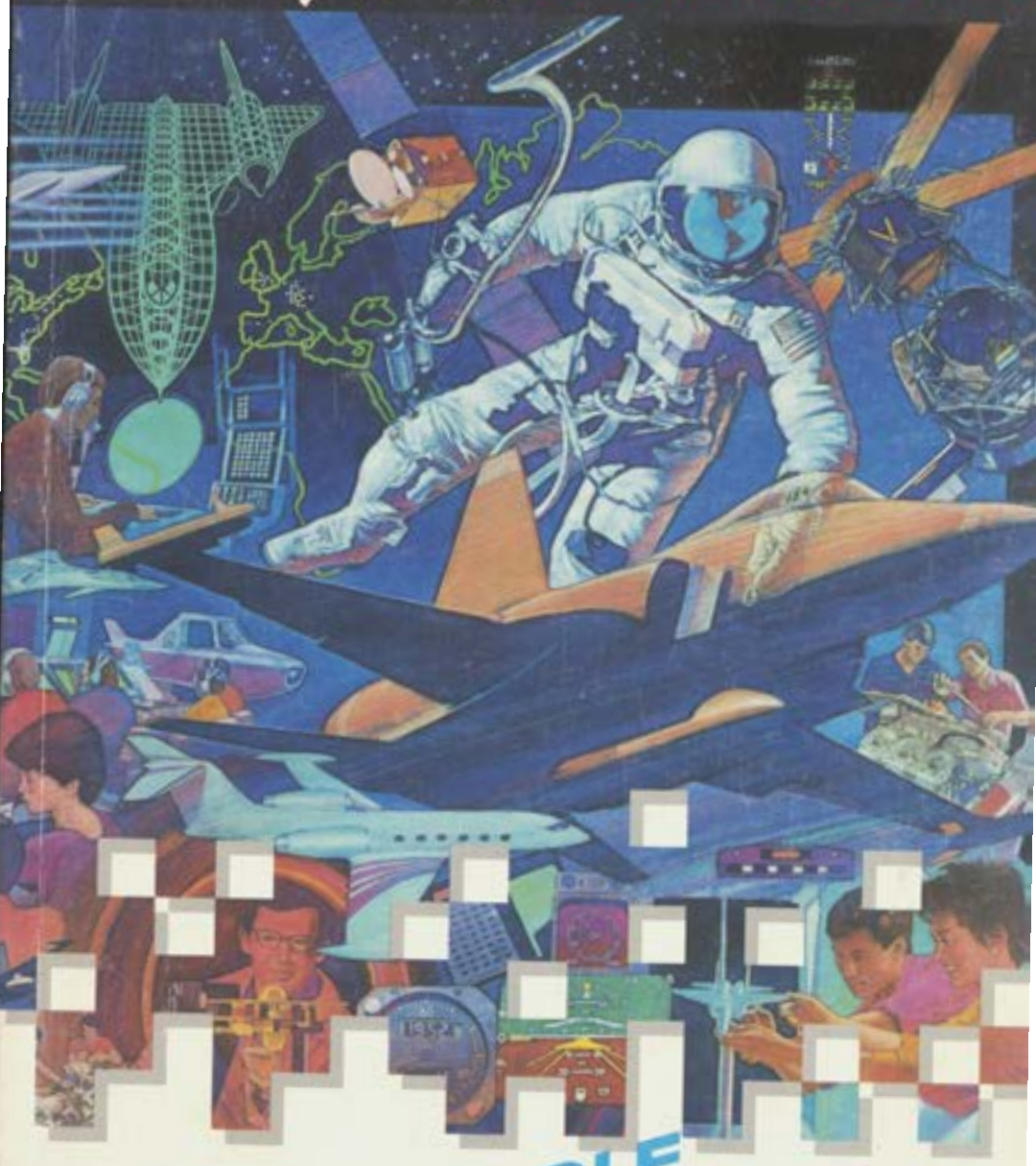
1989/90 CATALOG



EMBRY-RIDDLE
AERONAUTICAL UNIVERSITY

EMBRY-RIDDLE
AERONAUTICAL UNIVERSITY

Serving the world of aviation through higher education for more than 60 years

EXECUTIVE OFFICES
Embry-Riddle Aeronautical University
Daytona Beach, FL 32014
(904) 239-6000

WESTERN U.S. CAMPUS
Embry-Riddle Aeronautical University
3200 N. Willow Creek Road
Prescott, AZ 86301
(602) 776-3728

EASTERN U.S. CAMPUS
Embry-Riddle Aeronautical University
Daytona Beach, FL 32014
(904) 239-6000

COLLEGE OF CONTINUING EDUCATION
Embry-Riddle Aeronautical University
Daytona Beach, FL 32014
(904) 239-6910/11

In Europe contact:
HQ USAFE/DPPEA
Embry-Riddle Aeronautical University
APO New York 09633-6441
Telephone Number —
Wiesbaden Civilian: 06121-810608
Wiesbaden Military: 3723

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*Embry-Riddle CALENDAR 1989-90 Academic Year

FALL SEMESTER 1989

August 25, 28-29 ..... Registration
August 30 ..... Classes begin
September 1 ..... Last day for late registration
September 4 ..... HOLIDAY — Labor Day
November 23-24 ..... HOLIDAY — Thanksgiving
December 8 ..... Last day of classes
December 9, 11-14 ..... Final Examinations
December 17 ..... Commencement

SPRING SEMESTER 1990

January 8-9 ..... Registration
January 10 ..... Classes begin
January 12 ..... Last day for late registration
February 19 ..... HOLIDAY — President's Day
April 12-13 ..... HOLIDAY — Spring Break
April 20 ..... Last day of classes
April 21, 23-26 ..... Final Examinations
April 28 ..... Commencement

SUMMER SEMESTER (TERM A) 1990

May 3-4 ..... Registration for Terms A, B
May 7 ..... Classes begin
May 9 ..... Last day for late registration
May 28 ..... HOLIDAY — Memorial Day
June 22 ..... Last day of classes
June 23-25 ..... Final Examinations

SUMMER SEMESTER (TERM B) 1990

June 27 ..... Registration for Term B
June 28 ..... Classes begin
July 2 ..... Last day for late registration
July 4 ..... HOLIDAY — Independence Day
August 15 ..... Last day of classes
August 16-17 ..... 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.

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 approximately thirty calendar days in advance of the activities.

MESSAGE FROM THE PRESIDENT

If you have always dreamed of working in aviation or aerospace, then let me introduce you to Embry-Riddle Aeronautical University, a world leader in aviation higher education.

Since 1926 the University has maintained a clear sense of mission: to provide young men and women, like yourselves, with a superior education and the opportunity to compete with top professionals in the established and emerging aviation and aerospace fields.

Our students are highly motivated individuals who have a sense of direction and the potential to excel. They represent diverse cultures and social backgrounds; the incredible common bond — the love of aviation — gives students a sense of camaraderie with new friends. Sharing experiences with other students makes adjusting to college academic and social life easier and more fun. Whether you attend our Daytona Beach, Florida or Prescott, Arizona campus, you'll find that college life at Embry-Riddle offers challenging educational experiences and rewarding opportunities for personal growth.

Aviation at Embry-Riddle is not just a department or center within the institution. It is our total focus and reason for being. The University offers undergraduate degree programs in 16 aviation areas, several at the master's level. At Embry-Riddle, traditional academic programs are augmented by applied research, centered primarily in the pioneering airway science simulation laboratory that brings together the key elements of the national airspace system.

The world of aviation stands on the threshold of new advances in air and space transportation. Embry-Riddle's goal is to keep pace with the needs of this industry and the people it serves. Our outstanding teaching faculty members are our greatest asset. Most have made teaching a second profession after successful careers within the aviation industry. Over the years our faculty members have motivated young men and women to turn their dreams and hard work into personal success stories.

Students completing one of Embry-Riddle's rigorous and rewarding degree programs have come to epitomize aviation professionals who possess the necessary knowledge, skills and work ethic to be productive on the first day of work, and who can be expected to grow with experience given the solid base their schooling has provided. Hundreds of aviation and aerospace firms employ our graduates in a wide range of positions in flight, technology, engineering, computer science and management. Their success not only paves the way for future Embry-Riddle graduates but also helps shape the direction and quality of aviation throughout the world.

We welcome you to Embry-Riddle and invite you to meet the challenges and seek the rewards of an aviation education.

Sincerely,

Ken Tallman

Kenneth L. Tallman
Lt. General, USAF (Ret.)
President

General Information

Purpose of the University

The purpose of Embry-Riddle Aeronautical University is to provide a comprehensive education of such excellence that graduates will be responsible citizens and well-prepared for productive careers in aviation and aerospace.

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 Brothers Wright 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 same 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 special kinds of 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 1930's, mirroring the casualties brought about by the Great Depression. By the end of that decade, however, World War II had erupted in Europe and the demand for skilled aviators and mechanics followed instantly. Embry-Riddle's second life was about to start.

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 of all kinds. Some 25,000 men were trained by Embry-Riddle during the war years.

From the end of the war until Embry-Riddle relocated in Daytona Beach, Florida, the school expanded its international outreach while strengthening its academic programs. The move to Daytona Beach in 1965 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 once again and the start of its odyssey to world-class status in aviation higher education. Within three years, Embry-Riddle was accredited by the Commission on Colleges of the Southern Association of Colleges and Schools; two years later, Embry-Riddle became a university.

In 1978 Embry-Riddle opened a western campus in Prescott, Arizona, on the site of a 510-acre former college. The superb flying weather, expansive grounds and many buildings make the Prescott campus an outstanding companion to the University's eastern campus.

Embry-Riddle also operates 80 continuing education centers at military bases in the U.S. and Europe and at several civilian locations. This global network provides flexible educational services to thousands of working adults. Complementing this outreach operation is an independent studies program for those not able to attend regularly scheduled classes, and a center for professional programs to serve the special needs of industry groups through seminars and workshops.

Embry-Riddle today is a truly global institution in the forefront of aviation and aerospace education. The University is the largest independent aeronautical institution in the world, with an enrollment of 13,000 students. More than 80 nations are represented. Faculty and staff number 1,100. The annual budget is $65 million. Degree programs are offered in 16 disciplines, several at the master's level.

PREEMINENT IN AVIATION HIGHER EDUCATION

Embry-Riddle is preeminent in aviation higher education. We also intend to keep it this way. The University is planning now for the educational needs of aviation and aerospace in the year 2000 and beyond. Our goal is to have the laboratories, courses, simulators, aircraft and faculty to continue providing the superior services the aviation industry has come to expect. This is your assurance that as an Embry-Riddle student you will receive the needed education and skills to compete successfully for the best positions that the aviation industry has to offer. You will be one of the best because Embry-Riddle was your University.

Accreditations and Affiliations

Embry-Riddle Aeronautical University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (SACS). The Bachelor's Degree programs in Aerospace Engineering at the Daytona Beach and Prescott campuses are accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET). The Bachelor's Degree program in Aircraft Engineering Technology at the Daytona Beach campus is accredited by the Technology Accreditation Commission (TAC) of ABET.

Federal Aviation Administration (FAA) approved certification programs include Maintenance Technology (Airframe and Powerplant) and Flight (Private, Commercial, Instrument, Multi-Engine, Flight Instructor and Instrument Flight Instructor ratings). Additionally, a number of the University's degree programs have been identified by the FAA as meeting the criteria of the model Airway Science Curriculum which was developed by the FAA in conjunction with the University Aviation Association. This recognition provides additional career opportunities for Embry-Riddle graduates.

Embry-Riddle is also a member institution of the Servicemembers Opportunity College's (SOC) and associate degree programs (SOCAD and SOCNAV).

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 (page 190) 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 and resident aliens.

To apply for admission to programs at the Daytona Beach, Florida or Prescott, Arizona campus, send all required items listed to:

Embry-Riddle Aeronautical University
University Director of Admissions
Daytona Beach, FL 32014
(800) 222-ERAU

FRESHMAN APPLICANTS

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

To apply for admission as a freshman, you must provide the following items:

1. Completed application form and $25 application fee (non-refundable) as early as possible prior to desired enrollment date;
2. Official copy of high school (and prior college) academic records (must be sent directly to Embry-Riddle by the high school or the college);

   OR

   Evidence of completion of the General Education Development Test (GED). (Scores must be sent directly by the testing agency.);
3. 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;
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**);
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 achieve

a grade of "C" or higher in the Level 9 Reading and Writing courses conducted by an English Language Services (ELS) Center. Results must be sent directly to Embry-Riddle by the testing agency.

ALL APPLICABLE ITEMS MUST BE RECEIVED BEFORE THE UNIVERSITY WILL CONSIDER A STUDENT FOR ADMISSION. APPLICATIONS AND OTHER DOCUMENTS REQUIRED FOR ADMISSION RECEIVED FEWER THAN 30 CALENDAR DAYS PRIOR TO THE DESIRED ENROLLMENT DATE WILL BE PROCESSED, BUT STUDENTS MAY ENCOUNTER DELAYS IN THE DATE OF ADMISSION AND ENROLLMENT IN THE DESIRED DEGREE PROGRAM.

TRANSFER STUDENT APPLICANTS

Transfer students are those who have earned at least 12 semester hours, or equivalent, of academic credit from another institution of higher education.

To apply for admission as a transfer student, students must provide the following items:

1. Completed application form and $25 application fee (nonrefundable) as early as possible prior to the desired enrollment date;
2. Official transcripts from all other previously attended institutions of higher education **(transcripts must be sent to Embry-Riddle directly from the institution)**;
3. Upon request only, the catalog(s) from such institutions with the descriptions of courses satisfactorily completed marked therein;
4. ACT or SAT scores may be required for those students who have not earned college credit equivalent to the beginning courses in English and mathematics required in the student's degree program;
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 achieve a grade of C or higher in the Level 9 Reading and Writing courses conducted by an English Language Services (ELS) Center. Results must be sent directly to Embry-Riddle by the testing agency;
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).**

ALL APPLICABLE ITEMS MUST BE RECEIVED BEFORE THE UNIVERSITY WILL CONSIDER A STUDENT FOR ADMISSION. APPLICATIONS AND OTHER DOCUMENTS REQUIRED FOR ADMISSION RECEIVED FEWER THAN 30 CALENDAR DAYS PRIOR TO THE DESIRED ENROLLMENT DATE WILL BE

PROCESSED, BUT STUDENTS MAY ENCOUNTER DELAYS IN THE DATE OF ADMISSION AND ENROLLMENT IN THE DESIRED DEGREE PROGRAM.

NON-TRADITIONAL STUDENT APPLICANTS

Embry-Riddle acknowledges that full-time employment experience often provides the motivation and discipline to enroll and succeed in college which may not be reflected in the high school academic background. Embry-Riddle considers applicants who have been out of high school and employed full-time for at least 3 years to be non-traditional students. Students who believe they meet these criteria are encouraged to apply as a non-traditional student and must provide the following:

1. Evidence of high school graduation or completion of the General Education Development Test (GED). (Scores must be sent directly by the testing agency.)
2. Documentation of full-time employment experience by the employer(s).

NON-DEGREE SEEKING APPLICANTS

Embry-Riddle recognizes the needs of working adult learners for retraining or enhancement of professional skills and facilitates the entrance of this type of student to the University. Students who meet University admissions requirements are permitted to enroll in courses as special students in a non-degree seeking status. These students are permitted to continue their enrollments as non-degree students as long as they maintain satisfactory academic status or until they file a formal application for admission as a degree candidate. Only degree-seeking students who have formally been admitted to Embry-Riddle are eligible for financial aid programs. An adult learner desiring non-degree student status can receive information from the University Director of Admissions.

ADMISSION DEPOSITS

Students accepted for admission must submit a $150 advance tuition deposit to the University Director of Admissions within 30 calendar days of notice of acceptance in order to confirm the offer of admission. The advance tuition deposit is refundable, provided the University Director of Admissions is notified in writing of the student's intention not to enroll at least 60 calendar days before the first day of registration for the semester in which the student was to have first enrolled.

If the accepted student misses the deadline for the advance tuition deposit refund, **the deposit is held in the student's account for one year should the student decide to enroll at the University**

during that period. After one year, that deposit is permanently forfeited.

An accepted student **who cancels an application at any point in the admission process may reactivate the application at no additional charge during the ensuing 12 months at any time up to the admission deadline for the same semester of the next academic year. After that time, a new application, fee, and supporting documents must be submitted.**

INTERNATIONAL (FOREIGN) APPLICANTS*

*Refers to nonresident, nonimmigrant students on a United States F-1 or J-1 visa.

International students applying for admission must provide all items listed below:

1. A completed Embry-Riddle application for admission and $50 application fee (non-refundable) at least 150 calendar days prior to desired enrollment date;
2. An official copy of high school academic records (must be sent directly to Embry-Riddle by the high school);
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 achieve a grade of C or higher in the Level 9 Reading and Writing courses conducted by an English Language Services (ELS) Center. Results must be sent directly to Embry-Riddle by the testing agency;
4. For international transfer students, a detailed evaluation of foreign transcripts by Educational Credentials Evaluators, Inc. PO Box 17499, Milwaukee, WI 53217, **OR** International Consultants of Delaware, Inc., PO Box 5399, Los Alamitos, CA. 90721 is required. The evaluation will be sent directly to Embry-Riddle by the evaluator. (These agencies charge a fee for this service.);
5. A bank letter and affidavit of financial support **OR** scholarship letter;
6. FAA Medical Certificate, Class I or II will be required prior to beginning flight training (**required only of flight students accepted for admission**).

THE ITEMS ABOVE MUST BE RECEIVED BEFORE THE UNIVERSITY WILL CONSIDER THE STUDENT FOR ADMISSION.

If accepted for admission, international students must:

1. Submit an advance deposit of $5,000 (U.S. currency) to the University Director of Admissions. Upon receipt, the University will send a letter confirming enrollment and issue a Form I-20: Certificate of Eligibility;
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 must be in the student's possession prior to departure from the home country.)

ENGLISH FOR AVIATION

For 26 years, ELS Language Centers have specialized in teaching English as a Second Language. An ELS Center which specializes in English for Aviation is available at the Prescott campus. The goal of the program is to prepare students to express themselves and to comprehend others, whether the communication is with a control tower, international co-workers, passengers, or others.

As part of the English for Aviation coursework, students have access to a variety of special facilities and resources, including simulators, library, classrooms, and various laboratories. They live in on-campus residence halls and are provided with a full meal plan which includes nineteen meals per week.

Students may enroll in the English for Aviation program regardless of where they plan to continue their aviation study or training. Those planning to enroll at either the Prescott or Daytona Beach campus will satisfy the University's English language admission requirement by successfully completing the English for Aviation program's advanced level. For more information contact:

English for Aviation
ELS Language Centers
5761 Buckingham Parkway
Culver City, CA 90230

RETURNING STUDENT APPLICANTS

A Daytona Beach or Prescott campus student whose attendance at the University is interrupted may be required to apply for readmission. A new Application for Admission must be filed with the University Director of Admissions. (See Continued Enrollment.)

TRANSFER CREDIT

1. Transfer credit may be granted under the following conditions:
   (a) Only the credit hours for courses completed with a grade of C or better, or the equivalent, as determined by Embry-Riddle are transferable.
   (b) Grades are not transferable.
   (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. Academic credit earned 10 calendar years or more prior to a student's enrollment at Embry-Riddle must be validated through examination for any course which is a prerequisite for a course remaining to be completed in the student's degree program. 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.

(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 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 college or university initially granting the credit, regardless of the level of the Embry-Riddle equivalent course.

