that are issued at no expense to the cadet.

- ROTC ROOM AND BOARD SCHOLARSHIPS

Entering freshmen who receive three-year advance designee and four-year Air Force and Army ROTC tuition scholarships are eligible to receive a room and board scholarship from Embry-Riddle.

Room and board scholarships are available during the fall and spring semesters of the academic year. A 2.5 c.g.p.a. is required for renewal.

Contact your campus ROTC representative for details on how to apply.

- UNITED STATES MARINE CORPS PLATOON LEADERS CLASS PROGRAM

To be eligible for the U.S. Marine Corps Platoon Leaders Class Program a student must be enrolled full time. Openings are available for **males** that are freshmen, sophomores and juniors and **females** that are juniors with an expected graduation date of December 1994 through August 1995.

The program offers a guaranteed aviation contract to young men who meet the physical and mental qualifications. The Marine Corps also offers contracts in various non-flying military fields. In addition, financial assistance is available for qualified individuals.

If you have any questions, contact Captain Summerlin or Sergeant Sawyer at 800/752-9155 or collect at 904/731-4747.

- FLIGHT LEADERSHIP/FELLOWSHIP PROGRAM

"The Flight Leadership/Fellowship Program is available to students enrolled in the Aeronautical Science or Aviation Technology Degree Programs. It is designed to identify, develop, and reward students for demonstrated outstanding academic and leadership abilities.

Students are selected for the Flight Leadership portion of the program based on academic excellence and leadership potential. Selection for the Flight Fellowship portion is made from those Flight Leadership students who complete all required flight courses, demonstrate outstanding academic and leadership qualities, and satisfactorily complete the ERAU Flight Instructor Evaluation and Standardization Program.

While not every Flight Leadership student is offered a Flight Fellowship, those who are selected will serve as a department Flight Instructor and Tutor while finishing their degree requirements.

The Flight Leadership/Fellowship Program is highly competitive. Interested students should contact the Flight Technology Department Chair for additional information.

- AVIATION MAINTENANCE TECHNOLOGY FELLOWSHIP PROGRAM

The Aviation Maintenance Technology Fellowship is designed to assist students with the desire to complete an Embry-Riddle bachelor degree program utilizing their maintenance skills and certification to defray some of their tuition expenses. Selected students will serve as Assistant Maintenance Lab Instructors within the AMT curriculum, assisting the faculty in the conduct of scheduled laboratory training and the upkeep of aircraft and other training aids utilized by the department. The Fellowship Program provides for a 65 percent, or greater, tuition waiver for selected students. Requirements for applications to the program are:

1. Enrolled in a bachelor degree program for at least 6 credit hours each semester.
2. Airframe and Powerplant certification.
3. Completed one semester as a laboratory assistant within the AMT department for AMT faculty member(s).
4. ERAU CGPA of 2.5 or above.
5. Student must be able to work a minimum of 350 hours Fall and Spring semesters. Summer sessions may be prorated. Hours worked above the semester requirements will be paid for in accordance with the established rate for student employees.
6. Students requesting employment in selected areas are subject to drug clearance prior to placement.

Students interested in the program should contact the Aviation Maintenance Technology Department's administration office for further qualifications, information and application procedures.

STUDENT GOVERNMENT ASSOCIATION LEADERSHIP PROGRAM

The Student Government Association (SGA) at each residential campus offers partial tuition for elected officials of the organization. The amount of the waiver varies, depending upon the position held. The purpose is to stimulate interest in holding elected office and to recognize the commitment these student leaders make in such positions.

For information about the criteria students must meet in order to run for candidacy in an SGA election or for other information about the program, contact the Student Government Association office.

ATHLETIC GRANTS

The University offers a limited number of Athletic Grants for qualified students. Awards are available for the sports of baseball, basketball, golf, soccer, tennis and wrestling. The maximum value of such grants permitted by the NAIA is the actual cost of tuition, room, board, books and fees. However, most grants are given as partial tuition waivers. To qualify, students must meet both University and NAIA eligibility requirements. The grants are highly competitive and interested students should contact the Athletic Department for specific details.

VETERANS' EDUCATION BENEFITS

All Embry-Riddle degree programs have been 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 Veterans' Affairs Office of the campus they wish to attend 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 2 terms/semesters, however, may be required to repay the DVA for any/all benefits received if they do not achieve full admission status during that time.

Title 38, United States Code, sections 1674 and 1724, requires that education assistance to veterans and other eligible persons be discontinued when the student ceases to make satisfactory progress toward completion of his or her training objective. Accordingly, benefits will be interrupted for Daytona Beach and Prescott Campus students who remain on academic probation beyond 2 semesters, and for College of Continuing Education students who remain on academic probation beyond 2 consecutive periods of 12 credit hours. A specific request must be submitted by the student to reinstate benefits. The U.S. Department of Veterans' Affairs will determine eligibility for reinstatement.

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 in the discretion of Embry-Riddle. Students are responsible for notifying the Veterans' Affairs Office of any change in their enrollment, change in personal information affecting their eligibility, and for maintaining compliance with University and Department of Veterans' Affairs requirements.

Students may receive education benefits only for courses which are required for their designated degree program.

Students who receive DVA benefits may be subject to stricter academic regulations and should be aware of how auditing courses, enrollment status, withdrawals, repeating a course, changing degree programs, and other actions may affect their eligibility to receive benefits.

University Campuses

UNIVERSITY CAMPUSES

The year-round clear flying weather and the resort communities surrounding our residential eastern campus in Daytona Beach, Florida, and western residential campus in Prescott, Arizona, offer students outstanding environments in which to study, fly and enjoy recreational activities.

Embry-Riddle offers many co-curricular activities that appeal to almost every taste. Students take advantage of the many opportunities for personal growth and development through social and pre-professional fraternities and sororities and cultural and recreational activities. Embry-Riddle's award-winning Precision Flight Demonstration Teams offer students the opportunity to compete nationally in precision air and ground events. For those who are interested, Embry-Riddle has one of the largest all-volunteer Air Force ROTC detachments in the country, the fastest-growing Army ROTC detachment, and a Naval Aviation Club which furnishes the U.S. Navy with the second largest number of naval aviation officers, following the U.S. Naval Academy. Embry-Riddle athletes participate in intercollegiate and intramural competition in many sports including golf, tennis, baseball, lacrosse, basketball, wrestling, rugby and volleyball.

DAYTONA BEACH CAMPUS

The Daytona Beach campus is located adjacent to the Daytona Beach Regional Airport. The high technology industry located in Daytona Beach and in the area around Orlando as well as the nearby Kennedy Space Center provide the University with an outstanding support base.

The campus offers up-to-date equipment and facilities. The Gill Robb Wilson Aviation Technology Center houses classrooms, single and multi-engine simulators, a weather room, and a dispatch headquarters. Flight instruction is given in Embry-Riddle's fleet of aircraft, including new Aerospatiale Tampicos, single-engine Cessnas, Piper Cadets, and Mooneys, multi-engine Cessna Crusaders, King Air C90, and in simulators such as the Frasca 242 T multi-engine turbine.

The Samuel Goldman Aviation Maintenance Technology center houses instruction in maintenance and repair of fixed-wing and helicopter airframes, powerplants (reciprocating and turbine), and avionics. This four-building complex contains laboratories and classrooms equipped with the most modern tools to provide the student with maintenance theory as well as 'hands-on' techniques for readying vehicles for flight. Laboratories with new state-of-the-art computers help aviation maintenance technology students enter the more complex realm of the constantly evolving industry. The Avionics Lab repair stations (FAA certified repair station 707-50) are designed and equipped to simulate the avionics environment that graduates will encounter in the workplace. Engine test cells allow students to test the effectiveness of their repairs. The advanced reciprocating engine lab (FAA certified repair station NX42404M) overhauls engines for the Embry-Riddle fleet. The engineering science laboratories building houses subsonic and supersonic wind tunnels and a smoke tunnel; structures, materials, aircraft design and composite materials laboratories. A recent

grant by the National Science Foundation made possible the purchase of the first stereolithography unit to be used by students in this country. The revolutionary process enables design students to produce a prototype of their design and test it within 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 both mainframe and personal computers.

Embry-Riddle is proud of its multi-million dollar Airway Science Simulation Laboratory at Daytona Beach which simulates the various 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, traffic control, weather information, airports and airways, and pilot and aircraft performance. A new center for Aviation/Aerospace Research supports both undergraduate and graduate research and creative activities.

The John Paul Riddle Student Service Center contains a full service cafeteria, fully equipped bookstore, mailroom, career planning and cooperative education placement center, counseling center, health services, registration and records, parking office, communication office, Flight Deck grill, Landing Strip snack bar, student activities office, and meeting rooms. A new Student Success Center is designed to help students make the transition from high school to college easier.