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 those who are exempted on the basis of their ACT or SAT scores, will be required to take the examinations described under Basic Skills Requirement 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 standards in effect at the time of enrollment and registration as a degree candidate. After evaluation, the student will be advised by the University of the status of credit transferred.

ADVANCED STANDING

Advanced standing results from credit awarded for postsecondary education, work and/or training experience or programs completed prior to enrollment at Embry-Riddle. Normally, all documentation of previous course work, military experience, credit by examination, and any FAA licenses should be submitted for evaluation along with the formal application for admission to the University.

At the Daytona Beach and Prescott campuses, 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. 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. College of Continuing Education students should submit this documentation with their application for admission as degree-seeking candidates. The student will be provided a copy of the completed official evaluation and given 30 calendar days (College of Continuing Education: 60 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. An evaluation form will be provided to the student.

Examination scores, training in military service schools, and professional background 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 calculus 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. Scores on these tests must be submitted prior to initial enrollment as a degree candidate to be officially evaluated for credit. 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. Scores on these examinations must be submitted prior to initial enrollment as a degree candidate to be officially evaluated for credit. Credit for these examinations may not be applied toward the last 30 credit hours required for a baccalaureate 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 of Education.
5. Applicants with certain professional experience in areas related to the curriculum in which they request enrollment

may be allowed credit toward advanced standing and experience which satisfy educational ob courses in the applicant's curriculum may be c advanced standing.

6. Advanced standing may be granted for specific A Science courses on the basis of flight-related expe training acquired prior to enrollment at Embry-R student must provide documentation to substant background to the appropriate Embry-Riddle aut **ing the first semester of attendance at the Unive** student has attended an FAA approved flight sch script of all flight training, signed by the sch Instructor, must be provided.
7. Degree programs for which holders of the FAA A cate may receive advanced standing are Aircra nance, Aviation Technology, Aviation Maintenan ment, Professional Aeronautics, Airway Sc Aeronautical Studies with an area of concentratio
8. Holders of the FCC 1st Class adiotelephone C License, the FCC 2nd Class Radiotelephone License, or the FCC General Radiotelephone License may be granted advanced standing credit Basic Radiotelephone Equipment Theory and Op
9. Advanced standing information for the Professi nautics degree is contained in the description of in the Degree Programs chapter.

COURSE EQUIVALENCY EXAMINATION

A student who possesses qualifications not listed abov believes that his or her background warrants consid advanced standing may submit appropriate evidence of for evaluation, or the student may request administ course equivalency examination for specific courses. Fl ence will be evaluated in accordance with procedures the Advanced Standing section of this chapter.

Applications to take course equivalency examinatio filed at the campus Records Office or Resident Cen refundable fee is charged for administering each writte tion. The fee for a flight course equivalency examinati upon aircraft utilization. An examination may be take for each course. A student who fails an examination mu and complete the course in order to receive credit for i may not take a course equivalency examination for a co the student has previously failed.

DEGREE COMPLETION PROGRAM/ ACTIVE DUTY MILITARY PERSONNEL

All branches of the Armed Services offer various "Bootstrap" and degree-completion programs to qualified personnel. Embry-Riddle offers assistance to the military applicant wishing to participate in one of these programs.

Upon receipt of the student's application and all supporting documents, the University will evaluate previously completed college courses, military education and experience to determine eligibility for advanced academic credit.

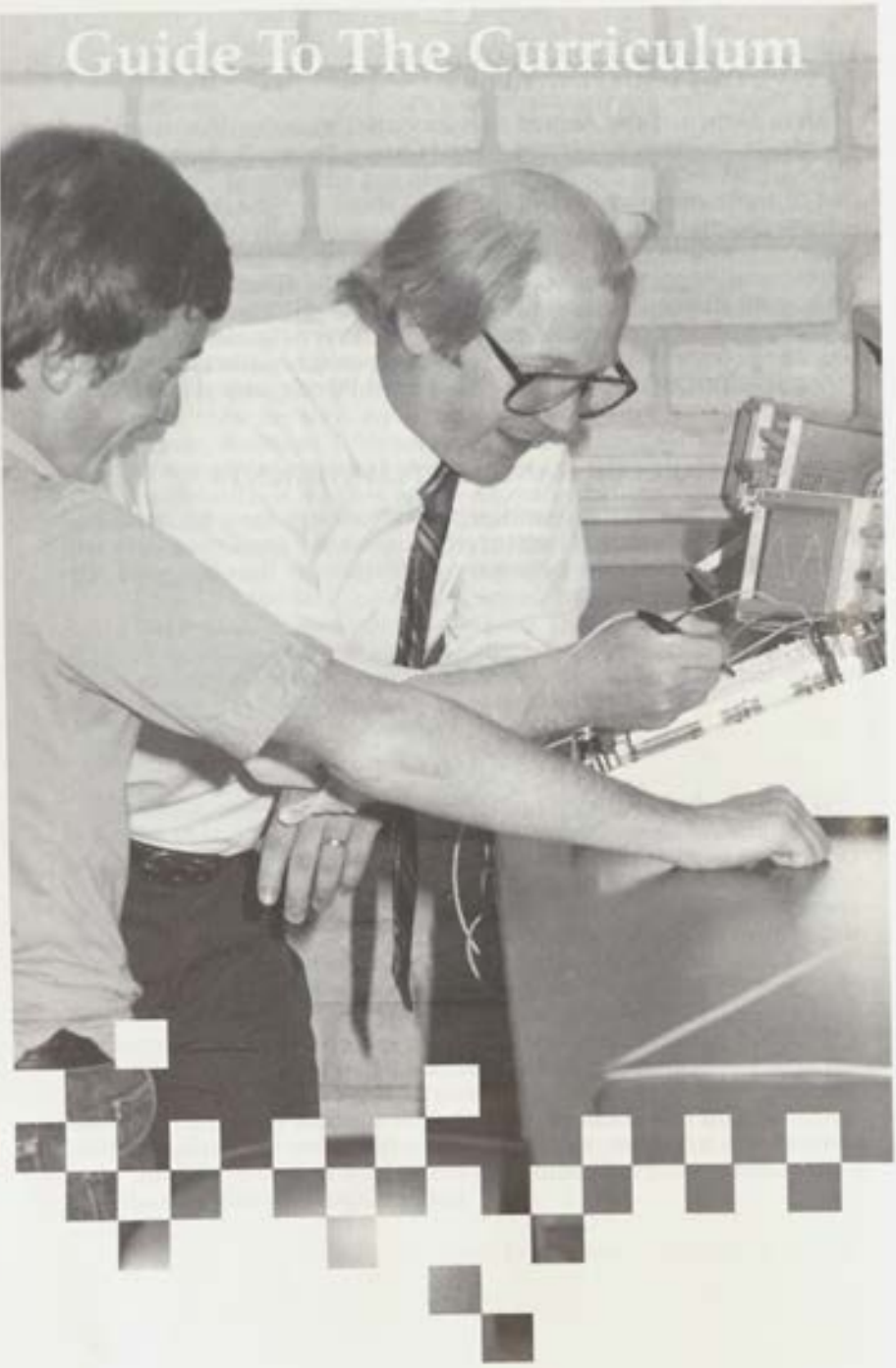
Each applicant receives a copy of the University evaluation form stating specifically the courses for which credit has been granted.

Applications must be submitted at least 90 calendar days prior to the proposed enrollment date.

REGISTRATION FOR HANDICAPPED STUDENTS

Early registration for handicapped students may be arranged through the University Director of Admissions. Staff members will be available to provide necessary assistance to handicapped students for early registration.

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

Business and Administration

A.S. and B.S. in Aviation Business Administration — D,P,C
B.S. in Aviation Maintenance Management — D,C
B.S. in Aeronautical Studies (Management) — D,P,C

Aeronautical Sciences (Flight)

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

Maintenance

A.S. in Aircraft Maintenance — D,C
Associate in Aviation Maintenance Technology — D
B.S. in Aviation Maintenance Management (Maintenance) — D,C
B.S. in Aviation Technology (Maintenance/Avionics) — D
B.S. in Aeronautical Studies (Maintenance) — D,C
B.S. in Airway Science (Maintenance Management) — D

Avionics

B.S. in Avionics Engineering Technology — D
A.S. in Avionics Technology — D
B.S. in Aviation Maintenance Management (Avionics) — D
B.S. in Aeronautical Studies (Avionics) — D

Aircraft Engineering Technology

B.S. in Aircraft Engineering Technology — D

Computer Science

B.S. in Computer Science with Aviation Applications — D,P
B.S. in Aeronautical Studies (Computer Science) — D,P
B.S. in Airway Science (Airway Computer Science) — D

Graduate Programs

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

C Available at College of Continuing Education Locations.
P Available at the Prescott campus.
D Available at the Daytona Beach campus.

Areas of Concentration

Students enrolled in the Aeronautical Studies and Airway Science baccalaureate degree programs are required to select a particular area of concentration. These areas of concentration consist of courses — supplemental to the core courses — which provide entry-level career focus by imparting specialized knowledge and skills. Specific career options are determined to a large degree by the area of concentration selected by the student.

Most of the other baccalaureate degree programs contain a sufficient number of elective courses to enable students to pursue their special interests outside of the basic degree in areas such as flight, management, etc.

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 course (MA 005) helps 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.

NOTE: The basic skills courses do not apply toward minimum degree requirements. These courses are provided to assist the student's transition to first level curriculum courses.

GENERAL EDUCATION REQUIREMENTS

Embry-Riddle's baccalaureate programs are intended to provide dents the opportunity to acquire (1) sufficient specialization for dents to enter the aviation field; (2) sufficient general manage- nt and/or technical training for students to advance in their sen career field; (3) sufficient general education background for student to lead a meaningful, responsible life in a complex mocratic society; and (4) sufficient communications background students to give, receive, or exchange information effectively. The following general education requirements must be com- ted by all candidates for the bachelor's degree:

SCIPLINE	CREDITS
Communicative Skills	9
Technical Report Writing	3
Other Humanities/Social Sciences	6
Mathematics	6
Physical Science	6
Economics	3
Computer Science	3
	36

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 sytems, 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 compared to others and increases student employment opportunities after graduation.

ENGINEERING PHYSICS

The Bachelor of Science in Engineering physics 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; the ability and the inclination to attack novel as well as routine problems, particularly in the aeronautical and aerospace areas; 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 PROGRAM

Embry-Riddle offers the Bachelor of Science degree in Aircraft Engineering Technology 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 a broad exposure to technology courses that address the application of scientific and engineering principles. The program provides a strong background in such areas as Applied Aerodynamics, Structural and Systems Analysis, Aircraft Performance and Design as well as Quality Assurance, Testing and other disciplines that are necessary for a wide variety of careers in the Aviation Industry.

COMPUTER SCIENCE PROGRAM

The curriculum for the Bachelor of Science degree in 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.

AVIATION MAINTENANCE TECHNOLOGY PROGRAMS

Maintenance technology training may be taken as an integral part of the Associate in Aviation Maintenance Technology, the Associate in Science in Aircraft Maintenance, Bachelor of Science in Aviation Technology, and 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/or 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. 277 and FAA Repair Station Certificate No. 708-55.

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 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 major airlines, fixed base operations, aircraft manufacturers and aerospace industries.

AVIONICS ENGINEERING TECHNOLOGY

The Avionics Engineering Technology program prepares individuals for challenging careers in aviation high technology as avionics technologists and technicians. The program provides an understanding of electronics theory, avionics system theory, avionics equipment operation and repair, system design analysis, logistic support and a strong foundation in general education. The University also offers a program in Avionics Technology that leads to an Associate in Science degree. Avionics Technology may also be selected as an area of concentration in various degree programs.

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 a career in any aspect of business. The program is available with two majors. The Aviation Administration major focuses on the unique aspects of aviation business. The primary thrust of the Computer Information Systems major is to enable graduates to function as applications programmer/analysts in commercial environments. In this program, the student will receive education and training in three different areas: (1) in systems development methodologies, which provide the fundamental problem-solving approaches used in the profession; (2) in technical computer skills, which provide the tools for implementing those problem solutions; and (3) in business theory, which provides an understanding of the context within which the systems are implemented. The four-year degree program in Aviation Maintenance Management is more narrowly focused on the supervisory role and technological requirements of aviation maintenance activities. All programs provide sufficient electives for students to pursue certain individual specializations for career objectives within the field.

FLIGHT PROGRAMS

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 program 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 programs at the Daytona Beach and Prescott Campuses operate under different FAA Flight Standards District Offices and therefore may differ in specific 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. These University and FAA rules and regulations are incorporated herein by this reference.

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 80 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.

GRADUATE PROGRAMS

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

The Master of Business Administration in Aviation (MBA-A) blends development of management skills, tools, and techniques with study of the aviation/aerospace industry, with an emphasis placed on the educational needs of the practitioner. The Master of Aeronautical Science (MAS) involves study in the major technical specialties of aviation. The technically oriented students in this program probe the state of the art in areas such as air traffic control and communications, aircraft systems, maintenance management, safety and accident investigation, and select areas of study suited to individual career preferences. The Master of Science in Aeronautical Engineering (MSAE) provides formal post-baccalaureate study in areas of knowledge required by engineers engaged in aircraft-oriented research and development and design activities. The MSAE program is tailored for specialization in the fields of aerodynamics, structures and design.

For more information, request a current **Graduate Catalog** by contacting one of the following:

1. The nearest Embry-Riddle Resident Center location.
2. The Director, Student Admissions, Records and Registration, College of Continuing Education, at the address given in the front of the catalog.
3. Dean of the Graduate School, Daytona Beach campus, at the address given in the front of the catalog.

*The Master of Science in Aeronautical Engineering is available only at the Daytona Beach campus.

COOPERATIVE EDUCATION

Cooperative Education (Co-op) is a program which allows 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 is not responsible for placing 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 open 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), 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 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

(up to a total of $2000 for the two years). 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. Four-year scholarships are available, on a competitive basis, to high school graduates, while additional scholarships are reserved for students already enrolled in the AFROTC program at Embry-Riddle.

For information, contact AFROTC Det. 157, Embry-Riddle Aeronautical University, Daytona Beach, FL 32014, (904) 239-6878 or AFROTC Det. 28, Embry-Riddle Aeronautical University, Prescott, AZ 86301, (602) 778-4130, Ext. 236. 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

The Army Reserve Officer Training Corps (ROTC) program provides an opportunity to acquire the skills and knowledge necessary for commissioning as a lieutenant in the U.S. 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 either undergraduate or graduate studies to meet all requirements for commissioning. The ROTC courses may be applied toward open elective requirements in any degree program.

The Military Science curriculum is divided into three phases:

1. 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, the Threat, communications, leadership, and physical training. The courses consist of both classroom instruction and a mandatory lab.

2. 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 the professional soldier, and physical training. The courses consist of both classroom instruction and a mandatory lab. This

phase requires attendance at a six-week advanced camp, currently conducted at Fort Riley, Kansas.

3. 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.

4. Basic Camp

A summer training program is offered for students who are academic juniors without previous ROTC or military training. This consists of a six-week course at Fort Knox, KY. 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 course at Fort Knox receive approximately $600 pay.

All students in the Advanced Military Science Course receive a tax-free monetary allowance of $100 per month. Scholarships are available to qualified ROTC students. These scholarships provide up to $3,500 per semester tuition, $175 for fees and $1[illegible] for textbooks. Additionally, scholarship recipients receive $1[illegible] ax-free per month.

Requisites for admission to the Basic Course are the follow[illegible]:

1. Be enrolled in a baccalaureate or master's program.
2. Be at least eighteen years of age at time of entry but not [illegible]ore than twenty-eight years of age at time of graduation.
3. Be a U.S. citizen.

Requisites for admission to the Advanced Course are the following:

1. Successfully complete the Basic Course or equivalent.
2. Successfully complete an Army officer qualifying test.
3. Successfully complete an Army physical examination.
4. Be selected by the Professor of Military Science.
5. Agree to complete the Advanced Course requirements and serve on active, reserve, or National Guard duty as a commissioned officer.
6. Maintain a 2.0 Academic and ROTC GPA.

All of the above are subject to the control of, and are administered by and under the rules and regulations of, the Department of the Army and are subject to change from time to time.

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.

There is no requirement to take military science courses or wear a uniform on campus while in college. Time spent in the PLC program counts for pay purposes while on active duty. There is no obligation to the program; candidates have until the end of their senior year to decide on their commission. A guaranteed pilot and flight officer program is available to qualified personnel.

For seniors, there is the Aviation Officer Candidate Program (AOC) and the Unrestricted Officer Candidate Program (OC). Guaranteed pilot and flight officer programs are also available. Application is made during the senior year and precommissioning training (10 weeks) occurs after graduation.

Applicants for either the PLC, AOC or OC Program are paid during the training.

These programsare 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 CLUB

Although no NROTC program is available, large numbers of E[illegible] graduates enter various U.S. Navy Officer Candidate Pro[illegible]. In fact, only the U.S. Naval Academy produces more Navy [illegible] and Naval Flight Officers. Following graduation, the Naval A[illegible]on Officer Candidate Program at Pensacola leads to a commis[illegible] approximately 14 weeks. The recently inaugurated Naval A[illegible]on Reserve Officer Candidate (AVROC) Program also offers s[illegible]r training and flight slot designation as early as the end of t[illegible]homore year.

[illegible] the Daytona Beach campus, a dynamic Naval Aviation Club e[illegible] with the goal of informing and assisting students anxious to l[illegible] 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.

NOTE: Additional information concerning financial assistance can be found in the Financial Assistance chapter of this catalog.

Degree Programs

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

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

At the beginning of each group, degree programs and related areas of concentration are listed. Within each degree program, listings show the courses, both required and elective, which must be taken to attain the degree. The listings are guides for arranging optimum sequences of courses with their prerequisites. In many cases, it is not mandatory that courses be taken in the exact order shown.

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 141 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 degree 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 110	Chemistry for Engineers	5
	SS 110	World History OR	
	SS 120	American History	3
			17
SECOND	CS 210	Scientific Programming	3
	HU 123	English Composition and Literature II	3
	MA 242	Calculus and Analytical Geometry II	4
	PS 201	Engineering Physics I	5
			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 202	Engineering Physics II	5
			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 210	Microeconomics OR	
	EC 211	Macroeconomics	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 Elective	6
			17
TOTAL			136

TECHNICAL ELECTIVES:
AE 399, 401, 407, 409, 411, 415, 425, 433, 499
ES 399, 403, 412, 499
ET 401
CS 335, 338, 350, 430
CE (AE): By Special Arrangement
MA 412, 442, 443

Students may substitute upper level AF and MY courses or aeronautical certificates for a maximum of 6 credits of the Technical electives. A maximum of 3 cooperative education credits may be applied against technical electives.

HUMANITIES/SOCIAL SCIENCES ELECTIVES:
HU 300, 305, 310, 320, 330, 345
SS 210, 220, 310, 320, 331, 340, 398

Students may substitute other upper level HU/SS courses with approval of the Department/Program Chair.

AIRCRAFT ENGINEERING TECHNOLOGY PROGRAM

Aircraft Engineering Technology

Bachelor of Science

ADMISSION REQUIREMENTS

Students entering this program should have a basic background in math, physics and chemistry. College algebra and trigonometry are entry level math courses. Students wishing to strengthen their backgrounds in the basic sciences before enrolling in the prescribed course sequence should consult the Program Chair for guidance in course selection.

DEGREE REQUIREMENTS

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

SEMESTER	COURSE NUMBER	TITLE	CREDITS
FIRST	PS 101	Basic Chemistry	3
	HU 122	English Composition and Literature I	3
	ET 101	Engineering Graphics	2
	MA 140	College Algebra	3
	MA 141	Trigonometry	2
	SS 110	World History OR	
	SS 120	American History	3
			16
SECOND	PS 110	Chemistry for Engineers	5
	HU 123	English Composition and Literature II	3
	ET 110	Drafting and Descriptive Geometry	2
	MA 241	Calculus and Analytical Geometry I	4
	EC 210	Microeconomics	3
			17
THIRD	HU 219	Speech	3
	PS 201	Engineering Physics I	5
	MA 242	Calculus and Analytical Geometry II	4
	CS 210	Scientific Programming	3
			15
FOURTH	PS 202	Engineering Physics II	5
	MA 245	Applied Technical Mathematics	3
	SS 210	Sociology OR	
	SS 220	Psychology	3
	HU 221	Technical Report Writing	3
	ET 201	Technical Mechanics	4
			18
FIFTH	ET 301	Applied Aerodynamics I w/Lab	3
	ET 302	Applied Strength of Materials w/Lab	3
	ET 305	Applied Thermodynamics with Lab	4
	ET 312	Applied Electrical Science with Lab	4
	HU/SS	Elective	3
			17
SIXTH	ET 304	Aircraft Structural Analysis w/Lab	4
	ET 307	Manufacturing Processes and Materials with Lab	4
	ET 308	Applied Aerodynamics II	3
	MS 105	American Business Enterprise	3
	HU/SS	(300-400 Level) Elective	3
			17

SEVENTH	ET 303	Aircraft Drafting	3
	ET 401	Mechanical Design	3
	ET 402	Applied Instrumentation Lab	3
	ET 404	Aircraft Performance and Design	3
		MA/Technical Elective	3
			15
EIGHTH	ET 403	Aircraft Detail Design	3
	ET 405	Non-Destructive Testing and Quality Assurance with Lab	3
	ET 406	Aircraft Systems Analysis and Design	3
		MA/Technical Elective	3
		Open Elective	3
			15
TOTAL			130

MATHEMATICS/TECHNICAL ELECTIVES:
ET 399, 499
CS 335, 350, 360
MA 412
PS 303
CE (ET): By Special Arrangement

Students may substitute upper level AF and MY courses or aeronautical certificates for a maximum of 6 credits of the Math/Technical electives. Cooperative education credits may also be applied against technical electives.

HUMANITIES/SOCIAL SCIENCES ELECTIVES:
HU 300, 305, 310, 320, 325, 330, 340, 345
SS 305, 310, 320, 331, 340, 398

Students may substitute other upper level HU/SS courses with approval of the Department/Program Chair.

ELECTRICAL ENGINEERING PROGRAM

Electrical Engineering

Bachelor of Science

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 141 Trigonometry at Embry-Riddle prior to taking MA 241 Calculus and Analytical Geometry I. Students who take MA 140 and MA 141 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. The program can be completed in nine semesters or four years if the student attends summer terms. 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 110	Chemistry for Engineers	5
	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 201	Engineering Physics I	5
	HU 123	English Composition and Literature II	3
	CS 210	Scientific Programming	3
			15
THIRD	EE 220	Digital Circuit Design	3
	EE 222	Digital Circuit Laboratory	1
	MA 243	Calculus and Analytical Geometry III	4
	PS 202	Engineering Physics II	5
	HU 219	Speech	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 221	Technical Report Writing	3
			15
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 201	Statics	3
			14

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 204	Dynamics	3
	MA 412	Probability and Statistics	3
			15
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
	ES 305	Thermodynamics	3
	*	Technical Elective	3
			14
EIGHTH	HU/SS	Elective	3
	EE 420	Avionics Preliminary Design	3
	EE 450	Elements of Power Systems	3
	EE 452	Power Systems Laboratory	1
	ES 307	Engineering Materials Science w/Laboratory	3
	*	Technical Elective	3
			16
NINTH	EE 421	Avionics Detail Design	3
	ES 403	Heat Transfer	3
	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	3
	HU/SS	Electives	3
	HU/SS	Elective (300-400 Level)	3
			15
TOTAL			135

*Technical Electives: PS 303 and MA 443 are highly recommended.

Students may substitute upper level AF and MY courses or aeronautical certificates for a maximum of 6 credits of technical electives.

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 Physics I, Calculus I, and Engineering Graphics.

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 110	Chemistry for Engineers	5
	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 205	Physics I	4
	CS 210	Scientific Programming	3
	ET 110	Engineering Graphics	2
	HU 123	English Composition and Literature II	3
			16
THIRD	MA 243	Calculus and Analytical Geometry III	4
	PS 208	Physics II	3
	ES 201	Statics	3
	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	3
	HU 219	Speech	3
			16
FOURTH	MA 345	Differential Equations and Matrix Methods	4
	PS 209	Physics III	4

	*PS 290	Physics Laboratory Practicum	0
	ES 206	Fluid Mechanics	3
	ES 204	Dynamics	3
	HU 221	Technical Report Writing	3
			17

* May be taken during the fourth or fifth semester.

FIFTH	MA 441	Advanced Engineering Mathematics I	3
	PS 303	Modern Physics	3
	PS 305	Modern Physics Laboratory	1
	ES 202	Solid Mechanics	3
	ES 402	Electrical Engineering I	3
	SS 210	Introduction to Sociology OR	
	SS 220	Introduction to Psychology	3
			16
SIXTH	MA 442	Advanced Engineering Mathematics II	3
	EP 360	Atmospheric Physics	3
	ES 305	Thermodynamics	3
	ES 307	Engineering Materials Science w/Lab	3
	ES 405	Electrical Engineering II	3
	ET 200	Machine Shop Laboratory	1
			16
SUMMER SESSION (May be taken any summer term)			
	HU/SS	Electives (300-400 Level)	6
		Open Elective	3
			9
SEVENTH	EP 400	Thermodynamics and Statistical Mechanics	3
	EP 420	Planetary Science	3
	EP 440	Engineering Electricity and Magnetism	3
	EP 490	Senior Design Project I	3
	PS 320	Classical Mechanics	3
			15
EIGHTH	EP 450	Space Systems Engineering	3
	EP 491	Senior Design Project II	4
	ES 409	Space Mechanics	3
		Open Elective	3
	AE	Elective	3
			16
TOTAL			136

AE ELECTIVES:
AE 301, 302, 304

AVIATION COMPUTER SCIENCE PROGRAM

Computer Science with Aviation Applications

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 141, 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 201.

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
	CS 220	Digital Logic and Computer Operations	3
	SS 110	World History OR	
	SS 120	American History	3
			16
SECOND	MA 242	Calculus and Analytical Geometry II	4
	HU 123	English Composition and Literature II	3
	CS 215	Computer Programming II	3
	CS 222	Introduction to Discrete Structures	3
	EC 211	Macroeconomics	3
			16
THIRD	PS 201	Engineering Physics I	5
	HU 219	Speech	3
	CS 230	Organization of Programming Languages	3

	CS 240	Introduction to File Processing	3
	MA 330	Introductory Linear Algebra	3
			17
FOURTH	PS 202	Engineering Physics II	5
	HU 221	Technical Report Writing	3
	CS 235	Assembly Language Programming	3
	CS 315	Data Structures	3
	EC 210	Microeconomics	3
			17
FIFTH	CS 331	Introduction to Software Engineering	3
	CS 341	Database Management Systems	3
	CS 372	Introduction to Microprocessors	3
	MS 201	Principles of Management	3
	SS 220	Introduction to Psychology	3
			15
SIXTH	CS 335	Introduction to Computer Graphics	3
	CS 338	Numerical Methods	3
	CS 370	Computer Organization	3
	MA 412	Probability and Statistics	3
		Open Elective	3
			15
SEVENTH	CS 420	Operating Systems	3
	CS	Elective (300-400 Level)	3
		* Technical Elective (300-400 Level)	3
		Open Electives	6
			15
EIGHTH	CS	Elective (300-400 Level)	3
	HU/SS	Elective (300-400 Level)	3
		* Technical Elective (300-400 Level)	3
		Open Elective	3
		Open Elective (300-400 Level)	3
			15
TOTAL			126

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

*Technical electives must be chosen from AE, CS, ES, MA, or PS courses.

Computer science electives must be chosen from CS 350, 399, 430, 441, 455, 460, 465, or 499.

AVIATION MAINTENANCE AND TECHNOLOGY PROGRAMS

Aircraft Maintenance
Aviation Maintenance Management
see Aviation Business Programs
Aviation Maintenance Technology
Aviation Technology
AMT/Flight Option
AMT/Avionics Option
Avionics/Flight Option

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)

OR

ERAU Type 65 Aviation Maintenance Technology Program (21 Credits) plus 15 hours of electives chosen from the following disciplines:

AMT/AS/AV/CS/EL/FA/MS; OR AMT 275 and AMT 285

AND

33 designated credits as follows:

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	HU 122	English Composition and Literature I	3
	MA 111	College Mathematics for Aviation I	3
	SS 220	Introduction to Psychology	3
	MS 105	American Business Enterprise OR	
	MS 201	Principles of Management	3
	AS 253	History and Regulation of Aviation OR	
	SS 110	World History OR	
	SS 120	American History	3
			15
SECOND	HU 123	English Composition and Literature II	3
	PS 102	Explorations in Physics	3
	EC 211	Macroeconomics	3

MA 112	College Mathematics for Aviation II OR	
MA 211	Statistics with Aviation Applications OR	
MA 222	Business Statistics	3
HU 219	Speech OR	
HU 221	Technical Report Writing	3
CS 105	Introduction to Computers in Aviation OR	
CS 109	Introduction to Computer Programming w/BASIC OR	
CS 210	Scientific Programming	3
		18

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

Cooperative education credits may not be applied toward degree requirements.

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	Physical Mathematics	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 202	Aircraft Wood, Fabric and Finishes	2
	AMT 205	Aircraft Electrical Systems	4
	AMT 206	Hydraulic and Pneumatic Systems	2
	MA 111	College Math for Aviation I	3
			15

THIRD			
	AMT 203	Aircraft Instruments and Communication/Navigation Systems	2
	AMT 204	Aircraft Welding, Assembly and Rigging	4
	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 Propeller Systems	3
	CS 109	Introduction to Computer Programming w/BASIC	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	
	SS 120	American History	3
			15
TOTAL			75

Cooperative education credits may not be applied toward degree requirements.

Aviation Technology

Bachelor of Science

DEGREE REQUIREMENTS

The Bachelor of Science in Aviation Technology requires successful completion of 127 to 149 credit hours. The student must complete a core program and two of the three options in avionics, flight, or maintenance.

* TYPE 147 AMT/FLIGHT

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	AMT 101	Physical Mathematics	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	AMT 201	Aircraft Structures and Sheet Metal Fabrication	4
	AMT 202	Aircraft Wood, Fabric and Finishes	2
	AMT 205	Aircraft Electrical Systems	4
	AMT 206	Hydraulic and Pneumatic Systems	2
	MA 140	College Algebra	3
			15
THIRD	AMT 203	Aircraft Instruments and Communication/Navigation Systems	2
	AMT 204	Aircraft Welding, Assembly and Rigging	4
	AMT 207	Aircraft Environmental and Fuel Systems	3
	AMT 208	Aircraft Landing Gear Systems	3
	HU 123	English Composition and Literature II	3
			15
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
	AS 150	Aeronautics I	5
			17
FIFTH	AMT 213	Engine Installation and Operation	2
	AMT 214	Reciprocating Engine Overhaul	4
	AMT 215	Turbine Engines and Turbine Engine Systems	6
	FA 104	Primary Flight	2
			14
SIXTH	FA 105	Private Pilot Certification	2
	AS 180	Basic Navigation	3
	AS 201	Meteorology I	3
	PS 103	Technical Physics I	3
	MA 141	Trigonometry	2
	ET 101	Engineering Graphics	2
			15

SEVENTH	FA 205	Basic Attitude Instrument and Advanced Flight Maneuvers	2
	AS 255	Aeronautics II	3
	MA 241	Calculus and Analytical Geometry I	4
	PS 104	Technical Physics II	3
	PS 101	Basic Chemistry	3
			15
EIGHTH	FA 206	Instrument Flight Transition — S.E.	2
	AS 256	Aeronautics III	3
	AS 309	Basic Aerodynamics	3
	HU 221	Technical Report Writing	3
	CS 109	Introduction to Computer Programming w/BASIC OR	
	CS 210	Scientific Programming	3
			14
NINTH	FA 302	Commercial Pilot Certification — S.E.	2
	AS 357	Flight Physiology	3
	AS 310	Aircraft Performance	3
	SS 210	Introduction to Sociology OR	
	SS 220	Introduction to Psychology	3
	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	3
			14
TENTH	AS 408	Flight Safety	3
	HU 219	Speech	3
	AV 301	Avionics for Aviators	3
	HU/SS	Elective (300-400 Level)	3
	HU 250	Introduction to Logic	3
			15
TOTAL			149

Cooperative education credits may not be applied toward degree requirements.

* This program available only at the Daytona Beach Campus.

* TYPE 147 AMT/AVIONICS

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	AMT 101	Physical Mathematics	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	AMT 201	Aircraft Structures and Sheet Metal Fabrication	4
	AMT 202	Aircraft Wood, Fabric and Finishes	2
	AMT 205	Aircraft Electrical Systems	4
	AMT 206	Hydraulic and Pneumatic Systems	2
	MA 140	College Algebra	3
			15
THIRD	AMT 203	Aircraft Instruments and Communication/Navigation Systems	2
	AMT 204	Aircraft Welding, Assembly and Rigging	4
	AMT 207	Aircraft Environmental and Fuel Systems	3
	AMT 208	Aircraft Landing Gear Systems	3
	HU 123	English Composition and Literature II	3
			15
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
	MA 141	Trigonometry	2
			14
FIFTH	AMT 213	Engine Installation and Operation	2
	AMT 214	Reciprocating Engine Overhaul	4
	AMT 215	Turbine Engines and Turbine Engine Systems	6
	HU 221	Technical Report Writing	3
			15
SIXTH	EL 106	Direct and Alternating Current Fundamentals and Circuit Analysis w/Laboratory	6
	MA 241	Calculus and Analytical Geometry I	4
	PS 101	Basic Chemistry	3
	ET 101	Engineering Graphics	2
			15
SEVENTH	EL 220	Introduction to Pulse and Digital Circuits w/Laboratory	4
	EL 223	Solid State Fundamentals and Circuit Analysis w/Laboratory	6
	CS 109	Introduction to Computer Programming w/BASIC OR	
	CS 210	Scientific Programming	3
	PS 103	Technical Physics I	3
			16
EIGHTH	EL 225	Advanced Digital Circuits and Systems w/Laboratory	4

	EL 226	Electronic Systems Analysis w/Laboratory	5
	HU 250	Introduction to Logic	3
	PS 104	Technical Physics II	3
			15
NINTH	EL 230	Microprocessor Systems w/Lab	3
	AV 205	Aircraft Communications and Landing Systems	3
	AV 210	Aircraft Pulse Systems	3
	AV 240	Avionics Equipment Troubleshooting and Repair Laboratory	2
	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	3
			14
TENTH	AV 220	Low Frequency and Area Navigational Systems	3
	AV 341	Advanced Avionics Equipment Troubleshooting and Repair Laboratory	2
	HU 219	Spech	3
	SS 210	Introduction to Sociology OR	
	SS 220	Introduction to Psychology	3
	HU/SS	Elective (300-400 Level)	3
			14
TOTAL			148

Cooperative education credits may not be applied toward degree requirements.

* This program available only at the Daytona Beach Campus.

* AVIONICS/FLIGHT

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	ET 101	Engineering Graphics	2
	MA 140	College Algebra	3
	MA 141	Trigonometry	2
	HU 122	English Composition and Literature I	3
	PS 101	Basic Chemistry	3
			13
SECOND	EL 106	Direct and Alternating Current Fundamentals and Circuit Analysis w/Laboratory	6
	HU 123	English Composition and Literature II	3
	MA 241	Calculus and Analytical Geometry I	4
	SS 210	Introduction to Sociology OR	
	SS 220	Introduction to Psychology	3
			16

THIRD	EL 220	Introduction to Pulse and Digital Circuits w/Laboratory	4
	EL 223	Solid State Fundamentals and Circuit Analysis w/Laboratory	6
	CS 109	Introduction to Computer Programming w/BASIC OR	
	CS 210	Scientific Programming	3
	PS 103	Technical Physics I	3
			16
FOURTH	EL 225	Advanced Digital Circuits and Systems w/Laboratory	4
	EL 226	Electronics Systems Analysis w/Laboratory	5
	HU 221	Technical Report Writing	3
	PS 104	Technical Physics II	3
			15
FIFTH	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	3
	FA 104	Primary Flight	2
	AS 150	Aeronautics I	5
	EL 230	Microprocessor Systems w/Lab	3
			13
SIXTH	FA 105	Private Pilot Certification	2
	AS 180	Basic Navigation	3
	AS 201	Meteorology I	3
	AV 205	Aircraft Communications and Landing Systems	3
	AV 210	Aircraft Pulse Systems	3
			14
SEVENTH	AS 255	Aeronautics II	3
	AS 309	Basic Aerodynamics	3
	AV 220	Low Frequency and Area Navigation Systems	3
	AV 240	Avionics Equipment Troubleshooting and Repair Laboratory	2
	FA 205	Basic Attitude Instrument and Advanced Flight Maneuvers	2
			13
EIGHTH	AS 256	Aeronautics III	3
	AS 310	Aircraft Performance	3
	FA 206	Instrument Flight Transition — S.E.	2
	AV 341	Advanced Avionics Equipment Troubleshooting and Repair Laboratory	2
	HU 250	Introduction to Logic	3
			13

NINTH	AS 357	Flight Physiology	3
	AS 408	Flight Safety	3
	FA 302	Commercial Pilot Certification — S.E.	2
	HU 219	Speech	3
	HU/SS	Elective (300-400 Level)	3
			14
TOTAL			127

Cooperative education credits may not be applied toward degree requirements.

* This program available only at the Daytona Beach Campus.