Spruance Hall, located at the main entrance to the campus fronting on Clyde Morris Boulevard, incorporates a floor plan designed for students' convenience. The building houses the admissions office, personnel office, student financial services, student employment, cashier, dean of students, financial aid, and some classrooms. The office of the President and staff are 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 facility includes more than 50,800 books as well as periodicals, documents, newspapers, and microfilm, media programs, and a historical aviation collection which consists of materials dating 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.

Plans are being made for new facilities at both the Daytona Beach and Prescott Campuses funded by a $50 million bond recently approved by the Board of Trustees and a Federal grant of $11.5 million. New engineering and technology centers will feature laboratories with the latest research and computer equipment. Distance learning, a cornerstone of 21st century education at Embry-Riddle, will be available by an electronic link-up of the residential campuses. With the link-up, faculty members at one campus will be able to teach students at another campus, have students at various locations work together on a joint project, and enable the university to become the world leader in distributed design and management education.

A multi-functional auditorium and instructional media center, a field house, $2 million purchase of computer equipment, new classrooms, an Interfaith Chapel, and other improvements are planned.

STUDENT SERVICES AND ACTIVITIES

Embry-Riddle Aeronautical University takes the position that a well-rounded education consists of more than classroom experience. The opportunities for cocurricular involvement are limitless. Students are encouraged to take advantage of the services described in this section to make the most of their academic experience.

STUDENT SUCCESS CENTER

The Student Success Center (located in Modular Facility 1) is responsible for providing the services students may need for success in their academic programs. These services include the college success course, academic advisement and counseling for Freshmen, and tutoring. The staff of the Student Success Center is absolutely committed to efforts that will enhance retention and ensure the academic success of our students. Students are encouraged to visit the Student Success Center to learn more about these services.

STUDENT ACTIVITIES

The Department of Student Activities provides students with the opportunity for cocurricular involvement. Educational and social experiences may be obtained through participation in one or more of the ninety Student Organizations on campus. Involvement in Student Organizations develop social responsibility, group dynamics, social interaction, leadership, communication and decision making skills. The Department sponsors an Activities Fair at the beginning of the Fall and Spring semesters to promote the Student Organizations to the student body. The staff is available to assist students in joining an existing Student Organization or in establishing a new one. The types of organizations that are available include fraternities, sororities, sports clubs, special interest groups, honorary societies, aviation clubs, military organizations, and religious clubs. The Department also sponsors the Student Leadership Development Program which develops leadership potential in superior students and encourages participation as campus and community leaders. The Department also sponsors the Volunteer Network which provides opportunities for students to volunteer in the community. Students interested in either of these programs, should contact the Department for additional information. In addition to leadership opportunities, the Department coordinates Homecoming activities that occur during November.

The center for cocurricular programs is the John Paul Riddle Student Center. Activities in this facility include movies, comedy shows, dances, lectures, and other social events. The Student Center houses the Dean of Student Affairs, Department of Student Activities, Student Government Association, AVION Newspaper, PHOENIX Yearbook, Touch and Go

Productions, InterGreek Council Office, Volunteer Network Office, WERU Radio Station, Career Center, Information/Telecommunication Center, Health Services, Counseling/Orientation Services, The Hairport, Bookstore, Mailroom, Registration and Records, Admissions, International Student Services, Student Center Conference Room, Endeavor Conference Room, full service cafeteria, snack bar, Taco Bell, and Astro Sub.

SAFETY AND SECURITY

Safety and Security at Embry-Riddle Aeronautical University is provided by the University's Safety Department. The Safety Department is an in-house segment of the University consisting of both full-time officers and part-time student assistants. Coverage is provided 24 hours per day, 365 days per year. The Safety Department includes a Patrol Service section, a Parking Services section, and a Crime Prevention section. The Department is a part of the Division of Student Affairs and is located in Suite 113 in Spruance Hall.

The Patrol Services section provides 24 hour protection 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 flight line. The Parking Services section manages the campus parking traffic, and enforcement functions. It also provides support service for special events as required. The Crime Prevention section actively engages in safety, education, and crime prevention programs for students, faculty, and staff. The Department operates the Communications Office and maintains regular contact with the Daytona Beach Police Department in order to collectively provide for as safe an environment as possible.

STUDENT GOVERNMENT ASSOCIATION

The Student Government Association (S.G.A.) serves the individual student and represents the student body to the Embry-Riddle administration. The S.G.A. enjoys a unique position among student organizations in the degree of responsibility delegated to its members. The President of the S.G.A. is a voting member on the University's Board of Trustees. Students can obtain valuable knowledge and experience by participating in one or more of the diverse divisions of the S.G.A. The two governing boards are the Student Representative Board (S.R.B.) and the Student Finance Board (S.F.B.). In addition, the four divisions of the S.G.A. are the AVION Newspaper, Entertainment Committee, PHOENIX Yearbook, and Student Court.

INTRAMURALS AND RECREATIONAL SPORTS

The Department of Intramurals 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, and other sports upon request.

The campus has a beautiful swimming pool with diving and swim competition facilities. The Aeronautilus Fitness Center features 13 Nautilus machines, a computerized rowing machine, several exercise bicycles, and is complemented by an adjoining free weight room. Outdoor lighted basketball courts, tennis courts, a lighted softball field, four outdoor lighted volleyball courts, and an indoor racquetball complex round out the recreational facilities.

The Director works closely with clubs and organizations to assist with planning and implementing sports programs and activities. The Recreational Sports Office provides most of the equipment needed for sports activities; however, students are encouraged to bring basic sporting equipment with them.

ATHLETICS

The Athletic Department at the Daytona Beach Campus sponsors varsity intercollegiate competition in the following sports: basketball, baseball, golf, soccer and tennis. These teams are governed by the National Association of Intercollegiate Athletics (NAIA).

All full-time undergraduate students are eligible to try out for varsity teams, and are admitted free to most home contests.

Anyone interested in more information concerning tryouts, schedules, etc., should contact the Athletic Department.

CAMPUS MINISTRY

The Office of Campus Ministry on the Daytona Beach Campus is staffed through a freewill association of on-campus clergymen. Their ministry is expanded through the concern of local clergy ministering to many students living off campus. While deeply concerned with students, the Office of Campus Ministry also reaches out to the whole academic environment of faculty, administrators, and staff. Ecumenical cooperation, team ministry, and a high concern for social justice questions and issues characterize the office. Counseling, prayer, Bible study, and discussion groups are among the ministries operative now.

SERVICES AND FACILITIES FOR STUDENTS WITH DISABILITIES

Recognizing that some students have special needs related to access, academic adjustments and additional assistance with adapting to college life, the University has appointed the Director of Health Services as the Coordinator of Services for Students with Disabilities.

Students must request assistance and document their disabilities with the Coordinator. Each student's needs are addressed on an individual basis; the Coordinator provides resource information and assistance with barrier-free access, lifestyle management, advocacy, testing modifications and tutorial referrals.

Applicant students who anticipate the need for special accommodations should contact the University Director of Admissions at their earliest convenience; newly enrolled and continuing students should contact the Coordinator. Students who have specific disabilities of the learning processes should request special review of their academic credentials when applying for admission to the University.

HEALTH SERVICES

Maintaining good health helps insure a productive college career. 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 young adults, individual health counseling, referrals, medical grounding of flight students, and educational programming. Local hospitals, some with 24-hour emergency services, are within a short distance of 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.

All students are required to submit, prior to enrollment, certified proof (by a physician, nurse or community health care agency) of their immunity to Measles (2 doses of vaccine) and Rubella. **This data is mandatory for course registration** and should be entered on the Medical Report form provided by the Admissions Department. The Medical Report should also include the signature of the student, parent, or guardian authorizing emergency care, as directed by competent health care professionals. In addition, students who plan to enroll in flight courses should obtain, prior to arrival, a Class I or Class II Medical Certificate from a physician certified by the FAA as an Aviation Medical Examiner. This medical certificate is required for all flight courses and must be renewed at regular intervals.

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

THE COUNSELING CENTER

The Counseling Center staff assists students in developing skills which will enable them to improve their personal, emotional, and academic well-being. Professionals trained in counseling help students discuss and explore their concerns confidentially. Some concerns common to students include adjustment to college life and homesickness, relationship issues,

stress, depression, low self-confidence, academic performance, and general study and time management skills. Students may address their concerns and develop skills through participating in individual counseling sessions, instructional seminars, self-improvement groups and by using audio-visual learning aids.

Additionally, the Counseling Center coordinates new student and parent orientation programs. Recognizing students' and parents' apprehensions, orientation is designed to ease their transition by familiarizing them with their new environment and developing a sense of affiliation with the University.