AVIONICS TECHNOLOGY PROGRAMS

Avionics Engineering Technology

Bachelor of Science

DEGREE REQUIREMENTS

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

SEMESTER	COURSE NUMBER	TITLE	CREDITS
FIRST	PS 101	Basic Chemistry	3
	MA 241	Calculus and Analytical Geometry I	4
	HU 122	English Composition and Literature I	3
	EL 106	Direct and Alternating Current Fundamentals and Circuit Analysis with Laboratory	6
			16
SECOND	PS 201	Engineering Physics I	5
	MA 242	Calculus and Analytical Geometry II	4
	HU 123	English Composition and Literature II	3
	CS 210	Scientific Programming	3
	ET 101	Engineering Graphics	2
			17
THIRD	EL 220	Introduction to Pulse and Digital Circuits with Laboratory	4
	EL 225	Advanced Digital Circuits and Systems with Laboratory	4
	MA 243	Calculus and Analytic Geometry III	4
	PS 202	Engineering Physics II	5
			17
FOURTH	ET 201	Technical Mechanics	4
	EL 223	Solid State Fundamentals and Circuit Analysis with Laboratory	6
	EL 230	Microprocessor Systems with Laboratory	3
	HU 219	Speech	3
			16
FIFTH	EL 300	Electronics Communications Systems with Laboratory	4
	MA 345	Differential Equations and Matrix Methods	4

	ET 302	Applied Strength of Materials with Laboratory	3
	ET 305	Applied Thermodynamics with Laboratory	4
			15
SIXTH	ET 307	Manufacturing Processes and Materials with Laboratory	4
	AV 345	Elements of Integrated Logistics	3
	EL 305	Linear Systems Analysis	3
	EL 309	Elements of Engineering Design and Laboratory Procedures	3
	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	3
			16
SEVENTH	AV 405	Avionics Analog Systems Design Considerations with Laboratory	4
	AV 410	Avionics Digital Systems Design Considerations with Laboratory	4
	HU/SS	Elective	3
	HU 221	Technical Report Writing	3
		Open Elective	3
			17
EIGHTH	AV 411	Integrated Aviation Logistics Support	3
	AV 421	Avionics System Integration and Design	3
	HU/SS	Elective	3
	HU/SS	Elective (300-400 Level)	3
		Open Elective	3
			15
TOTAL			129

Avionics Technology
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
	MA 241	Calculus and Analytical Geometry I	4

	HU 122	English Composition and Literature I	3
	PS 101	Basic Chemistry	3
			16
SECOND	EL 223	Solid State Fundamentals and Circuit Analysis with Laboratory	6
	EL 220	Introduction to Pulse and Digital Circuits with Laboratory	4
	MA 242	Calculus and Analytical Geometry II	4
	ET 101	Engineering Graphics	2
			16
THIRD	EL 226	Electronic Systems Analysis with Laboratory	5
	EL 225	Advanced Digital Circuits & Systems with Laboratory	4
	HU 123	English Composition and Literature II	3
	CS 210	Scientific Programming	3
			15
FOURTH	AV 240	Avionics Equipment Troubleshooting and Repair Laboratory	2
	AV 205	Aircraft Communications and Navigation Systems	3
	AV 210	Aircraft Pulse Systems	3
	PS 103	Technical Physics I	3
	HU 221	Technical Report Writing	3
	EL 230	Microprocessor Systems with Laboratory	3
			17
FIFTH	AV 341	Advanced Avionics Equipment Troubleshooting and Repair Lab	2
	AV 220	Low Frequency and Area Navigation Systems	3
	AV	Elective	3
	HU/SS	Elective	3
	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	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
Avionics Option

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 semester credit hours, normally completed within eight semesters.

Students may select a major in Aviation Administration or Computer Information Systems.

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

AVIATION ADMINISTRATION MAJOR

SEMESTER	COURSE NUMBER	TITLE	CREDITS
FIRST	CS 109	Introduction to Computer Programming w/BASIC	3
	HU 122	English Composition and Literature I	3
	MA 120	Quantitative Methods I	3
	MS 201	Principles of Management	3
	SS 110	World History OR	
	SS 120	American History OR	
	AS 253	History and Regulation of Aviation	3
			15
SECOND	CS 218	COBOL Programming	3
	HU 123	English Composition and Literature II	3
	MA 220	Quantitative Methods II	3
	PS	Elective	3
	SS 220	Introduction to Psychology	3
			15
THIRD	HU 219	Speech	3
	EC 211	Macroeconomics	3

	MA 222	Business Statistics OR	
	MA 211	Statistics w/Aviation Applications	3
	PS	Elective	3
	MS 210	Financial Accounting I	3
			15
FOURTH	EC 210	Microeconomics	3
	HU 221	Technical Report Writing	3
	MA 320	Decision Mathematics	3
	MS 212	Financial Accounting II	3
	MS 311	Marketing	3
	MS 314	Human Resource Management	3
			18
FIFTH	EC 310	Labor Economics	3
	MS 312	Managerial Accounting	3
	MS 317	Organizational Behavior	3
	MS 320	Business Information Systems	3
		Specified Electives	6
			18
SIXTH	MS 332	Corporate Finance I	3
	MS 390	Business Law	3
		Specified Electives	6
		Open Elective	3
			15
SEVENTH	MS 401	Management Planning and Control	3
		Specified Elective	3
	HU/SS	Electives	6
		Open Elective	3
			15
EIGHTH	MS 431	Business Policy	3
	HU/SS	Elective (300-400 Level)	3
		Open Electives	9
			15
TOTAL			126

SPECIFIED ELECTIVES:
AS 360, 401, 405, 408, 409, 412
EC 420
MS 322, 405, 408, 410, 412, 415, 419, 425

COMPUTER INFORMATION SYSTEMS MAJOR

This major is available only at the Daytona Beach Campus. Students entering this major are expected to have completed a basic typing or word-processing course. Those who have not should enroll in CS 101 — Introduction to Keyboard Operations.

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	CS 109	Introduction to Computer Programming w/BASIC	3
	SS 110	World History OR	
	SS 120	American History OR	
	AS 253	History and Regulation of Aviation	3
	HU 122	English Composition and Literature I	3
	MA 120	Quantitative Methods I	3
	CIS 110	Introduction to Computer Based Systems	3
			15
SECOND	MA 220	Quantitative Methods II	3
	HU 123	English Composition and Literature II	3
	CIS 220	Applications Program Development I	3
	HU/SS	Elective	3
	MS 201	Principles of Management	3
			15
THIRD	CIS 230	Applications Program Development II	3
	EC 210	Microeconomics	3
	MA 222	Business Statistics OR	
	MA 211	Statistics w/Aviation Applications	3
	HU 219	Speech	3
	HU 221	Technical Report Writing	3
	PS	Elective	3
			18
FOURTH	EC 211	Macroeconomics	3
	MA 320	Decision Mathematics	3
	CIS 300	Systems Analysis Methods	3
	MS 210	Financial Accounting I	3
	PS	Elective	3
		Open Elective	3
			18
FIFTH	CIS 305	Structured Systems Analysis and Design	3
	SS 220	Introduction to Psychology	3
	MS 212	Financial Accounting II	3
	HU 250	Introduction to Logic	3
		Open Elective	3
			15
SIXTH	CIS 310	Data Structures	3
	EC 310	Labor Economics	3
	MS 312	Managerial Accounting	3
	MS 311	Marketing	3
		Open Elective	3
			15

SEVENTH	CIS 400	Database Program Development	3
	CIS	Elective	3
	MS 332	Corporate Finance I	3
	HU/SS	Elective (300-400 Level)	3
		Open Elective	3
			15
EIGHTH	CIS 405	Applied Software Development Project	3
	CIS	Elective	3
	MS 317	Organizational Behavior	3
		Aviation Elective	3
		Open Elective	3
			15
TOTAL			126

CIS ELECTIVES:
CIS 410, 415, 420, 425, 430, 435, 440, 445

AVIATION ELECTIVES:
AS 360, 401, 405, 408, 409, 412
EC 420
MS 322, 405, 408, 410, 412, 415, 419, 425

Aviation Business Administration

Associate in Science

The Associate in Science in Aviation Business Administration degree requires successful completion of 63 credit hours.

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	CS 109	Introduction to Computer Programming w/BASIC	3
	HU 122	English Composition and Literature I	3
	MA 120	Quantitative Methods I	3
	MS 201	Principles of Management	3
	SS 110	World History OR	
	SS 120	American History OR	
	AS 253	History and Regulation of Aviation	3
			15
SECOND	EC 211	Macroeconomics	3
	HU 123	English Composition and Literature II	3
	MA 220	Quantitative Methods 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 w/Aviation Applications	3
	MS 210	Financial Accounting I	3
		Open Elective	3
			15
FOURTH	HU 221	Technical Report Writing	3
	MS 212	Financial Accounting II	3
	MS 314	Human Resource Management	3
	MS 317	Organizational Behavior	3
	MS 320	Business Information Systems	3
		Specified Elective	3
			18
TOTAL			63

SPECIFIED ELECTIVES:
AS 360, 401, 405, 408, 409, 412
EC 420
MS 322, 405, 408, 410, 412, 415, 419, 425

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 plus the additional courses indicated.

* AVIATION MAINTENANCE MANAGEMENT TYPE 147* AMT

COURSE	NUMBER/TITLE	CREDITS
AMT 101	Physical Mathematics	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	Aircraft Wood, Fabric and Finishes	2
AMT 203	Aircraft Instruments and Communications/Navigation	2
AMT 204	Aircraft Welding, Assembly and Finishes	4
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.

SEMESTER	COURSE NUMBER	TITLE	CREDITS
FIRST	CS 109	Introduction to Computer Programming w/BASIC	3
	EC 211	Macroeconomics	3
	HU 122	English Composition and Literature I	3
	MA 120	Quantitative Methods I	3
	MS 201	Principles of Management	3
			15
SECOND	EC 210	Microeconomics	3
	HU 123	English Composition and Literature II	3
	MA 220	Quantitative Methods II	3
	MS 210	Financial Accounting I	3
	SS 110	World History OR	
	SS 120	American History OR	
	AS 253	History and Regulation of Aviation	3
			15
THIRD	EC 310	Labor Economics	3
	HU 219	Speech	3
	MA 222	Business Statistics OR	
	MA 211	Statistics w/Aviation Applications	3
	MS 212	Financial Accounting II	3
	SS 220	Introduction to Psychology	3
			15
FOURTH	HU 221	Technical Report Writing	3
	MS 311	Marketing	3
	MS 312	Managerial Accounting	3
	MA 320	Decision Mathematics	3
	PS	Elective	3
			15
FIFTH	MS 314	Human Resource Management	3
	MS 317	Organizational Behavior	3
	MS 332	Corporate Finance I	3
	MS 401	Management Planning and Control	3
	PS	Elective	3
			15

SIXTH	HU/SS	Elective (300-400 Level)	3
	MS 320	Business Information Systems	3
	MS 390	Business Law	3
	MS 419	Aviation Maintenance Management	3
	MS 431	Business Policy	3
			15
TOTAL			150

Cooperative education credits may not normally be applied toward degree requirements.

** 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
TOTAL		36

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

SEMESTER	COURSE	NUMBER/TITLE	CREDITS
FIRST	CS 109	Introduction to Computer Programming w/BASIC	3
	EC 211	Macroeconomics	3
	HU 122	English Composition and Literature I	3
	MA 120	Quantitative Methods I	3
	MS 201	Principles of Management	3
			15
SECOND	EC 210	Microeconomics	3
	HU 123	English Composition and Literature II	3
	MA 220	Quantitative Methods II	3
	MS 210	Financial Accounting I	3
	SS 110	World History OR	
	SS 120	American History OR	
	AS 253	History and Regulation of Aviation	3
			15
THIRD	EC 310	Labor Economics	3
	HU 219	Speech	3
	MA 222	Business Statistics OR	
	MA 211	Statistics w/Aviation Applications	3
	MS 212	Financial Accounting II	3
	SS 220	Introduction to Psychology	3
			15

FOURTH	HU 221	Technical Report Writing	3
	MS 311	Marketing	3
	MS 312	Managerial Accounting	3
	MA 320	Decision Mathematics	3
	PS	Elective	3
			15
FIFTH	MS 314	Human Resource Management	3
	MS 317	Organizational Behavior	3
	MS 332	Corporate Finance I	3
	MS 401	Management Planning and Control	3
	PS	Elective	3
			15
SIXTH	HU/SS	Elective (300-400 Level)	3
	MS 320	Business Information Systems	3
	MS 390	Business Law	3
	MS 419	Aviation Maintenance Management	3
	MS 431	Business Policy	3
			15
TOTAL			126

Cooperative education credits may only be applied toward open electives.

AVIATION MAINTENANCE MANAGEMENT — AIRFRAME AND POWERPLANT MAINTENANCE CERTIFICATE

Thirty-six credits are granted to students who possess the FAA A&P Maintenance Certificate.

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	CS 109	Introduction to Computer Programming w/BASIC	3
	EC 211	Macroeconomics	3
	HU 122	English Composition and Literature I	3
	MA 120	Quantitative Methods I	3
	MS 201	Principles of Management	3
			15
SECOND	EC 210	Microeconomics	3
	HU 123	English Composition and Literature II	3
	MA 220	Quantitative Methods II	3
	MS 210	Financial Accounting I	3
	SS 110	World History OR	
	SS 120	American History OR	
	AS 253	History and Regulation of Aviation	3
			15

THIRD	EC 310	Labor Economics	3
	HU 219	Speech	3
	MA 222	Business Statistics OR	
	MA 211	Statistics w/Aviation Applications	3
	MS 212	Financial Accounting II	3
	SS 220	Introduction to Psychology	3
			15
FOURTH	HU 221	Technical Report Writing	3
	MS 311	Marketing	3
	MS 312	Managerial Accounting	3
	MA 320	Decision Mathematics	3
	PS	Elective	3
			15
FIFTH	MS 314	Human Resource Management	3
	MS 317	Organizational Behavior	3
	MS 332	Corporate Finance I	3
	MS 401	Management Planning and Control	3
	PS	Elective	3
			15
SIXTH	HU/SS	Elective (300-400 Level)	3
	MS 320	Business Information Systems	3
	MS 390	Business Law	3
	MS 419	Aviation Maintenance Management	3
	MS 431	Business Policy	3
			15
TOTAL			126

Cooperative education credits may only be applied toward open electives.

AVIATION MAINTENANCE MANAGEMENT — AVIONICS

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	EL 106	Direct and Alternating Current Fundamentals and Circuit Analysis w/Laboratory	6
	MA 241	Calculus and Analytical Geometry I	4
	PS 101	General Chemistry	3
			13
SECOND	EL 220	Introduction to Pulse and Digital Circuits w/Laboratory	4
	MS 201	Principles of Management	3
	EL 223	Solid State Fundamentals and Circuit Analysis w/Laboratory	6
	HU 122	English Composition and Literature I	3
			16

THIRD	EL 225	Advanced Digital Circuits and Systems w/Laboratory	4
	EL 226	Electronic Systems Analysis w/Laboratory	5
	HU 123	English Composition and Literature II	3
	CS 109	Introduction to Computer Programming w/BASIC	3
			15
FOURTH	EL 230	Microprocessor Systems w/Lab	3
	AV 205	Aircraft Communications and Landing Systems	3
	AV 210	Aircraft Pulse Systems	3
	MA 222	Business Statistics OR	
	MA 211	Statistics w/Aviation Applications	3
	HU 219	Speech	3
	EC 211	Macroeconomics	3
			18
FIFTH	AV 220	Low Frequency and Area Navigation Systems	3
	AV 240	Avionics Equipment Troubleshooting and Repair Laboratory	2
	HU 221	Technical Report Writing	3
	EC 210	Microeconomics	3
	MA 320	Decision Mathematics	3
	SS 110	World History OR	
	SS 120	American History OR	
	AS 253	History and Regulation of Aviation	3
			17
SIXTH	AV 341	Advanced Avionics Equipment Troubleshooting and Repair Laboratory	2
	EC 310	Labor Economics	3
	MS 210	Financial Accounting I	3
	MS 311	Marketing	3
	PS 103	Technical Physics I	3
	SS 220	Introduction to Psychology	3
			17
SEVENTH	MS 212	Financial Accounting II	3
	MS 314	Human Resource Management	3
	MS 317	Organizational Behavior	3
	MS 332	Corporate Finance I	3
	MS 401	Management Planning and Control	3
	PS	Elective	3
			18

EIGHTH	MS 312	Managerial Accounting	3
	MS 320	Business Information Systems	3
	MS 390	Business Law	3
	MS 419	Aviation Maintenance Management	3
	MS 431	Business Policy	3
	HU/SS	Elective (300-400 Level)	3
			18
TOTAL			132

Cooperative education credits may not be applied toward degree requirements.

FLIGHT RELATED PROGRAMS

Aeronautical Science
Aeronautical Studies
- Aviation Maintenance Technology
- Avionics
- Computer Science
- Management

Airway Science
- Aircraft Systems Management
- Airway Computer Science
- Aviation Maintenance Management

Professional Aeronautics

Aeronautical Science

Bachelor of Science
Associate in Science

ADMISSION REQUIREMENTS

Students must meet the general University requirements for admission and the age and physical qualifications for a flight training program, as outlined in the Admission to the University chapter of this catalog.

FLIGHT COURSE SCHEDULING

All flight students are required to take FA 104, FA 105 and FA 205. The specific flight courses taken thereafter will vary according to the type of multi-engine aircraft operated by a particular campus. Students enrolling in a degree program requiring flight usually begin their initial flight course sometime during the second 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 128 credit hours is required. Students must complete seven flight courses. Upon completion of the curriculum, the student is qualified to be examined for the FAA Commercial Pilot Certificate with Instrument, Single-Engine, and Multi-Engine ratings.

SEMESTER	COURSE NUMBER	TITLE	CREDITS
FIRST	AS 150	Aeronautics I	5
	HU 122	English Composition and Literature I	3
	MA 111	College Mathematics for Aviation I	3
	MS 105	American Business Enterprise OR	
	MS 201	Principles of Management	3
			14
SECOND	FA 104	Primary Flight	2
	AS 180	Basic Navigation	3
	HU 123	English Composition and Literature II	3
	MA 112	College Mathematics for Aviation II	3
	PS 103	Technical Physics I	3
			14
THIRD	FA 105	Private Pilot Certification	2
	AS 255	Aeronautics II	3
	HU 219	Speech	3
	CS 109	Introduction to Computer Programming w/BASIC OR	
	CS 210	Scientific Programming	3
	PS 104	Technical Physics II	3
	SS 220	Introduction to Psychology	3
			17
FOURTH	FA 205	Basic Attitude Instrument and Advanced Flight Maneuvers	2
	AS 256	Aeronautics III	3
	AS 253	History and Regulation of Aviation	3
	AS 201	Meteorology I	3
	HU 221	Technical Report Writing	3
	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	3
			17
FIFTH	FA 206	Instrument Flight Transition — S.E. OR	
	FA 207	Multi-Engine Transition	2
	AS 305	Aircraft Engines — Reciprocating	3
	AS 309	Basic Aerodynamics	3

	AS 352	Meteorology II	3
	HU/SS	Elective (300-400 Level)	3
		Open Elective	3
			17
SIXTH	FA 302	Commercial Pilot Certification — S.E. OR	
	FA 314	Instrument Flight Transition — M.E.	2
	AS 357	Flight Physiology	3
	AS 310	Aircraft Performance	3
	AS 311	Aircraft Engines — Turbine	3
	AS/SF	Elective (300-400 Level)	3
		Open Elective	3
			17
SEVENTH	FA 340	Multi-Engine Class Rating OR	
	FA 315	Commercial Pilot Certification — M.E.	1
	AS 355	Global Navigation	3
	AS 356	Aircraft Systems and Components	3
	AV 301	Avionics for Aviators	3
	AS/SF	Elective (300-400 Level)	3
		Open Elective	3
			16
EIGHTH	FA	Elective (300-400 Level)	1
	AS 408	Flight Safety	3
	AS 452	Electronic Navigation and Flight Control Systems	3
	AS/SF	Electives (300-400 Level)	3
		Open Electives	6
			16
TOTAL			128

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

ASSOCIATE IN SCIENCE DEGREE AERONAUTICAL SCIENCE

An Associate in Science degree in Aeronautical Science is granted upon completion of 66-67 credit hours and may be obtained in five semesters. Students must complete six flight courses. Upon completion of the curriculum, the student is qualified to be examined for the FAA Commercial Pilot Certificate with Instrument and Single-Engine or Multi-Engine ratings.