UNIVERSITY-MANAGED HOUSING

University Housing provides and operates residential facilities for full-time, unmarried students. These facilities include two on-campus residence halls and an off-campus apartment complex which, combined, house over 981 students. Each residence hall and apartment complex is co-educational and is managed by a specially trained live-in staff. Accommodations also include a limited number of specially equipped units available for handicapped students. The University can facilitate only those handicapped students who are self-sufficient or require minimal assistance, as determined by the Director of Housing. Applications for University housing typically exceed available accommodations; therefore, students are urged to apply as early as possible. Priority for housing reservation is determined primarily on a first-come, first-served basis. Housing confirmations are made only for students who have been accepted for admission to the University and have paid the tuition deposit as well as the housing prepayment fee. This prepayment must also be accompanied by the housing contract in order to confirm a University housing space. For further information regarding University housing at the Daytona Beach campus, please consult the Housing Services brochure, which is available from the Admissions Office.

OFF-CAMPUS HOUSING

The Off-Campus Housing Office strives to meet the needs of the commuter student population. The office operates a rental listing service which maintains an up-to-date list of properties available for students to rent and a list of students seeking roommates. To take advantage of this service, students must visit the office. The office cannot reserve housing for individuals or give out listings over the telephone. The office also provides information concerning tenant/landlord rights and advice on general housing problems. In addition to these services, the office also provides the 'Guide to Off-Campus Living', sample leases, guide to area realtors, city maps, bus schedules, and consumer information, all of which are available upon request.

INTERNATIONAL STUDENT SERVICES

The Office of International Student Services assumes primary responsibility within the University 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 offered include advising on 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 designed to facilitate an interchange of cultures. The Friendship Family Program matches students with community families to share friendship across cultures. A highlight of the year is International Day each October which features exhibits, food, and entertainment presented by some of the 85 nationalities represented by students on campus. Foreign journals and newspapers are available in the office to allow students to keep abreast of events in their countries.

CAREER CENTER

The Career Center encompasses career development, cooperative education and job search services. The staff assists students in making career choices, preparing for their careers and obtaining career related employment in the aviation and aerospace industries. The Career Center is dedicated to helping students effectively use their education by providing them with the knowledge and skills necessary to compete in today's highly competitive employment market, and by assisting in their transition from campus to career.

PRESCOTT CAMPUS

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 some 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. In addition, a modern supersonic wind tunnel and a shock tube allows investigations of flows 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 lab 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.

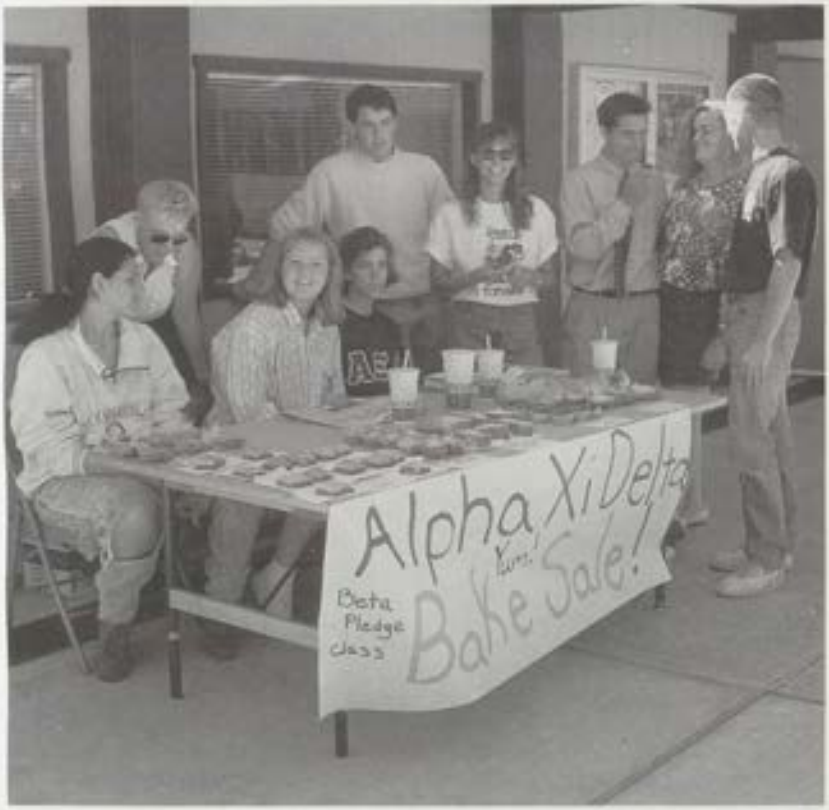
Five modern laboratories support academic instruction in electrical engineering through demonstrations, designs and experiments with aerospace electronics applications. The basic circuits and electronic devices lab, the digital circuits and microcomputer applications lab, the communications system lab 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. The Flight Department maintains a fleet of approximately 45 aircraft including the Cessna Skyhawk, Cessna Cutlass, Beechcraft Bonanza, and Beechcraft Duchess. Flight simulation equipment includes FRASCA and AST single and multi-engine trainers and a FRASCA 242T turbine multi-engine trainer with the IVEX visual system.

One of the benefits of enrollment at this campus is the smaller student body. Both faculty and students enjoy the low student/teacher ratio. Students benefit from individual attention in the classroom and on the flight line as well as from the many forms of academic assistance available: the Student Success Center, the Counseling Center, the Career Center, the Reading/Writing Lab, the Computer Lab and academic advising and tutoring programs.

Other facilities to support classroom instruction include an increased number of student computers with the latest software, a Center for Aerospace Safety Education, a crash investigation lab, a weather lab, an aircraft engines lab and a newly expanded library. This 16,000 square-foot facility provides 260 individual student desks, study tables and group study rooms. The collection includes more than 26,000 books, as well as periodicals, documents, newspapers, media programs and a technical and aviation history book collection. The library is open seven days a week, for a

total of 98 hours throughout the academic term, with extended hours during final examinations. Professional reference librarians are available to assist students with their need to locate, evaluate and utilize information for a given need. A computer link to 11,000 libraries nationwide provides access to materials and databases that identify journal articles, conference proceedings, doctoral dissertations and other kinds of information through subject searches. The campus library is also a member of a library network which shares an automated circulation and online database catalog with local community colleges and public libraries. More than 252,656 titles can be accessed by this system. The media section of the library contains more than 15,000 audio/visual materials, including films and videotapes for both classroom and individual use.



STUDENT SERVICES AND ACTIVITIES

Embry-Riddle Aeronautical University takes the position that students' academic experience should be supplemented with co-curricular activities that enhance the personal and educational development of all students. At Prescott, there are numerous opportunities for co-curricular involvement.

STUDENT SUCCESS CENTER

The Student Success Center (located next to the Food Court) is responsible for providing the services students may need for success in their academic programs. These services include the college success course, student and parent orientation, academic advisement and counseling, preregistration, and tutoring. The staff of the Student Success Center is absolutely committed to efforts that will enhance retention and ensure the academic success of our students. Students are encouraged to visit the Student Success Center to learn more about the services.

STUDENT ACTIVITIES

The Student Activities Department purpose is to provide cultural, intellectual, recreational and entertainment events for the students of ERAU. Its goal is to provide diverse, quality programs which are free to all students! Besides providing students with top quality entertainment, Student Activities provide them with learning experiences that are not available in academic areas. They can acquire experience in areas such as advertising, promotion, management, budgeting, and leadership. Additionally, there are opportunities to meet and work with some of the most incredible performers in the college circuit.

The department networks with other areas of the campus to develop a master calendar of campus programs and activities. Events scheduled during the year include comedians, concerts, performing arts, lectures, films/movies, field trips, dances, and theme events.

The department serves the students and the University community by assisting and maintaining student organization registration. Currently, there are 51 campus-recognized student organizations. The Student Activities Department will assist students interested in forming a new student organization. Students wanting to join or establish a club should contact the office for more information.

The types of organizations include:

- Special interest groups
- Honorary societies
- Greek Life: sororities, fraternities
- Military
- Fine Arts
- Sports

The Student Activities Department coordinates the following:

APB- Activities Programming Board
The organization that coordinates campus entertainment.

SOC- Student Organization's Council
Representatives from every student organization meet bi-monthly.

IGC- Inter Greek Council
Representatives from Greek Organizations meet weekly.

Get involved! It's a great way to meet new and exciting people and make your college experience memorable.

INTRAMURALS/RECREATION

Recreational opportunities at the Prescott campus and in the area are excellent. A large variety of athletic equipment is available for usage by the students at no charge. Facilities include indoor racquetball courts, tennis courts, an outdoor swimming pool, gymnasium and a fully-equipped weight room. The Athletic Department in the Student Life Division strives to create an atmosphere of competition and fun by offering a variety of sporting events for students. Whether the student's goal is to find a highly competitive league to demonstrate their athletic skills or they just want to participate to have fun and reduce the stress from study, they're sure to find what they're looking for in intramurals/athletics.