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	AS 150	Aeronautics I	5
	HU 122	English Composition and Literature I	3
	MA 111	College Mathematics for Aviation I	3

	MS 105	American Business Enterprise OR	
	MS 201	Principles of Management	3
			14
SECOND	FA 104	Primary Flight	2
	AS 180	Basic Navigation	3
	HU 123	English Composition and Literature II	3
	MA 112	College Mathematics for Aviation II	3
	PS 103	Technical Physics I	3
			14
THIRD	FA 105	Private Pilot Certification	2
	AS 255	Aeronautics II	3
	HU 219	Speech OR	
	HU 221	Technical Report Writing	3
	CS 109	Introduction to Computer Programming w/BASIC OR	3
	CS 210	Scientific Programming	3
	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	3
			14
FOURTH	FA 205	Basic Attitude Instrument and Advanced flight Maneuvers	2
	AS 256	Aeronautics III	3
	AS 253	History and Regulation of Aviation	3
	AS 201	Meteorology I	3
	HU/SS	Elective	3
	SS 220	Introduction to Psychology	3
			17
FIFTH	FA 206	Instrument Flight Transition — S.E. OR	
	FA 207	Multi-Engine Transition	2
	FA 302	Commercial Pilot Certification — S.E. OR	2
	FA 314	Instrument Flight Transition — M.E. and	
	FA 315	Commercial Pilot Certification — M.E.	3
		Open Elective	3
			7-8

Total credits required are 66-67 depending upon the flight option selected.

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 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 encountered during the flight. In addition, they are responsible 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 judgments incorporating company economic and scheduling considerations.

CERTIFICATION REQUIREMENTS

The Aircraft Dispatcher Certification Program is available only at the Daytona Beach Campus and is recommended for students in any degree program; the only requirement is the completion of the applicable Aeronautical Science courses. Students in programs other than Aeronautical Science must be sure to complete the applicable prerequisites for required courses. Dispatcher preparation is predicated upon the successful completion of the following Aeronautical Science courses with 100 percent attendance required:

AS 150 Aeronautics I
AS 180 Basic Navigation
AS 201 Meteorology I
AS 255 Aeronautics II
AS 256 Aeronautics III
AS 305 Aircraft Engines — Reciprocating
AS 310 Aircraft Performance
AS 311 Aircraft Engines — Turbine
AS 356 Aircraft Systems and Components
*AS 410 Air Carrier Operations

*AS 410 is an elective course in the Aeronautical Science curriculum and serves as the capstone to the Dispatcher Program.

In order to credit any of the courses listed above toward the Aircraft Dispatcher Certification Program, the student must enroll in the program prior to taking the courses and must maintain a record of 100 percent attendance throughout the course.

Aeronautical Studies

Bachelor of Science

DEGREE REQUIREMENTS

The Bachelor of Science Degree in Aeronautical Studies may be earned in eight semesters. Successful completion of a minimum of 122 semester credit hours is required. The core program consists of 83 credit hours in the following disciplines:

Aeronautical Science
Computer Science
Humanities
Mathematics
Management/Economics
Physical Science
Social Science

In addition to the core courses, an area of concentration is required. This provides the student with sufficient skills and knowledge in a chosen discipline preparatory for entry into a specific career field in aviation.

AREAS OF CONCENTRATION

Aviation Maintenance Technology
Avionics
Computer Science
Management

A description of each area of concentration and the courses required are listed on the following pages.

AVIONICS

The goal of the avionics area of concentration is to provide highly specialized technical knowledge in the theory of operation, troubleshooting and repair of avionics equipment. Special attention is given to laboratory presentations and hands-on participation by the students.

SEMESTER	COURSE NUMBER	TITLE	CREDITS
FIRST	AS 150	Aeronautics I	5
	HU 122	English Composition and Literature I	3
	MA 140	College Algebra	3
	MA 141	Trigonometry	2
	PS 101	General Chemistry	3
			16
SECOND	AS 253	History and Regulation of Aviation	3
	HU 123	English Composition and Literature II	3
	EC 210	Microeconomics OR	

	EC 211	Macroeconomics	3
	MA 241	Calculus and Analytical Geometry I	4
	MS 105	American Business Enterprise OR	
	MS 201	Principles of Management	3
			16
THIRD	HU 219	Speech	3
	AS 201	Meteorology I	3
	PS 103	Technical Physics I	3
	EL 106	Direct and Alternating Current Fundamentals and Circuit Analysis w/Laboratory	6
			15
FOURTH	CS 109	Introduction to Computer Programming w/BASIC	3
	AS 211	Aircraft Engines and Systems	3
	SS 110	World History OR	
	SS 120	American History	3
	EL 223	Solid State Fundamentals and Circuit Analysis w/Laboratory	6
			15
FIFTH	SS 210	Introduction to Sociology OR	
	SS 220	Introduction to Psychology	3
	EL 220	Introduction to Pulse and Digital Circuits	4
		Open Electives	6
			13
SIXTH	HU 221	Technical Report Writing	3
	EL 226	Electronics Systems Analysis w/Laboratory	5
	EL 225	Advanced Digital Circuits and Systems	4
		Open Elective	3
			15
SEVENTH	AS/SF	Elective	3
	HU/SS	Elective (300-400 Level)	3
	AV 210	Aircraft Pulse Systems	3
	AV 240	Avionics Equipment Troubleshooting and Repair Laboratory	2
	AV 205	Aircraft Communication and Landing Systems	3
	EL 230	Microprocessor Systems w/Lab	3
			17
EIGHTH	AS 405	Aviation Law	3
	AS 409	Aviation Safety	3
		Open Electives (300-400 Level)	6

	AV 341	Advanced Avionic Equipment Troubleshooting and Repair Laboratory	2
	AV 220	Low Frequency and Area Navigation Systems	3
			17
TOTAL			124

COMPUTER SCIENCE

The increasing use of computers in all phases of the aviation industry makes this area of concentration a highly relevant program. The program can be applied to manufacturing, marketing, or general operation of aircraft and many other related career areas. The student augments the core programs of aeronautical science, general science and humanities with training in the theory and utilization of computers.

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	AS 150	Aeronautics I	5
	HU 122	English Composition and Literature I	3
	MA 111	College Mathematics for Aviation I OR	
	MA 120	Quantitative Methods I	3
	SS 110	World History OR	
	SS 120	American History	3
			14
SECOND	AS/SF	Elective	3
	HU 123	English Composition and Literature II	3
	MA 112	College Mathematics for Aviation II OR	
	MA 220	Quantitative Methods II	3
	CS 109	Introduction to Computer Programming w/BASIC	3
	MS 105	American Business Enterprise OR	
	MS 201	Principles of Management	3
			15
THIRD	HU 219	Speech	3
	PS 102	Explorations in Physics OR	
	PS 103	Technical Physics I	3
	SS 210	Introduction to Sociology OR	
	SS 220	Introduction to Psychology	3
	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	3
	CS 115	Computer Programming I	3
			15
FOURTH	AS 201	Meteorology I	3
	AS 211	Aircraft Engines and Systems	3
	AS 253	History and Regulation of Aviation	3

	CS 215	Computer Programming II	3
	CS 222	Introduction to Discrete Structures	3
			15
FIFTH	HU 221	Technical Report Writing	3
	PS	Elective	3
	CS 240	Introduction to File Processing	3
		Open Electives	9
			18
SIXTH	HU/SS	Elective (300-400 Level)	3
	CS 315	Data Structures	3
	MA 211	Statistics with Aviation Applications OR	
	MA 222	Business Statistics	3
		Open Elective	3
		Open Elective (300-400 Level)	3
			15
SEVENTH	CS 331	Introduction to Software Engineering	3
	CS 341	Database Management Systems	3
	CS	Electives (300-400 Level)	6
		Open Electives (300-400 Level)	3
			15
EIGHTH	AS 405	Aviation Law	3
	AS 409	Aviation Safety	3
	CS	Electives (300-400 Level)	9
		Open Elective (300-400 Level)	3
			18
TOTAL			125

MANAGEMENT

The individual who desires to enter the aviation field prepared to move into a position of responsibility in management or operations should consider this area of concentration.

SEMESTER	COURSE NUMBER	TITLE	CREDITS
FIRST	AS 150	Aeronautics I	5
	HU 122	English Composition and Literature I	3
	MA 111	College Mathematics for Aviation I OR	
	MA 120	Quantitative Methods I	3
	SS 110	World History OR	
	SS 120	American History	3
			14
SECOND	EC 210	Microeconomics	3
	HU 123	English Composition and Literature II	3
	MA 112	College Mathematics for Aviation II OR	
	MA 220	Quantitative Methods II	3

	CS 109	Introduction to Computer Programming w/BASIC	3
	AS 253	History and Regulation of Aviation	3
			15
THIRD	HU 219	Speech	3
	EC 211	Macroeconomics	3
	PS 102	Explorations in Physics OR	
	PS 103	Technical Physics I	3
	SS 210	Introduction to Sociology OR	
	SS 220	Introduction to Psychology	3
	MS 210	Financial Accounting I	3
			15
FOURTH	AS 201	Meteorology I	3
	AS 211	Aircraft Engines and Systems	3
	PS	Elective	3
	MS 201	Principles of Management	3
	MS 212	Financial Accounting II	3
			15
FIFTH	HU 221	Technical Report Writing	3
	EC 310	Labor Economics	3
	MS 312	Managerial Accounting	3
	EC/MS	Elective (300-400 Level)	3
		Open Electives	6
			18
SIXTH	AS/SF	Electives	3
	HU/SS	Elective (300-400 Level)	3
	MA 211	Statistics with Aviation Applications OR	
	MA 222	Business Statistics	3
	MS 331	Transportation Principles	3
	EC/MS	Elective (300-400 Level)	3
			15
SEVENTH	EC/MS	Elective (300-400 Level)	3
	MS 314	Human Resource Management	3
		Open Elective (300-400 Level)	3
		Open Electives	6
			15
EIGHTH	AS 405	Aviation Law	3
	AS 409	Aviation Safety	3
	EC/MS	Elective (300-400 Level)	3
	MS 332	Corporate Finance I	3
		Open Elective (300-400 Level)	3
			15
TOTAL			122

AVIATION MAINTENANCE TECHNOLOGY

The individual who wishes to combine maintenance training and experience with an academic degree program and who may be interested in the supervision of aircraft maintenance activities will find that this area of concentration fills those requirements. This program integrates the knowledge and experience of aircraft and powerplant maintenance with the broader perspective of management, science and the humanities.

TYPE 147 AMT PROGRAM

(Available only to students at the Daytona Beach Campus.)

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	AS 150	Aeronautics I	5
	HU 122	English Composition and Literature I	3
	MA 111	College Mathematics for Aviation I OR	
	MA 120	Quantitative Methods I	3
	SS 110	World History OR	
	SS 120	American History	3
			14
SECOND	AS/SF	Elective	3
	HU 123	English Composition and Literature II	3
	MA 112	College Mathematics for Aviation II OR	
	MA 220	Quantitative Methods II	3
	MS 105	American Business Enterprise OR	
	MS 201	Principles of Management	3
	CS 109	Introduction to Computer Programming w/BASIC	3
			15
THIRD	HU 219	Speech	3
	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	3
	PS 102	Explorations in Physics OR	
	PS 103	Technical Physics I	3
	SS 210	Introduction to Sociology OR	
	SS 220	Introduction to Psychology	3
	AS 253	History and Regulation of Aviation	3
			15
FOURTH	AS 201	Meteorology I	3
	HU 221	Technical Report Writing	3
	PS	Elective	3
		Open Electives (300-400 Level)	6
			15
FIFTH	AMT 101	Physical Mathematics	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
		Open Elective (300-400 Level)	3
			15
SIXTH	AMT 201	Aircraft Structures and Sheet Metal Fabrication	4
	AMT 202	Aircraft Wood, Fabric and Finishes	2
	AMT 205	Aircraft Electrical Systems	4
	AMT 206	Hydraulic and Pneumatic Systems	2
	HU/SS	Elective (300-400 Level)	3
		Open Elective (300-400 Level)	3
			18
SEVENTH	AMT 203	Aircraft Instruments and Communication/Navigation Systems	2
	AMT 204	Aircraft Welding, Assembly and Rigging	4
	AMT 207	Aircraft Environmental and Fuel Systems	3
	AMT 208	Aircraft Landing Gear Systems	3
	AS 405	Aviation Law	3
			15
EIGHTH	AMT 209	Aircraft Reciprocating Engines	3
	AMT 210	Aircrafts37Powerplant Systems	3
	AMT 211	Engine Electrical and Ignition Systems	3
	AMT 212	Propellers and Propeller Systems	3
	AS 409	Aviation Safety	3
		Open Elective (300-400 Level)	3
			18
NINTH	AMT 213	Engine Installation and Operation	2
	AMT 214	Reciprocating Engine Overhaul	4
	AMT 215	Turbine Engines and Turbine Engine Systems	6
		Open Electives (300-400 Level)	6
			18
TOTAL			143

TYPE 65 AMT PROGRAM

(Available only to students at College of Continuing Education locations.)

The student must complete the Type 65 AMT courses and the core curriculum described below for a total of 125 credit hours.

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 and Applications	4
	Designated Electives AMT/AS/AV/CS/EL/FA/MS (At least nine of these credits must be upper level)	15
	Open electives (upper level)	6
TOTAL		42

All open electives including the Core must be upper level. AS 211 replaced in the Core by open elective (300-400 level).

CORE CURRICULUM

COURSE	NUMBER/TITLE	CREDITS
AS 150	Aeronautics I	5
AS 201	Meteorology I	3
AS 211	Aircraft Engines and Systems	3
AS/SF	Electives	3
AS 253	History and Regulation of Aviation	3
AS 405	Aviation Law	3
AS 409	Aviation Safety	3
CS 109	Introduction to Computer Programming w/BASIC	3
EC 210	Microeconomics OR	
EC 211	Macroeconomics	3
HU 122	English Composition and Literature I	3
HU 123	English Composition and Literature II	3
HU 219	Speech	3
HU 221	Technical Report Writing	3
HU/SS	Elective (300-400 level)	3
MA 111	College Math for Aviation I OR	
MA 120	Quantitive Methods I	3
MA 112	College Math for Aviation II OR	
MA 220	Quantitive Methods II	3
MS 105	American Business Enterprise OR	
MS 201	Principles of Management	3
PS	Electives (3 credits must be Physics)	6
SS 110	World History OR	
SS 120	American History	3
SS 210	Introduction to Sociology OR	
SS 220	Introduction to Psychology	3
	Open Electives (300-400 Level)	6
	Open Electives	12
TOTAL CORE CREDITS		83

At College of Continuing Education locations, AS 100 replaces AS 150 in the Core.

Airway Science

Bachelor of Science

ADMISSION

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.

DEGREE REQUIREMENTS

The Bachelor of Science Degree in Airway Science requires the successful completion of 134 to 158 semester credit hours depending upon the area of concentration chosen.

AIRCRAFT SYSTEMS MANAGEMENT

The Aircraft Systems Management area of specialization prepares students for the positions of Air Traffic Control Specialist and Aviation Safety Inspector (General Aviation Operations).

SEMESTER	COURSE NUMBER	TITLE	CREDITS
FIRST	AS 150	Aeronautics I	5
	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	
	AS 253	History and Regulation of Aviation	3
			17
SECOND	FA 104	Primary Flight	2
	AS 180	Basic Navigation	3
	HU 123	English Composition and Literature II	3
	MA 112	College Mathematics for Aviation II	3
	EC 210	Microeconomics	3
	PS 103	Technical Physics I	3
			17
THIRD	FA 105	Private Pilot Certification	2
	AS 255	Aeronautics II	3
	AS 201	Meteorology I	3
	EC 211	Macroeconomics	3
	PS 104	Technical Physics II	3
	CS 115	Computer Programming I	3
			17

FOURTH	AS 256	Aeronautics III	3
	FA 205	Basic Attitude Instrument and Advanced Flight Maneuvers	2
	MS 210	Financial Accounting I	3
	MA 211	Statistics w/Aviation Applications OR	
	MA 222	Business Statistics	3
	AS 360	Introduction to Air Traffic Control	3
			14
SUMMER SESSION (May be taken any Summer Term after completion of prerequisites.)			
	HU 219	Speech	3
	SS 220	Introduction to Psychology	3
			6
FIFTH	FA 206	Instrument Flight Transition — S.E. OR	
	FA 207	Multi-Engine Transition	2
	AS 309	Basic Aerodynamics	3
	PS 101	Basic Chemistry	3
	AS 305	Aircraft Engines — Reciprocating	3
	HU 221	Technical Report Writing	3
	MS 314	Human Resource Management	3
			17
SIXTH	FA 302	Commercial Pilot Certification — S.E. OR	
	FA 314	Instrument Flight Transition — M.E.	2
	AS 310	Aircraft Performance	3
	AS 311	Aircraft Engines — Turbine	3
	AS 356	Aircraft Systems and Components	3
	AS 404	Principles of Instruction I	3
	CS 215	Computer Programming II	3
			17
SEVENTH	FA 340	Multi-Engine Class Rating OR	
	FA 315	Commercial Pilot Certification — M.E.	1
	FA 400	Certified Flight Instructor — S.E.	1
	AS 352	Meteorology II	3
	AS 357	Flight Physiology	3
	AS 361	Enroute/Terminal Non-Radar Air Traffic Control	3
	AS 406	Principles of Instruction II	3
	MS 317	Organizational Behavior	3
			17
EIGHTH	FA 409	Certified Flight Instructor — Instrument	1
	FA 411	Certified Flight Instructor — M.E.	1
	AS 408	Flight Safety	3

	AV 301	Avionics for Aviators	3
	MS 320	Business Information Systems	3
	AS 410	Air Carrier Operations	3
			14
TOTAL			136

Cooperative education credits may not be applied toward degree requirements.

AIRWAY COMPUTER SCIENCE

The Airway Computer Science area of specialization prepares students for the positions of Air Traffic Control Specialist and Computer Specialist.

SEMESTER	COURSE NUMBER/TITLE		CREDITS
FIRST	AS 150	Aeronautics I	5
	HU 122	English Composition and Literature I	3
	MA 111	College Mathematics for Aviation I	3
	SS 110	World History OR	
	SS 120	American History	3
			14
SECOND	AS 180	Basic Navigation	3
	HU 123	English Composition and Literature II	3
	MA 112	College Mathematics for Aviation II	3
	MS 201	Principles of Management	3
	CS 109	Introduction to Computer Programming w/BASIC	3
	SS 220	Introduction to Psychology	3
			18
THIRD	AS 255	Aeronautics II	3
	AS 201	Meteorology I	3
	EC 211	Macroeconomics	3
	PS 103	Technical Physics I	3
	CS 115	Computer Programming I	3
	CS 220	Digital Logic and Computer Operation	3
			18
FOURTH	AS 256	Aeronautics III	3
	AS 211	Aircraft Engines and Systems	3
	EC 210	Microeconomics	3
	PS 104	Technical Physics II	3
	AS 253	History and Regulation of Aviation	3
	CS 215	Computer Programming II	3
			18
FIFTH	MA 211	Statistics w/Aviation Applications OR	
	MA 222	Business Statistics	3
	HU 221	Technical Report Writing	3
	MS 210	Financial Accounting I	3
	CS 222	Introduction to Discrete Structures	3

	CS 230	Organization of Programming Languages	3
	CS 240	Introduction to File Processing	3
			18
SIXTH	AS 360	Introduction to Air Traffic Control	3
	CS 235	Assembly Language Programming	3
	CS 315	Data Structures	3
	PS 101	Basic Chemistry	3
	MS 314	Human Resource Management	3
	HU 219	Speech	3
			18
SEVENTH	AS 361	Enroute/Terminal Non-Radar Air Traffic Control	3
	SS 320	American National Government	3
	CS 331	Introduction to Software Engineering	3
	CS 341	Database Management Systems	3
	CS 372	Introduction to Microprocessors	3
			15
EIGHTH	AS 409	Aviation Safety	3
	CS 350	Computer Modeling and Simulation	3
	CS	Electives (300-400 Level)	6
	MS 317	Organizational Behavior	3
			15
TOTAL			134

Cooperative education credits may not be applied toward degree requirements.