The campus Intramural Department sponsors competition in a wide variety of activities ranging from team sports, such as flashball (flag football variation), basketball and floor hockey, to individual competition in such sports as table tennis, racquetball and tennis. The Intramural Department utilizes University facilities as well as some excellent city athletic facilities. Intramurals are open to all students, staff, and their immediate families.

Lacrosse, fencing, soccer, and rugby teams currently participate as sports clubs on the intercollegiate level with other clubs, colleges and universities. The ski club, bicycle club and skydiving club offer additional recreational opportunities.

In addition to the on-campus recreational activities, the area offers a virtually unlimited variety of outdoor recreational opportunities. Hiking, rock climbing, fishing, skiing, and river rafting are but a few of the activities available in the Prescott National Forest and surrounding area. The Grand Canyon, a man-made surfing pool, Indian reservations and beautiful lakes are within a three-hour drive. Within six hours' driving time, one can enjoy deep sea fishing, the international flavor of Mexico, the beaches of Southern California or the shows of Las Vegas and other attractions.

ATHLETICS

ERAU, Prescott competes in the Intercollegiate sport of Wrestling in District 3 of the National Association of Intercollegiate Athletics (NAIA). All full-time students, that meet NAIA and the University eligibility requirements are able to tryout. Practice starts the second week of September with meets beginning in October. In 1992/93, Embry-Riddle Prescott

finished the season ranked 20th in the nation in Wrestling according to NAIA.

STUDENT GOVERNMENT ASSOCIATION

All full-time and part-time students registered at Prescott for a specific semester are regular members of the Student Government Association (SGA) for that semester. The governing body of this association is the Student Council. The council serves as the connecting and communicating link between the University Administration and students. The president of the Student Council is a voting member of the University's Board of Trustees. By serving as a trustee, the president is able to acquire and share with students a great deal of information and insight regarding the University. The S.G.A. also provides a number of valuable student services through the campus service organizations. These include the Activities Planning Board, Horizons Newspaper, K.F.L.I. Radio Station, Bacchus/Gamma, and Contrails Yearbook. In addition, the SGA provides 13 services for students; these services include: club funding, attorney availability, lockers, copy service, beverage service, committee representation, symphony tickets, and a hospital fund.

UNIVERSITY-MANAGED HOUSING

Co-educational housing is provided for 448 students in five three-story residence halls. Residence hall suite style accommodations consist of, three double occupancy rooms adjoining with common lounge and two semi private baths. These facilities are completely furnished with an air condition/heating unit in each room. All utilities are included as well as local phone calls. Coin-operated laundry rooms and vending facilities are also available in the residence hall area. Although no cooking is allowed in the residence halls, the University provides barbecue and picnic areas for student use. Accommodations also include a limited number of specially equipped units available for handicapped students. The University can facilitate only those handicapped students who are self-sufficent or require minimal assistance. New students are given priority during their first academic year.

Contracted off-campus housing is provided for 272 students in University-managed apartments during the fall and spring semesters. Continuing/transfer students are given priority at these co-educational accommodations. Each apartment is furnished and includes a full kitchen. Recreation facilities: basketball court, sand volleyball court, pool and hot tub are available for residents use. All utilities are included as well as local phone calls.

Students are encouraged to apply for University Housing **as early as possible.** Confirmation for housing is determined on a first-come, first served basis. Housing reservations are made only for students who have been accepted for admission to the University, paid the tuition and housing deposits as well as submitting a signed housing contract. This prepayment must also be accompanied by the housing contract in order to confirm a University housing space.

OFF-CAMPUS HOUSING

The Off-Campus Housing referral service strives to assist the commuter students in their search for rentals. The service consists of a computer generated listing of rentals in the area and a list of those seeking roommates. To take advantage of this service students must visit the office. It is recommended the students allow a **minimum** of two weeks to search for housing in the Prescott area.

FOOD SERVICES

The Food Court at the Prescott Campus is designed to provide a variety of nutritious menu options combined with personalized service for a pleasant dining experience. All on-campus residents subscribe to a Dining plan. Flexi Dollars can be spent for any food preference. A commuter meal plans is also available for the off campus student.

SERVICES/FACILITIES FOR HANDICAPPED

Prescott Campus has incorporated facilities for the convenience of the handicapped. Faculty and staff are ready to assist students requiring specialized attention. Because of the terrain of the campus, it would be advisable to contact Health Services to discuss individual requirements.

HEALTH SERVICES

Health Services, under the direction of a registered nurse, is an on-campus facility providing students with the education and guidance that is necessary to maintain good health. Services that are available include treatment of minor illnesses and injuries, student health counseling and educational services for preventative care. Referrals and listings of community health facilities are available for students requiring further medical assistance.

Supplemental group health insurance is available through the Health Services Office to students. It is not mandatory, but recommended.

All students are required to submit, prior to enrollment, physician-certified proof of their immunity to Measles, Mumps, Rubella, and Tetanus. **This data is mandatory for course registration** and should be entered on the Medical Report form provided by the Admissions Department. The Medical Report should also include the signature of the student, parent, or guardian authorizing emergency medical care, as directed by competent health care professionals. In addition, students who plan to enroll in flight courses should obtain, prior to arrival, a Class I or Class II Medical Certificate from a physician certified by the FAA as an Aviation Medical Examiner. This medical certificate is required for all flight courses.

COUNSELING SERVICES

The Counseling Office provides a network of services to promote individual development and well-being of students within the university community.

Personal counseling sessions are available to provide an opportunity for students to discuss and explore issues, concerns and feelings that they may experience as part of their personal development. Educational programs in "wellness" focus on six different dimensions of wellness, Physical, Social, Spriritual, Intellectual, Emotional, and Life-Planning. These programs help to promote the development of a balanced, healthy lifestyle and are offered for faculty and staff enrichment as well as for student involvement. The Counseling Office also acts as a liaison between students, faculty, administration, and the community to provide access to a consortium of caring resources which are readily available to meet the needs of our students.

CAMPUS MINISTRY

The Student Life Center staff recognize that students attending the University are here to develop skills and acquire knowledge which will benefit them throughout their life. The staff also realizes that at the very time students are experiencing exponential growth intellectually, it may be at the expense of other dimensions of wellness which are necessary for academic success as well as general satisfaction with life. While staff members cannot be expected to monitor a student's spiritual growth, it is important to make students aware of the opportunities for continued spiritual development within the Prescott community.

Educational programs are offered to enhance spiritual growth, and pastoral counseling is provided as requested. Participation of church groups at Freshman Orientation, as well as a **Community Interfaith Directory**, is provided to encourage continued spiritual enhancement of our students.

INTERNATIONAL STUDENT SERVICES

The Office of International Student Services assumes primary responsibility for the general welfare of foreign students. Staff members perform a variety of services including the processing of forms and documenting of files required by the students' government, sponsor, institution or the United States Government. Staff members also act as a liaison between the student and immigration officials. The Office coordinates a variety of campus and community programs which strive to facilitate a cross-cultural awareness and enrich the students' sojourn in the United States.

The International Student Association is a very active club on campus, providing opportunities for foreign students to speak in the community of Prescott, participate in campus events and volunteer community service.

CAREER CENTER

The Career Center offers a variety of services and programs to facilitate the transition from the role of student to employee. Services include career counseling, a resource library, career information in each degree area, data on industry trends, company information, a resumé database, job referrals, cooperative education; and help with resumé writing, job-search strategies and interviewing skills.

MAIL SERVICE

Prior to a student's arrival, all personal mail and baggage should be addressed as follows:

ERAU BOX____ (or write "NEW STUDENT" if box number is not known)
STUDENT NAME
3200 WILLOW CREEK RD
PRESCOTT AZ 86301-3720

All mail and package postage must be prepaid. Packages and baggage are stored at the risk of the student. The University accepts no responsibility for theft or missing luggage.

All students are assigned a mailbox which they are required to check on a daily basis, not only for personal mail but also for official University notices.

COLLEGE OF CONTINUING EDUCATION

Since 1970, Embry-Riddle has recognized that the people who work in civilian and military aviation and aerospace are highly motivated to seek further college education and professional development. Many of these people have had to suppress their ambition, at least temporarily, because irregular work schedules, frequent travel, job relocations, and family responsibilities have prevented them from participating in college programs with conventionally scheduled daytime classes. To meet these needs, Embry-Riddle established its College of Continuing Education. The College has two major program divisions, Academic Programs, under which all academic degrees are offered through a network of off-campus resident centers for classroom instruction and by independent study and Professional Programs, which provides professional development seminars and specialized training. The College and its programs are supported by an extended faculty and offices for admissions and records, instructional development and effectiveness and academic support.

Innovation to meet the needs of adult students has been the main trigger for the growth and success of Embry-Riddle's College of Continuing Education. Innovation continues to provide a primary solution to the obstacles frustrating those who seek higher education in aviation. Embry-Riddle has developed several ways to take its education programs to its students, rather than expecting the students to always come to Embry-Riddle. Embry-Riddle's programs are delivered in several ways: By a network of residence centers located at or near to the students' workplaces; By independent study which provides access to degree programs and courses to students in their homes or at other locations; and through distance and electronic learning technology. By all of these methods, study is accelerated by compressing the same number of classroom and study hours scheduled at the University's residential campuses into terms which are shorter than conventional semesters, but contain all of the requirements and elements of the courses as delivered on the residential campuses. The starting and ending dates of terms vary from one resident center to another and with independent study. Classes may be scheduled in the evenings, at lunch hours, sometimes in early morning, and on weekends, depending upon the needs of the majority of students.

The procedural information and rules described in the general sections of this catalog apply to all students. However, the varied scheduling of College of Continuing Education terms, classes and delivery methods necessitate that adjustments be made to some procedures and to the application of some regulations. The adjustments which apply to College of Continuing Education students only are described later in this section.

The degree programs offered by the College of Continuing Education are listed in the Guide to the Curriculum section of this catalog; however, not all programs and courses listed in the catalog are available at every center or through independent study. The program and course selection at

individual resident centers and through independent study are based upon the assessed needs of the students and other local and regulatory factors. Certain degree programs are available at most resident centers, while others may be found at only a few locations.

The College of Continuing Education maintains a comprehensive system of academic quality control. The curricula, academic standards, and academic policies are the same throughout the University, being modified only to accommodate certain requirements resulting from different delivery methods. Students are able to transfer from one resident center to another or to independent study, or to process a transfer to one of the residential campuses, confident that their previous academic work will be of consistent quality and will integrate with course work taken at the new location.

The College of Continuing Education faculty are selected based upon their academic credentials and professional experience, with the same requirements for appointment and certification as for faculty on the residential campuses. The currency of their background and its relevance to aviation are emphasized. The faculty includes American and foreign aviation, aerospace and business executives, professional pilots, civilian and miliary technical specialists, and professors from other prestigious academic institutions.

To enhance its programs and their attractiveness to military students, Embry-Riddle belongs to a consortium of national higher education associations and more than 1,000 other colleges and universities known as The Servicemembers Opportunity Colleges (SOC). SOC functions in cooperation with the Department of Defense, the military services, to help meet the voluntary higher education needs of members of the military services. The University subscribes to the SOC principles, criteria and operating guidelines to ensure that high quality academic programs are available to military students.

Working toward a college degree, while also working at a full-time job is difficult and requires much hard work and sacrifice on the part of the student and frequently on the student's family. Nevertheless students report many compensating advantages for pursuing their education through the College of Continuing Education. Foremost is the opportunity to obtain a quality education, at convenient times and locations, while continuing to be employed. The subject matter in most courses often is very helpful with problems and projects at work, enhancing both personal knowledge and job performance. Since most faculty and students are employed in full-time aviation careers, classes often provide a unique opportunity to learn and apply new techniques and theories to the daily challenges and problems of aviation and aerospace. The College of Continuing Education student graduates with a unique and valuable combination of academic and experiential credentials, plus has the benefit of association with a highly knowledgeable and professional group of faculty.

RESIDENT CENTER NETWORK

Since the first resident center opened at Fort Rucker, Alabama in 1970, the College of Continuing Education network of resident centers has

stretched from western Europe, throughout the continental United States, to Hawaii, covering twelve time-zones, and involving more than 90 locations, in 32 states and five European countries. Our students are employees of many of the major airlines, airports, aviation manufacturers, the Federal Aviation Administration or in the active, reserve or national guard components of the Air Force, Army, Navy, Marine Corps, and Coast Guard. Resident centers are located on or near major aviation industry installations, both civilian and military. The students work as air traffic controllers, aircraft mechanics, pilots, dispatchers, flight attendants and engineers, avionics specialists, inspectors, and managers. In addition to the service members, most of the resident centers located on military installations are authorized to enroll civilian government employees, dependents, and other local civilians. All resident centers are approved for veterans' educational benefits and by the appropriate agencies of the states where they are located. A list of resident centers may be found at the end of this section. For program information and enrollments, they should be contacted directly. Resident centers offer their programs with personalized academic advisement, utilizing classroom instruction, during hours convenient for working students, and delivered by well qualified faculty.

DEPARTMENT OF INDEPENDENT STUDIES

Several years ago it became apparent that the growing network of resident centers would never be able to reach everyone who harbored the ambition for higher education in aviation. Some lived in small communities where establishment of a resident center was not feasible, others lived and worked in isolated spots around the world, and still others worked in professions where the word "schedule" had no real meaning. The Department of Independent Studies was developed to extend the opportunity to work toward an Embry-Riddle degree to such people. The following degree programs are offered through the Department.

UNDERGRADUATE PROGRAM

A.S. and B.S. in Professional Aeronautics
A.S. and B.S. in Aviation Business Administation

The courses required for a degree may be completed through the Department of Independent Studies without taking courses in residence at an Embry-Riddle campus or resident center. Once admitted, the remaining degree requirements may be completed through a combination of independent study, transfer with prior approval from other colleges and universities, or by achieving the University's required scores in standardized national testing programs such as CLEP or DANTES.

Independent Study courses are developed by faculty from the Daytona Beach, Prescott, and College of Continuing Education campuses. Each course includes the textbook, a specially developed study guide, and a set of audio or video cassettes tapes. A term of fifteen weeks is allowed to complete a course. Most courses require proctored midterm and final examinations. If a student is ready, the final examination can be taken and

the course can be completed before the end of the fifteen-week period. Early completion of a course may result in reduced Veterans Administration (VA) educational benefits.

GRADUATE PROGRAM

Master of Aeronautical Science, Management Specialization

Courses required for the degree are completed through the Department of Independent Studies. Graduate courses are offered using video tape presentations and computer bulletin board interaction between students and faculty. Three fifteen week semesters are offered per year and courses may require a proctored midterm and final exam. The degree program is designed to provide the skills necessary to solve problems of the aviation/aerospace industry today and in the future. The faculty are a blend of traditionally prepared academicians and leaders with significant industry experience.

Pursuit of graduate or undergraduate degrees through the Department of Independent Studies is approved for Veterans Administration (VA) educational benefits for eligible veterans. Tuition assistance for active duty United States military personnel is approved by the Defense Activity for Non-Traditional Education Support (DANTES).

CENTER FOR PROFESSIONAL PROGRAMS

The Center for Professional Programs extends the resources of the University through the offering of seminars, workshops, training and development and aviation education programs. Program topics relate, but are not litmited to, the coursework 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.

Within the Center for Professional Programs, the International Programs Office links the resources of the University to the varied needs for aviation professional and educational programs including specialized training courses. It is the liaison for matching the resources of the University with special program requests. Additionally, consulting services to the international education and/or aviation community are made available through this office on a contract basis.

Aviation professional training and/or development courses are available at Daytona Beach or Prescott residential campuses, any of our resident centers, onsite at organizations, or through special arrangements such as computer based training, video coursework and/or satellite networking. Special courses and/or training may be developed to meet specific learning objectives for individuals, organizations, and/or firms. Call (904) 226-6186 or fax (904) 226-6220 for more information.

TYPE 65 AVIATION MAINTENANCE TECHNOLOGY (AMT) COURSES

The degree programs offered at the resident centers have always been popular with people who repair and maintain aircraft. Frequently, these highly skilled specialists are thoroughly trained in one technical specialty, but lack exposure to the other aspects of airframe and powerplant maintenance and the underlying theory. The Type 65 Aviation Maintenance Technology series of courses was developed at Embry-Riddle to expand the existing knowledge of experienced, but unlicensed, aircraft maintenance personnel. Completion of the Type 65 courses does not influence the determination of eligibility by the FAA to take the airframe and/or powerplant examinations.

The courses provide an awareness of the wide variety of problems, considerations and practices involved in maintaining an aircraft or fleet of aircraft in an airworthy condition. They establish a core of knowledge as a base for professional advancement in technical and managerial careers in aviation maintenance. The Type 65 AMT courses also serve as a source of valuable information for the many aviation professionals whose work is related to the operation of aircraft, although perhaps not directly involved in aircraft maintenance. Advanced standing credit is granted for appropriate Type 65 AMT courses to students who possess Federal Aviation Administration Airframe and/or Powerplant Certificates. The Type 65 courses are listed elsewhere in the catalog with the degree programs to which they apply.