AVIATION MAINTENANCE MANAGEMENT

The Aviation Maintenance Management area of specialization prepares students for the position of Aviation Safety Inspector (General Aviation Airworthiness).

SEMESTER	COURSE NUMBER	TITLE	CREDITS
FIRST	AS 150	Aeronautics I	5
	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	3
			17
SECOND	AS 180	Basic Navigation	3
	HU 123	English Composition and Literature II	3
	MA 112	College Mathematics for Aviation II	3
	AS 253	History and Regulation of Aviation	3
	EC 210	Microeconomics	3
			15

THIRD	AS 255	Aeronautics II	3
	CS 115	Computer Programming I	3
	PS 103	Technical Physics I	3
	AS 201	Meteorology	3
	MA 211	Statistics w/Aviation Applications OR	
	MA 222	Business Statistics	3
	HU 219	Speech	3
			18
FOURTH	AS 256	Aeronautics III	3
	EC 211	Macroeconomics	3
	PS 104	Technical Physics II	3
	CS 215	Computer Programming II	3
	PS 101	Basic Chemistry	3
	SS 220	Introduction to Psychology	3
			18
FIFTH	AS 360	Introduction to Air Traffic Control	3
	HU 221	Technical Report Writing	3
	AMT 101	Physical Mathematics	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
			18
SIXTH	HU/SS	Elective (300-400 Level)	3
	AS 361	Enroute/Terminal Non-Radar Air Traffic Control	3
	AMT 201	Aircraft Structures and Sheet Metal Fabrication	4
	AMT 202	Aircraft Wood, Fabric and Finishes	2
	AMT 205	Aircraft Electrical Systems	4
	AMT 206	Hydraulic and Pneumatic Systems	2
			18
SEVENTH	MS 314	Human Resource Management	3
	AS 409	Aviation Safety	3
	AMT 203	Aircraft Instruments and Communication/Navigation Systems	2
	AMT 204	Aircraft Welding, Assembly and Rigging	4
	AMT 207	Aircraft Environmental and Fuel Systems	3
	AMT 208	Aircraft Landing Gear Systems	3
			18
EIGHTH	HU/SS	Elective (300-400 Level)	3
	MS 419	Aviation Maintenance Management	3
	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
			18
NINTH	MS 317	Organizational Behavior	3
	CS 331	Introduction to Software Engineering	3
	AMT 213	Engine Installation and Operation	2
	AMT 214	Reciprocating Engine Overhaul	4
	AMT 215	Turbine Engines and Turbine Engine Systems	6
			18
TOTAL			158

Cooperative education credits may not be applied toward degree requirements.

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 admission 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, termed aeronautical technology credit, for their aviation training and experience. 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 length of experience in related jobs.

The maximum amount of aeronautical technology credit granted for technical training and experience in an occupation is 36 credits.

Aeronautical technology credits are applicable only in Professional Aeronautics and are not transferable to any other ERAU degree program. The credit granted encompasses all training and experience related to the applicant's occupational field which established eligibility for Professional Aeronautics. Other University advanced standing policies are not applicable to the training and experience 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 Aviation Training and Experience

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 students' 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 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.

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 72 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 far left specifies the requirements for the Associate in Science. The column to the right of the associate curriculum specifies the requirements for the Bachelor of Science.

CURRICULUM	A.S.	B.S.
AERONAUTICAL TECHNOLOGY CREDIT (Maximum)	18	36
AERONAUTICAL SCIENCE		
AS 253 History and Regulation of Aviation	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	3	3
HU 219 Speech		3
HU 21 Technical Report Writing	3	3
HU/SS Electives	6	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 105 American Business Enterprise OR		
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 357, AS 360, AS 401, AS 409, AS 412
***AS 305, AS 309, AS 310, AS 311, AS 352, AS 410,
****AMT 271, AMT 281
CS 318
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 305, SF 310, SF 330

* 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 assignments may not be in the student's occupational specialty.

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 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
AV Avionics Technology
CE Cooperative Education
CIS Computer Information Systems
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
SS Social Science

Corequisites and prerequisites may be waived only by permission of the responsible department chair or resident center director.

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, PS 110, and PS 201 or PS 205 for entry into all AE courses except AE 101.

AE 101 — Introduction to Aeronautical Engineering **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.(Offered only at the Prescott campus.)

AE 301 — Aerodynamics I **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, MA243. Corequisite: ES 305.

AE 302 — Aerodynamics II **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 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 **2 Credits**
This laboratory consists of a series of aerodynamic experiments using the wind tunnel, simple and multiple manometers, 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. Prerequisite: CS 210. Corequisite: AE 301.

AE 401 — Advanced Aerodynamics I **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 Credits**
Shear flow and bending stress analysis of semi-monocoque structural members. Tapered beams; beams with unsymmetrical cross section. Cutouts in wing and fuselage members. Deflection analysis using energy methods; shearing deformations; wing warping and twisting. Structural stability. Connections. Computer-aided analysis. Prerequisite: AE 304.

AE 407 — Matrix Structural Methods **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 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 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 **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 Credits**
Development of longitudinal, lateral and directional stability and control, control surface design, control effectiveness and size requirements. Dynamic control theory. Handling characteristics of aircraft. Prerequisites: MA 345, CS 210. Corequisite: AE 302.

AE 415 — In-Flight Laboratory **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 **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 **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 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 Credits**
Modeling, analysis, and control of dynamical systems with aerospace applications. Transfer functions, block diagram algebra. Routh-Hurwitz 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 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**
Lectures, laboratories or seminars on 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 Credit**

Focuses on the basic characteristics of air doctrine; United States Air Force mission and organization; functions of United States strategic offensive and defensive, general purpose, and aerospace support forces; and officership. A weekly 1-hour Leadership Lab consisting of Air Force customs and courtesies, Air Force environment and drill and ceremonies is mandatory.

AF 102 — U.S. Military Forces
(General Military Course) **1 Credit**

Continuation of AF 101.

AF 201 — The Development of Air Power
(General Military Course) **1 Credit**

Focuses on factors contributing to change in the nature of military conflict; the development of air power from its earliest beginnings through two world wars; the evolution of air power concepts and doctrines; the role of technology in the growth of air power; a history of air power employment in military and non-military operations in support of national objectives; and an assessment of oral/written communicative skills. An additional 1-hour Leadership Lab consisting of Air Force customs and courtesies, Air Force environment, drill and ceremonies, and field training orientation is mandatory.

AF 202 — The Development of Air Power
(General Military Course) **1 Credit**

Continuation of AF 201.

AF 301 — Air Force Management and Leadership
(Professional Officers Course) **3 Credits**

A study of the managerial and leadership responsibilities of an Air Force officer. An in-depth study of those areas providing leaders with the expertise to develop and manage the human resources needed to achieve organizational goals. The course includes effective use of the communicative skills — listening, speaking and writing to effectively manage an organization. Other topics include an understanding of how behaviors, habits and attitudes, time management, and human motivation increases performance. A mandatory Leadership Laboratory compliments this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of this course.

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

AF 401 — National Security Forces in Contemporary American Society (Professional Officers Course) **3 Credits**
Includes an examination of the needs for national security; an analysis of the evolution of the American defense strategy and policy; 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 a study of the formulation of American defense policy and strategy. Special topics of interest focus on the military as a profession, officership, and the military justice system. Within this structure, continued emphasis is given to developing communicative skills. An additional 1-hour Leadership Laboratory, consisting primarily of advanced leadership experiences in officer-type activities and orientation for initial active duty, is mandatory.

AF 402 — National Security Forces in Contemporary American Society (Professional Officers Course) **3 Credits**
Continuation of AF 401. The Leadership Laboratory prepares students to deal with entry into active duty with the USAF.

AVIATION MAINTENANCE TECHNOLOGY

AMT courses designated as Type 65 are available at International Campus locations only.

AMT 101 — Physical Mathematics **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 **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 **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 **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 **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 **4 Credits**
A study of aircraft structural characteristics and methods of fabrication with an emphasis on aluminum sheet metal applications. Explains metal-working processes and develops the techniques necessary for airworthy manufacture. Prerequisite: AMT 105.

AMT 202 — Aircraft Wood, Fabric and Finishes **2 Credits**
A course of study encompassing the use of wood and various fabrics in structural design of aircraft, and the methods of working and finishing these materials. Includes the application of paint, dope and resins.

AMT 203 — Aircraft Instruments and Communication/ Navigation System **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 **4 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 **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 **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 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 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 3 Credits
A basic study of the theory of operation of reciprocating engines and determination of efficiency. The effectiveness of lubrication systems and lubrication component repair methods.

AMT 210 — Aircraft Powerplant Systems 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 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 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 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 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 **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 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 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 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 Credits**
A study of airframe hydraulic, pneumatic, environmental, fuel, landing gear and auxiliary systems. (Type 65.)

AMT 275 — Aircraft Maintenance Practicum **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 Credits**
An indepth 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 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 **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 100 — Foundations of Aeronautics **4 Credits**
Aerodynamics, engines, systems, Federal Aviation Regulations, navigation, meteorology, communication, Airman Information Manual, and flight physiology. The student is eligible to take the FAA Private Pilot written examination upon satisfactory completion. (This course offered only by the International Campus.)

AS 110 — Introduction to Space Flight **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.

AS 150 — Aeronautics I **5 Credits**
A study of the basic aeronautical subject areas necessary for the student to satisfactorily operate an aircraft as a Private Pilot. Subjects include: basic aerodynamics, aircraft performance, weights and balance, Federal Aviation Regulations, aircraft systems and operating procedures, VFR flight planning and the physiological aspects of flight. At the completion of this course, the student will be prepared to take the FAA Private Pilot Written Examination.

AS 180 — Basic Navigation **3 Credits**
The course is designed to develop the knowledge and skills necessary for the safe execution of cross-country flying through the practical application of basic aircraft navigation methods. Upon successful completion of this course, the student will be proficient in preflight planning of VFR cross-country flights and be knowledgeable of the in-flight procedures to smoothly execute the planned flight. The student will also be introduced to IFR flight planning and the conduct of an IFR flight. Prerequisite: AS 150.

AS 201 — Meteorology I **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 211 — Aircraft Engines and Systems **3 Credits**
Reciprocating and gas turbine engines, power and thrust measurement, and operating principles. Oil, fuel, hydraulic, electrical and pneumatic systems. Not available to Aeronautical Science students or Airway Science students with an area of concentration in Flight.

AS 253 — History and Regulation of Aviation **3 Credits**
A survey of aviation from its early development to the present. Emphasis is on the historical and legislative aspects as they related to the development and control of aviation by the government. Past and present historical and legislation events and acts will be examined to demonstrate this correlation in the development of aviation as it is today.

AS 255 — Aeronautics II **3 Credits**
A study and review of the operations, regulations, and procedures necessary to perform competently as a Commercial Pilot. Subjects include: complex and multi-engine aircraft operations, advanced weight and balance computations and cross-country planning, meteorology, FAR, AIM and other flight publications. Study includes a discussion of precision flight maneuvers required for Commercial Pilot Certification. At the completion of this course, the student will be prepared to take the FAA Commercial Pilot Written Examination. Prerequisite: AS 180.

AS 256 — Aeronautics III **3 Credits**
A study of the techniques, procedures, and regulations pertaining to instrument flight in the National Airspace System. Topics include: attitude instrument flying, navigational equipment and facilities, the airway system, and air traffic control procedures. At the completion of this course, the student will be prepared to take the FAA Instrument-Airplane Written Examination. Prerequisite: AS 255.

AS 305 — Aircraft Engines — Reciprocating **3 Credits**
Mechanical relationships, components, construction, power calculations, carburetion, induction, fuel-air requirements, and federal regulations. Prerequisite: PS 104.

AS 309 — Basic Aerodynamics **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 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 Credits**
Thrust factors, gas generators, Mach effects, diffusion, turbofans and turboprops. Prerequisite: AS 305.

AS 320 — Commuter Aviation **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 352 — Meteorology II **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 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. Prerequisites: AS 255, AS 310.

AS 356 — Aircraft Systems and Components **3 Credits**
Electrical, environmental, hydraulic, fuel, ignition and lubrication systems including theory of operation and calculations. Prerequisites: PS 104, AS 255.

AS 357 — Flight Physiology **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 360 — Introduction to Air Traffic Control **3 Credits**
This course provides the student with an introduction to the air traffic control system at the operational level. It describes the components of the National Airspace System with emphasis on interrelationships between enroute, terminal, tower, flight service functions and the pilot.

AS 361 — Enroute/Terminal Non-Radar Air Traffic Control **3 Credits**
This course covers the basic Air Traffic Control procedures for Instrument Flight Rules (IFR) operations, separation standards, holding aircraft, departures/arrivals, and general and special controls. Students will have the opportunity to practice air traffic control skills. Prerequisite: AS 360.

AS 401 — Airport Development and Operations **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: AS 253.

AS 404 — Principles of Instruction I **3 Credits**
Development of a flight training syllabus, lesson plan construction, teaching methods. Application of teaching and learning fundamentals to flight maneuvers and performance evaluation. Prerequisites: Commercial Pilot Certificate or FA 302 or FA 315.

AS 405 — Aviation Law **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 253.

AS 406 — Principles of Instruction II **3 Credits**
Educational theories and techniques. Applied educational psychology. Development of methods for instrument flying instruction. Cognitive and motivational theories. Prerequisites: AS 404 or a CFI-Airplane Certificate.

AS 408 — Flight Safety **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, Commercial Pilot Certificate.

AS 409 — Aviation Safety **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 or Airway Science-Flight students.

AS 410 — Air Carrier Operations **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. Prerequisites: AS 201, AS 255, AS 310.

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

AS 452 — Electronic Navigation and Flight Control Systems **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, AS 355, and AV 301.

AS 455 — Flight Engineer **3 Credits**
This course will provide the student with exposure to complex air carrier aircraft systems; systems study of the Boeing 727 aircraft; and preparation for the FAA Flight Engineer Turbojet (B-727) written and oral examinations. The student will also be provided with an overview of government regulations governing Flight Engineers during training and in performance of their duties. The student will be prepared to take the FAA Flight Engineer written examination. Prerequisites: Commercial/Instrument Rating, AS 309, AS 310, AS 311, AS 356.

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

AVIONICS TECHNOLOGY

AV 205 — Aircraft Communications and Landing Systems **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.

AV 210 — Aircraft Pulse Systems **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.

AV 220 — Low Frequency and Area Navigation Systems **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 205, AV 210, EL 230.

AV 240 — Avionics Equipment Troubleshooting and Repair Laboratory **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 205, AV 210.

AV 301 — Avionics for Aviators **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 320 — Aircraft Surveillance Systems **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 205, AV 210, EL 230.

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

instrument systems, data bases, and integrated flight control systems. Prerequisites: AV 205, AV 210, EL 230.

AV 325 — Long Range Navigation Systems **3 Credits**
An advanced course in long range navigation systems used on aircraft. Subject areas include long range low frequency navigation systems, inertial navigation, navigation and flight management systems. Prerequisites: AV 205, AV 210, EL 230.

AV 341 — Advanced Avionics Equipment Troubleshooting and Repair Laboratory **2 Credits**
A continuation of AV 240. 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 240.

AV 345 — Elements of Integrated Logistics **3 Credits**
This is an introductory course in the application of probability theory and statistics to avionics. Emphasis is placed on qualitative and quantitative test engineering and quality assurance. Prerequisite: MA 242.

AV 405 — Avionics Analog System Design Considerations with Laboratory **4 Credits**
An intensive study and investigation of both linear and non-linear avionics analog systems and components, using a theoretical and mathematical approach. Subjects of interest will include: control systems theory, multipole filter design and analysis, phased locked loops, scattering parameters, and various design trade-off considerations. Special topics of current or future Avionics interest may be discussed and studied. Prerequisites: EL 305, EL 309.

AV 410 — Avionics Digital Design Considerations with Laboratory **4 Credits**
An intensive study and investigation of current and proposed avionics digital and microwave systems. Subjects of interest are: digital circuits, fiber optics microwave theory, information theory concepts of digital communications, digital and microwave equipment design. Special topics of current or future Avionics interest may be discussed and studied. Prerequisites: EL 305, EL 309.

AV 411 — Integrated Aviation Logistics Support **3 Credits**
An introduction to logistics engineering in aviation support systems. Subjects include: field service, customer service, publications, product support, training, packaging, computer resources, reliability, maintainability, and logistics engineering. Prerequisites: AV 345.

AV 421 — Avionics System Integration and Design **3 Credits**
Design applications in avionic system integration and mainframe considerations. Subjects include: avionics package design, aircraft factors that affect avionics package design, FAA regulations and certification, agencies involved in the design, licensing and standardization of avionics systems, and manufacturers specifications. Prerequisites: AV 405, AV 410.

COOPERATIVE EDUCATION

CE — 396, 397 **1 to 6 Credits**
Aerospace Engineering (AE), 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 **1 to 6 Credits**
Continuation of CE — 396, 397

COMPUTER INFORMATION SYSTEMS

CIS 110 — Introduction to Computer-Based Systems **3 Credits**
An overview of computer information systems. This survey course introduces computer hardware, software, procedures, systems, and human resources and explores their integration and application in business and in other segments of society. The fundamentals of computer problem solving and programming in a higher-level programming language are discussed and applied.

CIS 220 — Applications Program Development I **3 Credits**
An introduction to computer programming in a business environment. Emphasis on structured program design, development, testing, implementation, and documentation of common business-oriented applications using a higher level language. Application of top-down design strategies and structured programming techniques for designing and developing problem solutions. Prerequisite: CIS 110.

CIS 230 — Applications Program Development II **3 Credits**
A continuation of CIS 220. Emphasis on structured methodology of program design, development, testing, implementation, and documentation of common business-oriented applications. Coverage of sequential and random access files and processing techniques and development of programs and systems of programs for batch and interactive environments. Prerequisite: CIS 220.

CIS 300 — Systems Analysis Methods **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: CIS 220.

CIS 305 — Structured Systems Analysis and Design **3 Credits**
Advanced study of structured systems development. Emphasis on strategies and techniques of structured analysis and structured design for producing logical methodologies for dealing with complexity in the development of information systems. Prerequisites: CIS 230, CIS 300.

CIS 310 — Data Structures **3 Credits**
Algorithms for basic data structures such as stacks, queues, lists, and trees; algorithms for implementation and use of graphs; design and analysis for internal and external sorting/searching/merging; algorithms for dynamic storage allocation, garbage collection, and compaction. Prerequisites: CIS 230 or CS 216.

CIS 400 — Database Program Development **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. Prerequisites: CIS 305, CIS 310.

CIS 405 — Applied Software Development Project **3 Credits**
Application of computer programming and system development concepts, principles and practices to a comprehensive system development project. A team approach is used to analyze, design and document realistic systems of moderate complexity. Use of project management methods, project scheduling and control techniques, formal presentations and group dynamics in the solution of information systems problems. Development of a database to support the system. Prerequisite: CIS 400.