ADMISSION TO THE UNIVERSITY

The process of applying for admission begins at a resident center or the Department of Independent Studies. The addresses of offices which may be contacted for information about specific locations are listed with the resident centers at the end of this section.

The following documents must be submitted to the Resident Center or Department of Independent Studies (DIS) to complete the application for admission process:

1. Completed and signed College of Continuing Education Applications for Admissions form.
2. Application fee of $15.00 (non-refundable).
3. Official copy of high school academic records OR official evidence of successful completion of the General Education Development (GED) Test. Satisfactory completion of secondary school may also be documented by the following: copies of military records certified by an Education Services Officer or military Director of Personnel; indication on a transcript from a regionally accredited college or university; a notarized affidavit.
4. Applicants who have attended one or more regionally accredited colleges or universities must arrange to have an official transcript submitted to the University by each institution attended. Transfer students must have earned at least a minimum cumulative Grade Point Average (CGPA) of 2.0 at the last institution attended, and a combined CGPA of 2.0 from all institutions attended in order to be considered for admission to any degree program.
5. Official CLEP or DANTES test result reports sent directly to an Embry-Riddle resident center from the testing agency. With the prior approval of a resident center director, College of Continuing Education students may take CLEP or DANTES tests after being formally admitted to the University. Test results must be received by the Records Office prior to application for graduation.
6. Third-party documentation of professional training and experience which may qualify for advanced standing credit.

Foreign applicants who are not permanent residents of the United States may be admitted with specific limitations to certain authorized resident centers in the United States, European Division and the Department of Independent Studies. Individuals interested in further information should contact the CCE Admissions and Records Department, the Headquarters of the European Division, or the Department of Independent Studies.

The degree curricula contained in the University catalog in effect on the date the application for admission was received and the application fee was paid at the resident center will be used to process admission applications. After the application packet has been evaluated and processed, an official letter of acceptance is sent to the student. A copy of the official evaluation of academic credentials applied to the degree program into which the student has been accepted is included with the letter of acceptance. A student may question any aspect of the official evaluation during the 60-day period following the date of the letter of acceptance. The official evaluation will not be changed after the 60-day period expires.

The complete admission record of applicants accepted for admission who do not enroll in an Embry-Riddle course within the one year period following the date of acceptance is destroyed. In order for an individual in this category to enroll, the entire admissions sequence must be repeated, including the resubmission of all required documents.

Students who have been admitted to the University and enrolled in courses, but who interrupt their enrollment for more than two calendar years, must apply for readmission. Readmission will be in accordance with the catalog in effect at the time of readmission.

TRANSFER CREDIT

1. Transfer credit may be granted under the following conditions;
   (a) Only the credit hours for courses completed with a grade of "D" or better, or the equivalent, as determined by Embry-Riddle are transferable. A grade of "C" or better may be required in specific courses.
   (b) Grades are not transferable. (See section of Graduation Honors for the exception.)
   (c) Previous flight experience may be accepted in accordance with the Embry-Riddle policy as stated in the Advanced Standing section of this chapter.
   (d) Credit hours are transferable if earned at collegiate institutions which are accredited by the appropriate regional accrediting agency. Students who cannot demonstrate the required prerequisite knowledge must repeat the equivalent Embry-Riddle course. Embry-Riddle has sole discretion in determining which and how many transfer credit hours will be accepted toward degree requirements. Students transferring into ERAU will be given credit for ERAU general education requirements if ERAU and the institution from which the student is transferring have an articulation agreement which expressly permits credit for the ERAU general education requirements; e.g. students transferring in under the provisions of the 1993 Community College/Independent Colleges and Universities of Florida (ICUF) agreement. In all degree programs, a list of "essential" courses will be prepared by department chairs and agreed upon by all campus deans. These essential general education courses are the only courses which will be evaluated by equivalency on a course by course basis for those students transferring in under the terms of the Community College/ICUF agreement.
   (e) If a student is not under an articulation agreement, Embry-Riddle will evaluate previous academic credit on a course by course basis. All acceptable transfer credit will be entered on the Embry-Riddle transcript, regardless of whether or not it may be applied toward the degree being pursued. If the work is not applicable to the student's degree program at Embry-Riddle, the work will be considered as electives in excess of minimal degree requirements. The level of credit (upper or lower division) is determined by the University.
2. Students who have been granted credit for the first level English and mathematics courses appropriate to their degree are exempt from placement testing requirements. All other students, except for those who are exempted on the basis of their ACT or SAT scores, will be required to take the examinations described under Basic Skills

Requirements and will be subject to Embry-Riddle regulations governing these tests.

3. Embry-Riddle may, at its discretion, require an evaluation examination for any course submitted for transfer credit if there is doubt concerning the equivalency of the transfer course with a similar course offered at Embry-Riddle.
4. The transfer student's records (transcripts, etc.) will be evaluated according to the rules, regulations and policies in the catalog and in University policies in effect at the time of admission as a degree candidate. After evaluation, the student will be advised by the University of the status of credit transferred.

ADVANCED STANDING CREDIT

Advanced standing results from credit for prior learning awarded for postsecondary education, work and/or training experience or from programs completed prior to enrollment at Embry-Riddle. Documentation of previous course work, military learning experiences, credit by examination, and any FAA certificates should be submitted for evaluation along with the formal application for admission to the University as a degree seeking candidate.

For students enrolled at College of Continuing Education locations, academic evaluations will be completed upon receipt of a formal Application for Admission to the University as a degree seeking student and required supporting documentation. A copy of the completed official evaluation will be mailed to the student. The student will be allowed 60 calendar days to challenge the credit awarded.

Official records of advanced standing and transfer credit will be authenticated and maintained by the Admissions and Records Office.

Examination scores, training in military service schools, and professional experience may be submitted as a basis for admission to an advanced level.

Credit may be awarded as follows:

1. The University offers advanced placement credit toward a college degree to those students who present official College Entrance Examination Board (CEEB) Advanced Placement. Test Scores of 5,4 or 3 on any examination and 2 or better on the mathematics examinations.
2. Embry-Riddle has evaluated the CLEP General Examinations and awards academic credit on the basis of acceptable scores on these examinations. The minimum acceptable standard score at ERAU is 500. The disciplines and hours of credit recognized by Embry-Riddle for these examinations are as follows:

Communications	6 credit hours
Humanities	6 credit hours
Social Sciences	6 credit hours
Natural Sciences	6 credit hours
Mathematics	6 credit hours

3. The University has approved certain CLEP subject examinations, Defense Activity for Non-Traditional Educational Support (DANTES) examinations, and American College Testing program proficiency examinations (ACT PEP) for award of credit as applicable to the student's program.
   Credit on the basis of successful completion of these examinations may be applied toward Embry-Riddle courses and degree programs. Credit will be granted only on the basis of results of initial testing and one retest. In cases where retesting is involved, results from the more recent testing are applicable and supersede the results of initial testing.
4. The University normally follows the recommendations of the American Council on Education for awarding credit for prior learning acquired as a result of successful completion of non-collegiate training programs, military service schools, and achievement of designated skill levels in military occupational specialties.
5. Applicants with prior learning from certain professional experience in areas related to the curriculum in which they request enrollment may be allowed credit toward advanced standing. Prior learning which satisfies educational objectives of courses in the applicant's curriculum may be credited for advanced standing.
6. Advanced standing may be granted on the basis of flight related experience and certificates.
7. Holders of the FAA Airframe and/or Powerplant Certificates may receive advanced standing credit depending upon the degree programs for which they are applying.
8. Advanced standing information for the Professional Aeronautics degree is contained in the description of that degree in the Degree Programs chapter.

POSTING TRANSFER AND ADVANCED STANDING CREDIT

Transfer and advanced standing credit for College of Continuing Education students will be posted to the ERAU transcript only after all of the following have taken place: 1. The complete application for admission and application fee have been received by the resident center. 2. The student has been officially accepted into an ERAU degree program; and 3. The student has subsequently enrolled in an ERAU course after the admission date. Non-degree seeking students are ineligible for the award of transfer and advanced standing credit.

PHYSICAL SCIENCE LABORATORY

College of Continuing Education students are strongly encouraged to take at least one physical science course with a laboratory to satisfy degree requirements for physical science. However, the University recognizes that the facilities to offer such classes are not available at most resident centers and that local institutions do not typically offer such classes at times and locations accessible by College of Continuing Education students. Therefore, appropriate physical science courses without laboratories

completed in residence, or at institutions listed as accredited in the current Accredited Institutions of Postsecondary Education published by the American Council on Education for the Council on Postsecondary Accreditation, will be accepted in lieu of a course with laboratory to satisfy the physical science requirements in the degree programs offered by the College of Continuing Education.