CIS 410 — Software and Hardware Concepts **3 Credits**
A survey of technical topics related to computer systems with emphasis on the relationships between hardware architecture, system software, and applications software. The architecture of processors and storage systems are explored and the implications for systems software design are covered along with the impact of hardware and system software design on the development of application programs in a business environment. Prerequisite: CIS 230.

CIS 415 — Office Automation **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: CIS 300.

CIS 420 — Decision Support Systems **3 Credits**
An analysis of the highest level of information support systems which serve the manager user. This system provides quantitative-based information derived from one or more data bases within and/or external to an organization and used to aid managers in the decision-making process. Theoretical concepts will be applied to real-world applications with an analysis of examples from specific organizations. Prerequisite: CIS 110.

CIS 425 — Advanced Database Concepts **3 Credits**
Investigation and application of advanced database concepts including database administration, database technology and selection and acquisition of database management systems. In-depth practicum in data modeling and system development in a database environment. Overview of future trends in data management. Prerequisite: CIS 400.

CIS 430 — Distributed Data Processing **3 Credits**
The features of centralized, decentralized and distributed systems will be examined. Technology implications of computer hardware, software and communications are discussed as they relate to the design, development and implementation of distributed data processing systems. Prerequisite: CIS 400.

CIS 435 — EDP Audit and Controls **3 Credits**
An introduction to the fundamentals of EDP auditing. Emphasis on EDP controls, types of EDP audits, and concepts and techniques used in EDP audits. Exposure to risk assessment and professional standards in the field of EDP auditing. Prerequisite: CIS 400.

CIS 440 — Information Systems Planning **3 Credits**
An introduction to the financial, technical and strategic information systems planning processes. Emphasis on the relationship of the

informations systems planning process to the overall business goals, policies, plans, management style and industry condition. Emphasis on the means of selecting large systems projects; assessing the installation's current state; determining processing, staffing, software, hardware and financing approaches. Prerequisite: CIS 405.

CIS 445 — Information Resource Management **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 nd managing the computer information systems development process. Coverage of the subject matter through lectures, readings, discussions and case study analysis. Prerequisite: CIS 405.

COMPUTER SCIENCE

CS 101 — Introduction to Keyboard Operations **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 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 109 — Introduction to Computer Programming with BASIC **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 120 or MA 140.

CS 115 — Computer Programming I **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 120 or MA 140 and MA 141.

CS 210 — Scientific Programming **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. Prerequisite: MA 112 or MA 220 or MA 241.

CS 215 — Computer Programming II **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 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. Prerequisites: CS 109 or CS 210.

CS 218 — COBOL Programming **3 Credits**
A first course in the use of the COBOL language giving a firm foundation in the concepts of structured programming design and structured COBOL programming. It will provide the capability of solving a wide range of business-type problems using the language. The structured design methodologies used in this course are based on top-down design, functional decomposition, pseudocode, and structured walkthrough. Topics include introduction to structured programming and design, input/output operations, arithmetic functions, report editing, comparing nested IF statements, control breaks-single and multiple level, and table processing. Commercial aviation examples are used. Prerequisites: CS 109 or CS 210.

CS 220 — Digital Logic and Computer Operation **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 Credits**
An introduction to the fundamental algebraic, logical, and combinatorial concepts of mathematics and logic needed in subsequent computer science courses. Prerequisites: MA 140 or MA 120, CS 115 or permission of the instructor.

CS 230 — Organization of Programming Languages **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 or permission of the instructor.

CS 235 — Assembly Language Programming **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 240 — Introduction to File Processing **3 Credits**
Characteristics and utilization of bulk storage devices; data structures and algorithms used in file processing; sequential and random access files; applications involving file processing packages. Prerequisite: CS 215.

CS 315 — Data Structures **3 Credits**
Algorithms for basic data structures such as stacks, queues, lists, and trees; algorithms for implementation and use of graphs; design and analysis of algorithms for internal and external sorting/searching/merging; algorithms for dynamic storage allocation, garbage collection, and compaction. Prerequisite: CS 240.

CS 318 — Advanced BASIC Programming with Aviation Applications **3 Credits**
Heavy emphasis on file processing techniques, array manipulations and string manipulation. The student will apply structured programming techniques using the extended BASIC language. Prerequisite: CS 109.

CS 331 — Introduction to Software Engineering **3 Credits**
The course provides for an introduction to the concepts and principles of software engineering. Students participate in activities associated with the non-coding aspects of the development and maintenance of large-scale software products. The activities emphasize the key elements of the software development life cycle: requirements and specifications, design and implementation, validation and testing, configuration management, and maintenance. Automated tools used in the development of software products are studied. Prerequisites: CS 215, HU 221, or permission of the instructor.

CS 335 — Introduction to Computer Graphics **3 Credits**
Introduction to computer graphics, algorithms, graphics programming, graphics design, use of graphics 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 338 — Numerical Methods **3 Credits**
Floating point arithmetic; error analysis; numerical algorithms in interpolation, integration, differentiation, matrix algebra, approximations, and solutions of equations; use of numerical software packages. Prerequisites: CS 210 or CS 230, MA 242.

CS 340 — Computer Processing of Statistical Data **3 Credits**
Least square analysis, curve fitting, analysis of variance and covariance in computations. Estimating and trend projections using computer-produced plots along with statistics. Prerequisites: CS 109 or CS 210 and MA 222 or MA 412.

CS 341 — Database Management Systems **3 Credits**
Introduction to database concepts; examination of the characteristics and use of specific database management systems; practical considerations and applications of database management systems in operational environments. Prerequisite: CS 215.

CS 350 — Computer Modeling and Simulation **3 Credits**
Introduction to system simulation and modeling; types of models basic to any simulation; techniques of simulation; continuous and discrete simulation, queuing; linear programming; Monte Carlo simulation. Prerequisites: CS 215, MA 412 or MA 222.

CS 360 — Advanced FORTRAN Programming **3 Credits**
Techniques in data reduction, modular programming at the systems level, array manipulation. Practical applications in applied programming. Prerequisites: CS 210 and permission of the instructor.

CS 370 — Computer Organization **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 235, CS 315.

CS 372 — Introduction to Microprocessors **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 235.

CS 420 — Operating Systems **3 Credits**
Development, structure, and functions of operating systems; demand service models; development of concurrent models. Prerequisite: CS 370.

CS 430 — Numerical Analysis **3 Credits**
Systems of equations; approximation by spline functions; numerical methods of solving ordinary differential equations, systems of differential equations, and partial differential equations; finite element method. Prerequisites: CS 338, MA 345.

CS 436 — Computer Graphics II with Aviation Applications **3 Credits**
Interactive graphics programming stressing program design, picture plotting, input handling, and concepts necessary to implement a graphics subroutine package. Basic mathematics of two-dimensional and three-dimensional geometric and viewing transformations. Prerequisites: CS 335 and MA 242.

CS 441 — Database Management Systems Design **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. Prerequisites: CS 315, CS 341.

CS 445 — Interfacing **3 Credits**
Introduction to microcomputers and microcontrollers, effect of the microprocessor on the system, memory, and microcomputer input/output methods. The subjects of interface components and their characteristics, designing interface circuits, interfacing to standard buses and peripherals. Interface layout and construction. Interface software design and implementation. Prerequisite: CS 372.

CS 450 — Real-time Systems **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 420.

CS 455 — Artificial Intelligence **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 databases for artificial intelligence, knowledge based systems, and robotic systems. Prerequisite: CS 315.

CS 460 — Telecommunications Systems **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: Permission of the instructor.

CS 465 — Senior Project in Applications of Computers to Aviation **3 Credits**
A computer science project involving a practical application to aviation will be carried out. Each student will be under the direction of an individual computer science faculty member. Prerequisite:

Senior standing in the computer science program and the consent of the instructor.

CS 299, 399, 499 — Special Topics in Computer Science **1–6 Credits**
Lectures, laboratories or seminars on selected topics in computer science. Prerequisite: Consent of the instructor and the department chair.

ECONOMICS

EC 210 — Microeconomics **3 Credits**
An introduction to economic principles, problems and policies with emphasis on microeconomic theory and current domestic problems. Prerequisites: MA 005 or Placement Test.

EC 211 — Macroeconomics **3 Credits**
An introduction to economic principles, problems and policies with emphasis on macroeconomic theory, business fluctuation, fiscal and monetary policy, and economic growth. Prerequisites: MA 005 or Placement Test.

EC 310 — Labor Economics **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. Prerequisite: EC 210.

EC 312 — Money and Banking **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 420 — Economics of Air Transportation **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. Prerequisites: MS 105 or MS 201, EC 210, EC 211.

EC 299, 399, 499 — Special Topics in Economics **1–4 Credits**
Lectures, seminars, laboratories, independent studies or combinations of selected topics in economics. Prerequisites: Consent of the instructor and approval of the department chair. May be repeated with a change of content.

ELECTRICAL ENGINEERING

A grade of C or better is required in MA 241, MA 242, PS 110, and PS 201 or PS 205 for entry into all EE courses.

EE 220 — Digital Circuit Design **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 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 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 201. Corequisite: MA 345.

EE 224 — Electrical Engineering Laboratory I **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 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 transformers. Prerequisites: PS 202, MA 345. Corequisite: MA 441.

EE 301 — Electrical Engineering Laboratory II **1 Credit**
Problem sessions, verification of theory presented in EE 300. Elements of circuit modeling and design. Corequisite: EE 300.

EE 302 — Electronic Devices and Circuits **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. Corequisite: EE 300.

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

EE 304 — Electronic Circuits Laboratory **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 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 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, CS 210.

EE 322 — Computer Engineering Laboratory **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 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 442.

EE 401 — Control Systems Analysis and Design **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 305, EE 320.

EE 402 — Control Systems Laboratory **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 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 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 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 **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 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 350, EE 410.

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

ELECTRONICS TECHNOLOGY

EL 106 — Direct and Alternating Current Fundamentals and Circuit Analysis with Laboratory **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 141, HU 006, and HU 017.

EL 208 — Basic Radiotelephone Equipment Theory and Operation **3 Credits**
A preparatory course for the FCC General Radiotelephone Operator's Licensing. Classroom presentations include a review of basic electronic theory which is applicable to FCC General Class Radiotelephone licensing, basic FCC law (Element I), basic operating practices (Element II), and basic radiotelephone (Element III). Prerequisite: EL 226.

EL 220 — Introduction to Pulse and Digital Circuits **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 multivators. Prerequisites: EL 106, MA 241. Corequisite: EL 223.

EL 223 — Solid State Fundamentals and Circuit Analysis with Laboratory **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.

EL 225 — Advanced Digital Circuits and Systems with Laboratory **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 **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 **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 **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 223, MA 243.

EL 305 — Linear Systems Analysis **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 202, MA 345, EL 230, EL 300.

EL 309 — Elements of Engineering Design and Laboratory Procedures **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 230, EL 300, PS 101, PS 202, MA 345.

EL 299 — Special Topics in Electronics **1 Credit**
Lectures, laboratories or seminars on selected topics in electronics technology. Prerequisite: Consent of instructor and department chair.

ENGINEERING PHYSICS

A grade of C or better is required in MA 241, MA 242, PS 110, and PS 201 or PS 205 for entry into all EP courses.

EP 360 — Atmospheric Physics **3 Credits**
An introduction to the physics of the Earth's atmosphere with emphasis on the mesosphere, thermosphere, and exosphere. Ionization, diffusion, photochemistry, and charged particle-magnetic field interaction in the aerospace medium. Electromagnetic wave propagation and applications to radio communications, solar wind-magnetosphere coupling, magnetic and ionospheric storms, auroras, cosmic rays, radiation belts, the ozone layer, greenhouse effect, and the global atmospheric electricity circuit. Prerequisites: CS 210, PS 303.

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

EP 420 — Planetary Science **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: EP 360.

EP 440 — Engineering Electricity and Magnetism **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 radition). Students will write some simple computer programs. Prerequisites: CS 210, MA 442.

EP 450 — Space Systems Engineering **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 420.

EP 490 — Senior Design Project I **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 **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 110, and PS 201 or PS 205 for entry into all ES courses.

ES 201 — Statics **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 201, ET 110. Corequisite: MA 243.

ES 202 — Solid Mechanics **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 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 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. Prerequisite: CS 210.

ES 305 — Thermodynamics **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 202 or PS 208.

ES 307 — Engineering Materials Science with Laboratory **3 Credits**
Materials used in aeronautical engineering applications. Properties of materials and their measurement. 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 110, PS 202.

ES 402 — Electrical Engineering I With Laboratory **3 Credits**
Introduction to 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 202, MA 345, CS 210.

ES 403 — Heat Transfer **3 Credits**
One and two-dimensional steady and unsteady-state conduction heat transfer including an introduction to finite-difference and finite-element methods of analysis. Free and forced convection heat transfer. Radiation heat transfer. Prerequisites: CS 210, ES 206 or permission of instructor, ES 305, MA 345.

ES 405 — Electrical Engineering II **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 electromagnetic energy conversion devices. Automatic control systems-dynamic response, feedback control and transducers. Prerequisite: ES 402.

ES 409 — Space Mechanics **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 **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.

ES 412 — Structural Dynamics **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 and laboratory demonstrations of system dynamic performance. Prerequisites: ES 202, ES 204, MA 345.

ES 299, 399, 499 — Special Topics in Engineering Science **1-6 Credits**
Lectures, laboratories or seminars on 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 **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 **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 **1 Credit**
Introduction to basic machining techniques.

ET 201 — Technical Mechanics **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 201, MA 242.

ET 301 — Applied Aerodynamics I With Laboratory **3 Credits**
Basic fluid mechanics; airflow measurement; airfoil theory; airplane performance. Wind tunnel projects include pressure and velocity measurement and measurement of aerodynamic forces on airfoil and airplane models; smoke tunnel flow visualization. Prerequisites: ET 201, MA 242.

ET 302 — Applied Strength of Materials With Laboratory **3 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 303 — Aircraft Drafting **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 302.

ET 304 — Aircraft Structural Analysis with Laboratory **4 Credits**
Analytical techniques for determining loads and stresses in trusses, beams and thin sheet structures. Laboratory measurements include loads trusses, shear flow in beams and thin-wall box structures, deflections of structures. Computer stress analysis procedures. Prerequisites: ET 302, MA 245.

ET 305 — Applied Thermodynamics with Laboratory **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 202.

ET 307 — Manufacturing Processes and Materials with Laboratory **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 302.

ET 308 — Applied Aerodynamics II **3 Credits**
Compressible flow, shock waves, supersonic flow, airfoil characteristics, nozzle flow. Prerequisites: ET 301, MA 245.

ET 312 — Applied Electrical Science with Laboratory **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 202.

ET 401 — Mechanical Design **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 302.

ET 402 — Applied Instrumentation Laboratory **3 Credits**
Selection and operation of standard instrumentation components to measure and record force, strain, temperature, and pressure. Analysis of test data. Prerequisites: PS 202, MA 242, ET 302.

ET 403 — Aircraft Detail Design **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 304.

ET 404 — Aircraft Performance and Design **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 301.

ET 405 — Non-Destructive Testing and Quality Assurance with Laboratory **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 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 299, 399, 499 — Special Topics in Engineering Technology **1-3 Credits**
Seminar courses on specialized topics or independent design and/or laboratory projects. Prerequisite: Permission of program chair.

FLIGHT-ACADEMIC

FA 104 — Primary Flight **2 Credits**
An introduction to the fundamentals of flight. During this flight course the student will accomplish his/her first solo flights in an airplane. Corequisite: AS 150.

FA 105 — Private Pilot Certification **2 Credits**
Continued flight training in those pilot operations required of a private pilot. At the successful completion of this course the student will have gained the aeronautical experience necessary to apply for

an FAA Private Pilot Certificate. Prerequisites: FA 104, AS 150, and successful completion of the FAA Private Pilot written examination.

FA 205 — Basic Attitude Instrument and Advanced Flight Maneuvers **2 Credits**
Flight and simulator training in basic attitude instrument flight techniques, maximum performance and precision commercial flight maneuvers, and advanced cross-country operations. Prerequisites: FA 105 and an FAA Private Pilot Certificate. Corequisite: AS 256.

FA 206 — Instrument Flight Transition — Single-Engine **2 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. Prerequisites: FA 205, AS 256, and successful completion of the FAA Instrument Pilot written examination.

FA 207 — Multi-Engine Transition **2 Credits**
Flight training in multi-engine pilot operations as they pertain to a private pilot. At the successful completion of this course the student will have gained the aeronautical experience necessary to apply for the addition of a multi-engine class rating to his/her existing FAA Private Pilot Certificate. Prerequisite: FA 205.

FA 302 — Commercial Pilot Certification — Single Engine **2 Credits**
An introduction to complex airplane operations and a review of selected pilot operations required of a commercial pilot. At the successful completion of this course the student will have gained the aeronautical experience necessary to apply for an FAA Commercial Pilot Certificate with Instrument Airplane and Single-Engine Land ratings. Prerequisites: FA 206, AS 255, and successful completion of the FAA Commercial Pilot written examination.

FA 306 — Instrument Rating **2 Credits**
Instruction and flight training necessary to maneuver the aircraft safely and accurately in actual or simulated instrument conditions within the National Airspace System while complying with ATC procedures and instructions. The course is designed for a student who has the FAA Commercial Certificate. Prerequisite: AS 256.

FA 314 — Instrument Flight Transition — Multi-Engine **2 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. Prerequisites: FA 207, AS 256, successful completion of the FAA Instrument Pilot written examination, and a multi-engine class rating.

FA 315 — Commercial Pilot Certification — Multi-Engine **1 Credit**
A review of selected pilot operations required of a commercial pilot. At the successful completion of this course the student will have gained the aeronautical experience necessary to apply for an FAA Commercial Pilot Certificate with Instrument Airplane, Single-Engine Land, and Multi-Engine Land ratings. Prerequisites: FA 314, AS 255, and successful completion of the FAA Commercial Pilot written examination.

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 400 — Certified Flight Instructor-Single Engine **1 Credit**
Instruction, flight training and practice teaching that will allow the student to obtain the aeronautical skill and knowledge necessary to apply for a Certified Flight Instructor Certificate with an Airplane Single-Engine Land Rating. Prerequisite: AS 404.

FA 409 — Certified Flight Instructor — Instrument **1 Credit**
Instruction, flight training and practice teaching that will allow the student to obtain the aeronautical skill and knowledge necessary to apply for a Certified Flight Instructor Certificate with an Instrument Airplane rating. Prerequisites: AS 404, AS 406 and FA 400.

FA 411 — Certified Flight Instructor — Multi-Engine **1 Credit**
Instruction to qualify the student for the FAA Multi-Engine Instructor's Certificate. All of the prescribed subjects listed for the FA 340 Multi-Engine course will be practiced to include teaching methodology and techniques. Prerequisites: AS 404 and FA 400.

FA 416 — Advanced Instruments and Crew Coordination **1 Credit**
Advanced ground and flight instruction in multi-engine aircraft utilizing advanced navigation systems. Emphasis will be placed on the development of cockpit resource management and crew coordination skills. Prerequisite: Commercial Pilot Certificate with Multi-Engine and Instrument ratings.

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 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 006 — Developmental English **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 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 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 Credits**
Expository writing, interpretation, analysis and research methods of fiction and nonfiction reading assignments. Textbook sources aid the student in developing communicative and evaluation skills. Prerequisite: HU 006 or passing grade on Placement Test.

HU 123 — English Composition and Literature II **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 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 Credits**
A continuation of HU 130.

HU 219 — Speech **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 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 122, HU 123.