CONTRACT FOR DEGREE

The Contract for Degree is an alternative designed to assist the College of Continuing Education student transferred to a location not serviced by an Embry-Riddle campus or resident center. Individuals who are currently, or have been previously, enrolled in Embry-Riddle courses and/or degree programs at resident centers are eligible to apply for a Contract for Degree by submitting a formal application and required supporting documentation to the College of Continuing Education Admissions, Records and Registration Office.

Once approved for a Contract for Degree, students continue to work toward the Embry-Riddle degree by taking courses at local, regionally accredited colleges and universities. All such courses must be approved by Embry-Riddle prior to enrollment. Contract for Degree students must pay an annual contract maintenance fee and complete a minimum of twelve (12) semester credit hours or the equivalent, in each year that the contract is in effect. Degree requirements as described in this catalog under the heading GRADUATION REQUIREMENTS must be fulfilled.

MILITARY DEGREE COMPLETION PROGRAMS FOR ACTIVE DUTY PERSONNEL

All branches of the United States armed forces offer opportunities (sometimes referred to as "Bootstrap") to accelerate completion of degree programs by qualified members. Eligible College of Continuing Education students may choose to take advantage of these opportunities. Center directors and the Admissions and Records Department are ready to assist with the preparation of applications for these programs. Completed applications must be submitted at least ninety days prior to the first date of the term in which the student desires to begin the program.

SERVICEMEMBERS OPPORTUNITY COLLEGES (SOC)

Embry-Riddle has been a member of SOC for almost 20 years. Even before becoming a member, the University employed practices reflecting the criteria governing transfer of credit, academic residency requirements, credit for prior learning from military training and experience, and credit for extra-institutional learning that SOC has established to guide member institutions. Embry-Riddle continues, in practice, to apply the SOC criteria to all of its students.

The University participates in associate and baccalaureate degree programs in several curriculum networks coordinated by SOC for members of the Army and Navy. A list of the programs and networks follows:

Associate Degrees (Army: SOCAD-2) (Navy: SOCNAV-2)
Aviation Maintenance Network
Associate in Science in Aircraft Maintenance
Associate in Science in Professional Aeronautics (with the Type 65 series of Aviation Maintenance Technology courses)
General Studies:
Associate in Science in Professional Aeronautics
Bachelor Degree (Army: SOCAD-4) (Navy: SOCNAV-4)
Professional Aeronautics Network
Bachelor of Science in Professional Aeronautics

SOC degree programs provide service members with the security of knowing that they will be able to continue pursuit of the degree they seek from Embry-Riddle even if they get transferred to another installation where the University is not represented, leave the service, or the University changes or discontinues its participation in SOC. All institutions participating in the curriculum networks have agreed to accept specified courses completed at other schools in the same network to satisfy most curriculum requirements. Students are obligated to follow the normal University rules and regulations, to obtain prior approval for taking some courses, and to provide official transcripts once or twice per year from other schools where they may have earned credit.

REGULATIONS AND PROCEDURES

The information presented in this section applies to College of Continuing Education students only and supplements the regulations and procedures described in the similarly titled sections in the general body of the catalog.

CLASSIFICATION OF STUDENTS

Six semester hours constitutes the minimum load for full-time student status for students enrolled at a Resident Center. Students carrying less than the minimum full-time load are classified as part-time students. Students enrolled solely in independent study course are always classified as part-time students.

The maximum load for students is twelve (12) hours per term. A student whose cumulative GPA is 3.00 or higher may enroll for an overload of three credit hours with prior approval from the Center Director. Request for overloads in excess of three credits must be approved by the Division Dean/Director.

GRADING SYSTEM

The I grade is temporary and may be given only at the end of a course when students cannot complete the required work because of severe hardship beyond their control, as determined and approved by the instructor. A grade of I (incomplete) must be redeemed no later than the end of the third calendar month following the end of the term in which the course was

taken. Students must submit a written petition to the instructor in order to receive an I grade.

Students taking a course by independent study who determine that they will not be able to complete the course by the term ending date may petition for an extension of up to five weeks. Petitions must be submitted to the Director of the Department of Independent Studies or the resident center director, as appropriate, at least two weeks prior to the term ending date. If the extension is granted, then an I grade will be issued.

Petitions for an I grade must include a full explanation of the circumstances contributing to the need for the incomplete grade. Appropriate third party evidence corroborating the circumstances must accompany a petition.

Students who wish to appeal a final course grade must first discuss the matter with the instructor. If the matter remains unresolved, students must contact the resident center director for information about the procedure to be followed. Written appeals must be initiated within eight weeks following the issuance of the final grade.

AUDITING AND WITHDRAWING FROM A COURSE

College of Continuing Education students must process all requests to change a registration through the appropriate resident center or the Department of Independent Studies. The "Add" period at College of Continuing Education resident centers extends to the end of the first week of a term, unless otherwise established by any contract or memorandum of understanding/agreement currently in effect. Students may change a course registration from audit to credit only during the "Add" period.

The authorized withdrawal period at College of Continuing Education resident centers extends to the middle of the term, unless otherwise established by any contract or memorandum of understanding/agreement currently in effect.

GRADE REPORTS AND TRANSCRIPT REQUESTS

Grade reports are issued to students by resident centers or the Department of Independent Studies at the end of every term. If a student fails to complete the formal withdrawal process during the allowed withdrawal period, a grade of F will be assigned for the course.

A signed request for an Academic Transcript, accompanied by a fee (See the current Financial Information Brochure), must be made by the student to the campus student records office or resident center. Transcripts will not be released for students who have failed to meet their financial obligations to the University.

DEAN'S LIST AND HONOR ROLL

Students who display outstanding academic performance are recognized by being named to the Dean's List or Honor Roll. Students who attain an overall cumulative GPA of 3.50-4.00 after a minimum of 12 consecutive credit hours of course work will be named to the Dean's List; similarly,

students who attain a cumulative GPA of 3.20-3.49 after a minimum of 12 consecutive credit hours of course work will be named to the Honor Roll. Grades for all courses attempted during terms involved in defining each 12 consecutive credit hour block are used in calculating the cumulative GPA. A student receiving a D or F grade within the 12 credit hour period will not be eligible for the Dean's List or Honor Roll regardless of the cumulative GPA.

Once on the Dean's List or Honor Roll, a minimum additional block of 12 Embry-Riddle credit hours must be completed before they are again eligible for recognition.

WARNING, PROBATION, SUSPENSION, AND DISMISSAL

A College of Continuing Education student whose cumulative GPA falls below 2.0 for 12 consecutive credit hours of course work will be placed on academic warning. If the cumulative GPA remains below 2.0 after an additional 12 credit hours of academic work, the student will be placed on academic probation. A student whose cumulative GPA remains below 2.0 for a third consecutive period of 12 credit hours, or whose cumulative GPA falls below 1.0 for any consecutive twelve credit hours of course work, will be suspended from the University unless the student maintains a term GPA greater than 2.0.

ATTENDANCE AT OTHER INSTITUTIONS

Resident centers may not be permitted to offer all of the courses required for a degree, particularly in the general academic disciplines, because of local policies, contracts, or memoranda of understanding/agreement. Students will be permitted to take required courses at other regionally accredited colleges or universities by obtaining the approval of the resident center director prior to enrollment. The criteria for accepting courses in transfer are described elsewhere in this catalog and will be applied to courses completed in accordance with the provisions of the section titled Transfer Credit.

GRADUATION REQUIREMENTS

Students are required to complete a minimum of 15 Embry-Riddle credits for an associate degree and 30 Embry-Riddle credits for a bachelor's degree. However, they may be exempted from the requirement that these credits be the last credits earned to complete the degree. College of Continuing Education students are required to be enrolled in Embry-Riddle courses for their last term prior to graduation. Students participating in a valid Contract for Degree are exempted from this requirement.

FINANCIAL INFORMATION

Tuition at the resident centers is established to meet the costs of operation and to be in accordance with contracts or memoranda of understanding/agreement. Therefore, tuition varies to some extent from one location to another. Contact the resident center director for specific information.

Registration, when accepted by the University, constitutes a financial contract between the University and the student. Failure to make payment of any amount owed to the University when due is considered sufficient cause to suspend a student and withhold grades, transcripts, or diplomas until the debt has been satisfied. Full payment of tuition fees, and textbook charges is due upon registration.

Tuition is refundable in full if a proper and acceptable withdrawal is accomplished before the close of business at the resident center on the day that marks the end of the first calendar week of a term or as stated in any contracts or memoranda of understanding/agreement in effect on that date. Refunds will not be made subsequent to that time.

SOURCES OF ADDITIONAL INFORMATION

College of Continuing Education students should contact the director of the resident center that they attend, or any of the offices for which addresses are listed below, for more information and guidance:

1. For general academic and admission information:

   Admissions, Records, and Registration Department
   College of Continuing Education
   Embry-Riddle Aeronautical University
   600 S. Clyde Morris Blvd.
   Daytona Beach, Florida 32114-3900
   Telephone: (904) 226-6910
   FAX: (904) 226-6984

2. For information about resident centers in the United States:

   Dean, United States Division
   College of Continuing Education
   Embry-Riddle Aeronautical University
   600 S. Clyde Morris Blvd.
   Daytona Beach, Florida 32114-3900
   Telephone: (904) 226-6970
   FAX: (904) 226-6949

3. For information about resident centers in Florida:

   Director, Florida Region
   Embry-Riddle Aeronautical University
   Executive Airport Business Center
   1885 West Commercial Boulevard, Suite 120
   Fort Lauderdale, Florida 33309
   Telephone: (305) 493-8788/8789
   FAX: (305) 493-5084

4. For information about resident centers in Europe:

Embry-Riddle Aeronautical University
Unit 4495
APO AE 09094-4495
Telephone: 011-49-631-536-7170/7152
FAX: 011-49-631-98450

5. For information about independent study, contact the director of the nearest resident center or The Department of Independent Studies at:

Director, Department of Independent Studies
College of Continuing Education
Embry-Riddle Aeronautical University
600 S. Clyde Morris Boulevard.
Daytona Beach, Florida 32114-3900
Telephone: (904) 226-6363

6. For financial aid information:

Financial Aid Office
Embry-Riddle Aeronautical University
600 S. Clyde Morris Boulevard
Daytona Beach, Florida 32114-3900
Telephone: (904) 226-6300

7. For veterans' educational benefits:

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

8. For student financial services:

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

9. For non-credit or special professional program information:

Center for Professional Programs
Embry-Riddle Aeronautical University
600 South Clyde Morris Boulevard
Daytona Beach, Florida 32114-3900
Telephone: (904) 226-6186
FAX: (904) 226-6220

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

Hennings, Paul E.
Regional Director, North Central Region. B.G.E., University of Nebraska at Omaha; M.S., Troy State University; Command Pilot (USAF).

Lepore, Charles J.
Regional Director, Southeast Region. B.G.S., University of Nebraska; M.B.A., Troy State University; Ed.D., Nova University. ASME-H-I.

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

Sellinger, Joseph J.
Regional Director, Florida Region. B.S., LeMoyne College; M.S., Niagara 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.

EUROPE

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

COLLEGE OF CONTINUING EDUCATION LOCATIONS

Air Force

United States:
Andrews Air Force Base, Maryland
Barksdale Air Force Base, Louisiana
Beale Air Force Base, California
Cannon Air Force Base, New Mexico
Castle Air Force Base, California
Charleston Air Force Base, South Carolina
Davis-Monthan Air Force Base, Arizona
Edwards Air Force Base, California
Eglin Air Force Base, Florida
Ellsworth Air Force Base, South Dakota
Elmendorf Air Force Base, Alaska
Fairchild Air Force Base, Washington
Grand Forks Air Force Base, North Dakota
Griffiss Air Force Base, New York
Hickam Air Force Base, Hawaii
Hill Air Force Base, Utah
Hurlburt Air Force Base, Florida (Eglin AFB)
Keesler Air Force Base, Mississippi
Kirtland Air Force Base, New Mexico
Langley Air Force Base, Virginia
Laughlin Air Force Base, Texas
Luke Air Force Base, Arizona
MacDill Air Force Base, Florida
Malmstrom Air Force Base, Montana
March Air Force Base, California
McChord Air Force Base, Washington
McClellan Air Force Base, California
McConnell Air Force Base, Kansas
McGuire Air Force Base, New Jersey
Minot Air Force Base, North Dakota
Moody Air Force Base, Georgia
Mountain Home Air Force Base, Idaho
Nellis Air Force Base, Nevada
Offutt Air Force Base, Nebraska
Patrick Air Force Base, Florida
Plattsburgh Air Force Base, New York
Pope Air Force Base, North Carolina
Randolph Air Force Base, Texas
Reese Air Force Base, Texas
Seymour-Johnson Air Force Base, North Carolina
Travis Air Force Base, California
Tyndall Air Force Base, Florida
Wright-Patterson Air Force Base, Ohio

Civilian

Cincinnati, Ohio
Denver, Colorado
East Valley, Arizona
FAA Tech, New Jersey
Indianapolis, Indiana
Ft. Lauderdale, Florida
Miami, Florida
Sky Harbor

Europe:
Alconbury (RAF), England
Aviano Air Base, Italy
Bitburg Air Base, Germany
Geilenkirchen Air Base, Germany
Lakenheath (RAF), England
Mildenhall (RAF), England
Ramstein Air Base, Germany
Rhein Main Air Base, Germany
Spangdahlem Air Base, Germany
Upper Heybord (RAF) England

Army

United States:
Colorado Springs, Colorado
Fort Bragg, North Carolina
Fort Campbell, Kentucky
Fort Drum, New York (Griffiss AFB)
Fort Eustis, Virginia
Hunter Army Air Field, Georgia
Fort Hood, Texas
Fort Irwin, California (High Desert)
Fort Knox, Kentucky
Fort Lewis, Washington
Fort Rucker, Alabama
Selfridge Air National Guard, Michigan
National Guard, Columbus, Ohio (Wright-Patterson AFB)

Europe:
Giebelstadt Air Field, Germany
Hanua (Fliegerhorst Air Field), Germany
Illesheim Air Field, Germany
Katterbach Air Field, Germany
Manneheim (Coleman Air Field), Germany
Stuttgart Air Field, Germany
Wiesbaden Air Base, Germany

Navy

United States:
Naval Air Station Alameda, California
Naval Air Station Barbers Point, Hawaii
Naval Air Station Cecil Field, Florida
Naval Air Station Jacksonville, Florida (NAS Cecil Field)
Naval Air Station Mayport, Florida (NAS Cecil Field)
Naval Air Weapons Station China Lake, California
Naval Air Station Corpus Christi, Texas
Naval Air Station Kingsville, Texas
Naval Air Station Lemoore, California
Naval Air Station Memphis, Tennessee
Naval Air Station Norfolk, Virginia
Naval Air Station Moffett Field, California
Naval Air Station Patuxent River, Maryland
Naval Air Station Pensacola, Florida
Naval Air Station Whip Bey Island, Washington

Europe:
Rota NAS, Spain
Sigonella NAS, Italy

Marine
Kaneohe Marine Corps Air Station

Faculty And Administration

The Administration and Faculty of Embry-Riddle are listed below. An asterisk(*) denotes the College of Continuing Education; a plus (+) denotes the Prescott Campus; all others are assigned to the Daytona Beach 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

OFFICERS OF THE UNIVERSITY

Sliwa, Steven M.
President. B.S., Princeton University; M.S., George Washington University; M.S.M. and Ph.D., Stanford University; C-ASMEL-I-G; CFI-ASEL-G.

Daly, Paul S.+
Vice President and Chancellor. B.S., Engineering Science, Naval Postgraduate School; M.B.A., University of West Florida; C-ASMEL-I.

Doten, Eric S.
Vice President, Executive Director of Flight Services. B.S., Princeton University; M.S., Troy State University; C-ASMEL-I; CFI-ASEL.

Jacobson, Ira D.
Vice President, Academics. B.S., New York University; M.S. and Ph.D., University of Virginia.

Jost, Robert A.
Vice President, Administration. B.B.A. and M.B.A., Stetson University.

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Executive Vice President and Vice President of Student Life. B.A., Stetson University; M.A. George Washington University; Ed.D., Oklahoma State University.

Motzel, L. William
Vice President, Special Projects and Assistant Secretary. B.A., University of Notre Dame; M.S.E.E., Saint Louis University; Ph.D., Catholic University of America; P-ASEL.

Thompson, Dianne R.
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DEANS

Baker, Ozrow E.*
Associate Dean of Faculty, Curriculum and Standards, Associate Professor, Aviation Business Administration. B.S., Austin Peay State College; M.P.A. and D.P.A., Nova University.

Brown, James M.*
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Edwards, Thomas M.*
Associate Dean of Academics. A.S. and B.S., Southeastern University; M.B.A.A., Embry-Riddle Aeronautical University.

Flancher, Leon E.*
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Kelly, Daniel J.
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Dean of Undergraduate Programs, Associate Professor, Humanities/Social Sciences. B.S., Mary University; M.A., North Dakota State University; Ph.D., Emory University.

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Braim, Paul

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Assistant Professor, Humanities/Social Sciences. B.A., University of California at Berkeley; M.A., Middlebury College; M.A., Sonoma State University; Ph.D., Stanford University.

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Professor, Physical Sciences. B.S. and M.S., Lowell Technological University; Ph.D., University of Connecticut.

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Bryant, Richard D.
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Christensen, Hal.
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