HU 230 — Advanced Spanish Conversation and Reading **3 Credits**
A continuation of HU 130 and HU 135 with emphasis on development of fluency in conversation and reading.

HU 250 — Introduction to Logic **3 Credits**
Principles of valid thinking; the nature of inductive and deductive inferences and their applications. Prerequisite: HU 123.

HU 300 — World Literature **3 Credits**
Major works and literary trends in world literature. Prerequisites: HU 122 and HU 123.

HU 305 — Modern Literature **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 122 and HU 123.

HU 310 — American Literature **3 Credits**
A survey of intellectual backgrounds, major works and literary trends in American literature. Prerequisite: HU 123.

HU 320 — Aesthetics of Visual and Musical Arts **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 122 and HU 123.

HU 325 — Exploring Film **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.

HU 330 — Values and Ethics **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.

HU 340 — Introduction to Philosophy **3 Credits**
An integrated study of man and the concepts of his culture, including views about himself, society, religion, science, the nature of knowledge, and some of the major philosophical systems such as dialectical materialism, pragmatism and existentialism.

HU 345 — Religions of Mankind **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.

HU 350 — Journalism **2 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.

HU 355 — Creative Writing **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 122 and HU 123.

HU 299, 399, 499 — Special Topics in Humanities **1-6 Credits**
Independent study, seminars and other specially arranged courses not regularly scheduled. Prerequisites: Consent of instructor and approval of the department chair.

MATHEMATICS

MA 005 — Quantitative Skills **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 106 — Basic Algebra and Trigonometry **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 Credits**
A pre-calculus course designed for the student of aviation. Linear equations, systems of equations, functions and graphing, exponents and roots, quadratic equation, ratio and proportion, trigonometric ratios, right triangle solutions and vectors. Prerequisites: MA 005 or placement.

MA 112 — College Mathematics for Aviation II **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 120 — Quantitative Methods I **3 Credits**
A pre-calculus course with applications to business and economics. Fundamental algebraic operations, functions, graphs, logarithmic and exponential functions, systems of linear equations and inequalities, linear programming and matrix algebra. Prerequisite: MA 005 or placement.

MA 140 — College Algebra **3 Credits**
Fundamentals of exponents, radicals, linear and quadratic equations, inequalities, and complex numbers. Introduction to functions, conics, elementary theory of equations, sequence and series, exponential and logarithmic functions, matrix algebra, and systems of equations. Prerequisite: MA 111 or equivalent.

MA 141 — Trigonometry **2 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; laws of sines and cosines; inverse trigonometric functions; trigonometric form of a complex number. Prerequisite: MA 111 or equivalent. Corequisite: MA 140.

MA 211 — Statistics with Aviation Applications **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 220 — Quantitative Methods II **3 Credits**
An introductory calculus course with applications to business and economics; limits; differentiation and integration of algebraic, exponential and logarithmic functions; applications of differentiation to maximizing and minimizing; curve sketching; marginal values. Prerequisite: MA 120.

MA 222 — Business Statistics **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 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 equivalent. Corequisite: MA 141.

MA 242 — Calculus and Analytical Geometry II **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 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 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 300 — Applied Logic **3 Credits**
Algebra of logic; truth tables; axiomatic system; set theory; Boolean algebra; design and simplification of digital circuits. Prerequisite: MA 111 or MA 120 or MA 140. (Not open to engineering students.)

MA 320 — Decision Mathematics **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 330 — Introductory Linear Algebra **3 Credits**
Vectors and vector operations, equations of lines and planes, systems of linear equations, matrix algebra, matrix inverses, determinants, vector spaces, linear transformations, change of basis, applications to graph theory. Prerequisites: MA 241, CS 222.

MA 345 — Differential Equations and Matrix Methods **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 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 441 — Advanced Engineering Mathematics I **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 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 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**
Lectures, seminars, independent studies or combinations of selected topics in mathematics. Prerequisites: Consent of instructor and approval of the department chair.

MANAGEMENT SCIENCE

MS 105 — American Business Enterprise **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.

MS 201 — Principles of Management **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 Credits**
Fundamental principles applicable to the accounting cycle, asset valuation, income determination, financial reporting, and owners equity. Prerequisites: MA 005 or Placement Test, CS 109 or CS 105 or permission of the instructor.

MS 212 — Financial Accounting II **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 308 — Public Administration **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 105 or MS 201.

MS 311 — Marketing **3 Credits**
Marketing theory; marketing management, sales management; market research. Public and customer relations, advertising, distribution. Prerequisite: MS 105 or MS 201.

MS 312 — Managerial Accounting **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 210.

MS 314 — Human Resource Management **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 210 or SS 220, MS 105 or MS 201.

MS 317 — Organizational Behavior **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 210 or SS 220 and MS 201 or MS 105.

MS 320 — Business Information Systems **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: CS 105 or CS 109 or CS 210, MS 210.

MS 322 — Aviation Insurance **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 105 or MS 201.

MS 331 — Transportation Principles **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 210, EC 211 and MS 105 or MS 201.

MS 332 — Corporate Finance I **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 105 or MS 201, MS 210.

MS 335 — International Business **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: CS 109, EC 210 or EC 211, MA 222.

MS 350 — Analysis Methods for Management **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 Credits**
A survey of the legal aspects of business transactions. Areas covered include contracts, agency, bailments, negotiable instruments, partnerships, corporations, consumer credit, and the government's influence on business law. Prerequisite: MS 105 or MS 201.

MS 401 — Management Planning and Control **3 Credits**
The requirements for short term and long range planning are investigated. New product planning is discussed. The importance of the control functions will be emphasized with particular attention to applications of these functions to aviation-oriented activities. Prerequisites: CS 109, EC 210, MS 201, MS 31.

MS 405 — General Aviation Marketing **3 Credits**
Basic marketing concepts and procedures involved in the sale of general aviation aircraft and components to private industry and government. Particular emphasis on corporate aviation and commuter airlines. Prerequisites: EC 210, MS 311.

MS 408 — Airport Management **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: MS 201, EC 210, EC 211.

MS 410 — Management of Air Cargo **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. Prerequisites: EC 210, EC 211, MS 201, MS 210, MS 331.

MS 412 — Airport Planning and Design **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. Prerequisites: MA 211 or MA 222, CS 109, MS 408.

MS 415 — Airline Management **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: MS 201, MS 210, EC 210.

MS 419 — Aviation Maintenance Management **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 201, MA 211 or MA 222.

MS 420 — Industrial Management **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: EC 210, MS 201, MS 314.

MS 421 — Small Business Management **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. Prerequisites: EC 210, MS 201, and MA 112 or MA 120.

MS 425 — Trends and Current Problems in Air Transportation **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. Prerequisites: EC 210, EC 211, MS 201.

MS 431 — Business Policy **3 Credits**
Case problems in determining business policy, instituting policy and appraising the results. The viewpoint is that of top and middle management. Prerequisites: MA 320, MS 212, MS 314, MS 317, MS 332 and MS 401.

MS 433 — Management of the Sales Force **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. Prerequisites: MS 311, MS 314.

MS 434 — Corporate Finance II **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. Prerequisites: MS 332 or permission of the instructor.

MS 435 — Taxation **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 or permission of the instructor.

MS 449 — Strategic Marketing Management **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**
Lectures, seminars, laboratories, independent studies or combination 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 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.

MY 104 — Basic Military Science **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.

MY 203 — Basic Military Leadership I **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.

MY 204 — Basic Military Leadership II **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.

MY 303 — Officership I **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.

MY 304 — Officership II **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.

MY 403 — Advanced Military Leadership I **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.

MY 404 — Advanced Military Leadership II **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, a laboratory, and physical readiness training.

PHYSICAL SCIENCE

PS 101 — Basic Chemistry **3 Credits**
Elementary chemical theory with application for the Aeronautical Science and Aviation Business Administration student. Covers basic atomic theory, elements, compounds and mixtures, calculation of weight and weight volume relationships, basic descriptive chemistry. (Cannot be used for credit in chemistry toward degrees in Aeronautical or Electrical Engineering.) Prerequisite: MA 111 or MA 120.

PS 102 — Explorations in Physics **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 Aeronautical or Electrical Engineering, Aircraft Engineering Technology, Aeronautical Science, or Avionics Technology.) Prerequisite: MA 111 or MA 120.

PS 103 — Technical Physics I **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. (Cannot be used for credit in physics toward degrees in Aeronautical Engineering, Electrical Engineering, or Aircraft Engineering Technology.) Prerequisite: MA 111 or MA 120. Corequisite: MA 112.

PS 104 — Technical Physics II **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. (Cannot be used for credit in physics toward degrees in Aeronautical Engineering, Electrical Engineering, or Aircraft Engineering Technology.) Prerequisites: PS 103, MA 112.

PS 107 — Elements of Biological Science **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 110 — Chemistry for Engineers **5 Credits**
Chemical stoichiometry; states of matter; solutions; thermodynamics; rate of reaction; equilibrium; oxidation-reduction; corrosion; organic compounds; and polymers. Four lectures and one three-hour laboratory per week. Prerequisite: High school chemistry and placement or PS 101.

PS 201 — Engineering Physics I **5 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. Four lectures per week and one three-hour laboratory per week. Corequisite: MA 242.

PS 202 — Engineering Physics II **5 Credits**
Basic thermodynamics and kinetic theory of gases. Electric forces, 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. Four lectures per week and one three-hour laboratory per week. Prerequisite: PS 201.

PS 205 — Physics I w/Laboratory **4 Credits**
Estimations; order of magnitude analysis; Newton's Law; Gravitation; Kinematics; Work and Energy; Momentum; Rotation; Harmonic Motion. Prerequisite: High School Physics. Corequisite: MA 241.

PS 208 — Physics II **3 Credits**
Fluids; Temperature; Heat; First and Second Laws of Thermodynamics; Wave Motion; Acoustics. Prerequisite: PS 205. Corequisite: MA 242.

PS 209 — Physics III w/Laboratory **4 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. Prerequisite: PS 208. Corequisite: MA 243.

PS 290 — Physics Laboratory Practicum **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.

PS 301 — Astronomy **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 201 or consent of the instructor.

PS 303 — Modern Physics **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 202.

PS 304 — Man and His Environment **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 110.

PS 305 — Modern Physics Laboratory **1 Credit**
Experiments in atomic and nuclear physics, including spectroscopy, nuclear particle analysis, X-Ray analyses, and laser applications. Corerequisite: PS 303.

PS 320 — Classical Mechanics **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 299, 399, 499 — Special Topics in Physical Science **1-4 Credits**
Topics within the fields of the physical sciences impinging on aeronautical engineering development or practices and which are of current or anticipated interest will be discussed on a seminar basis. Prerequisites: Consent of instructor and approval of the department chair.

SAFETY OF FLIGHT

SF 200 — Safety Program Management **3 Credits**
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.

SF 220 — Human Factors in Aviation Safety **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 305 — Mechanical and Structural Factors in Aviation Safety **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.

SF 310 — Aircraft Crash Survival Analysis and Design **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 305.

SF 330 — Aircraft Accident Investigation **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.

SOCIAL SCIENCE

SS 110 — World History **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 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 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 205 — Applied Individual-Group Psychology **1 Credit**
A course in which students will be enabled to assess and develop those personal and interpersonal dynamics necessarily related to pursuing their academic, career and life goals.

SS 210 — Introduction to Sociology **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 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 305 — American Military Experience **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: AS 253 or SS 110 or SS 120.

SS 310 — Personality Development **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 Credits**
Basic issues of American democracy, constitutional principles and the executive, legislative and judicial branches of government.

SS 331 — Current Issues in America **3 Credits**
A course in selected political-social-economic issues of national and international importance. Extensive use of journals, magazines and newspapers to supplement lectures and discussions.

SS 340 — American Foreign Policy **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.

SS 398 — Applied Social Psychology **3 Credits**
A course to provide practical applications of basic sociological and psychological principles to problems of youth and to familiarize the student with community services available to problem youths. Supervised by the Office of Youth Services, the student will gain insight and experience in the operation of the Office of Youth Services, rehabilitation techniques and interpersonal relations with problem youth. Prerequisite: SS 210 or SS 220.

SS 299, 399, 499 — Special Topics in the Social Sciences **1-6 Credits**
Independent study, seminars, travel seminars and other specially arranged courses not regularly scheduled in the areas of history, sociology, psychology and human culture in general. Prerequisities: Consent of instructor and approval of the department chair.

Academic Regulations And Procedures

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, Academic Standards, Curriculum Standards and academic 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 standards 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. (The late registration fee of $50 applies in such cases.) 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. No late registration fee is applied to flight course registration.

For information on registration procedures at College of Continuing Education locations, contact the appropriate resident center.

CONTINUED ENROLLMENT

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 credit hours at another institution and remain in continuing student status. For clarification, please see Attendance at Other Institutions.
2. Leave the University for two consecutive calendar years;
3. Have been suspended or dismissed from the University.

Students failing to maintain continuous enrollment for any reason are required to reapply for admission. 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 representative 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 on a student's registration form is required before a student will be allowed to register.

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

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.

College of Continuing Education students should refer to the College of Continuing Education section of this catalog for information concerning course loads.

At all locations, a student whose cumulative GPA is 3.00 or higher may enroll for an overload with prior approval of the Vice Chancellor for Academic Affairs/Dean, College of Continuing Education 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 (non-credit)	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.

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 total 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.

Except for flight 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

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 campus records office.

Flight courses may be dropped at any time prior to the first attempt of the final course phase check. A grade of W will be awarded if withdrawal is accomplished prior to the first attempt of the final course phase check.

College of Continuing Education students should refer to the College of Continuing Education section of this catalog for the procedure which they must follow.

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 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 campus Vice Chancellor for Academic Affairs. 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.

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 Vice Chancellor for Academic Affairs or College Dean.

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 campus records 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

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.)

College of Continuing Education students should refer to the College of Continuing Education section of this catalog for the procedure which they must follow.

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.

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

DEAN'S LIST AND HONOR ROLL

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.

College of Continuing Education students should refer to the College of Continuing Education section of this catalog for the procedure which they must follow.

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. All required courses for a particular degree listed in the applicable catalog must be successfully completed.

2. The minimum number of credit hours required for the degree as listed in the applicable catalog must be successfully completed.
3. 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.
4. 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.
5. 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 Aeronautical 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.
6. Students will not be issued a diploma or transcript of their records until all debts or obligations owed to the University have been satisfied.
7. 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.
8. 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.

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 24 credit hours must be ERAU courses.

AREA OF CONCENTRATION/MAJOR

Several degree programs require the student to select an area of concentration or major which is designed to provide students with preparation in their specialized field. Where an area of concentration/major is required, one must be designated at the time the student achieves sophomore status. The major which the student selects will be entered on the student's permanent academic record (the transcript).

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

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 attend other schools without proper authorization will not receive transfer credit for the courses taken and are subject to dismissal from 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. 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.

SUMMER FLIGHT

All Aeronautical Science and Airway Science 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 Vice Chancellor for Academic Affairs.

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. Additionally, the law authorizes students to review their files. Any student desiring additional information concerning the law should contact the Dean of Students Office.

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 aid 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 pick up their financial aid materials at the Resident Center or contact the Financial Assistance Office directly.

A detailed explanation of how to apply for financial aid, specific program requirements, forms needed, application deadline dates and other important information can be found in the **Financial**

Assistance Information brochure. Information about other financing programs can be found in the brochure entitled **"Financing Options For Parents and Students."**

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
- Grants from other states

Employment

Federal —
- College Work-Study Program

Embry-Riddle —
- Student Employment Program
- Off-campus referral program
- Resident Advisor Program

SCHOLARSHIPS

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. For further information about scholarships, contact the Financial Assistance Office of the campus you plan to attend.

SHORT-TERM LOANS

The university also offers, on a limited basis, help to students who encounter financial emergencies. These short term loans are available at the Cashier's Office for a 30-day period.

- Patrick B. Owens Memorial Student Loan Fund
- Ila Brignall Emergency Loan Fund
- Walter Lux Memorial Loan Fund
- Women's Club Loan Fund
- Joan Pilcher Memorial Loan Fund

FINANCING OPTIONS

These programs are used to supplement financial assistance awards or to provide the higher income family with programs compatible with their existing investment strategies. Some of these programs include:

Private —
- The Chase TERI Loan Program
- EXCEL Loan Program
- Pickett & Hatcher Educational Fund
- EdCredit Loan Plans
- Education Loan Program
- Extended Repayment Plan
- Educational Credit Corporation
- School Chex
- Collegeaire
- Educational Line of Credit
- The Tuition Plan Prepayment Program
- Insured Tuition Payment Plan

Information about these programs can be obtained directly from the companies which sponsor them.

VETERANS' EDUCATIONAL BENEFITS

All Embry-Riddle degree programs have been approved by the appropriate state approving agencies for enrollment of persons eligible for U.S. Veterans' Administration benefits under the various public laws. The VA does not authorize education benefits for Certification Programs.

Eligible persons planning to receive VA Educational Benefits while attending Embry-Riddle should contact the Veterans' Affairs Office of the campus they wish to attend for further information and applications for VA benefits. Students must be accepted into a

degree program to be eligible to receive benefits. Admission procedures for veterans and other eligible persons are the same as those for other students.

Title 38, United States Code, sections 1674 and 1724, requires that educational assistance benefits to veterans and other eligible persons be discontinued when the student ceases to make satisfactory progress toward completion of his or her training objective.

Veterans' progress will be measured according to University standards as published in this catalog and the rules and regulations of the Veterans Administration.

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 who are not considered to be in good standing with the University are not eligible to receive educational benefits. 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 VA requirements.

Students who receive VA benefits may be subject to stricter academic regulations and should be aware of how auditing courses, enrollment status, withdrawals, repeating a course, changing degree program, and other actions may affect their ability to receive benefits.

OTHER FINANCIAL ASSISTANCE PROGRAMS

- AIR FORCE ROTC SCHOLARSHIPS

  Air Force ROTC (AFROTC) offers yearly scholarships covering a student's college education for two, two and one-half, three, three and one-half, and four years. Each scholarship pays for tuition, laboratory and incidental fees, and textbooks and also includes a $100 per month (tax free) allowance (up to a total of $2000).

  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.

  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 and one-half and three-year scholarships, while sophomores compete for two and one-half and two-year scholarships. Students apply for these scholarships through the AFROTC Department at Embry-Riddle.

  Junior college transferees can also compete for a two-year scholarship. These scholarships are on a competitive basis;

however, students must apply through the AFROTC Department *before January* of their entering junior year.

Students who receive four-year ROTC tuition scholarships will be provided with free room and board four-year scholarships from Embry-Riddle. For details on how to apply, contact your campus ROTC representative.

- ARMY ROTC SCHOLARSHIPS

The Army Reserve Officer Training Corps offers scholarships that provide full tuition, flight fees (if required for the degree), lab fees and an allowance for textbooks and supplies to qualified ROTC students. Scholarship students also receive $100 (tax free) per month while in school.

The Army ROTC program is offered in both a four-year and two-year option.

Applications for two-year, three-year and four-year scholarships are available at the Army ROTC Department.

General requirements to apply for an Army ROTC scholarship include:

1. Be enrolled full time in any bachelors' degree program.
2. Be a United States citizen.
3. Have a SAT score of 850 or higher (ACT 17 or higher).
4. Have a minimum college GPA of 2.0.

Applications for one, two, three, and four-year scholarships are available in the spring semester at the Army ROTC Department. For information concerning eligibility and application, see the Reserve Officer Training Programs section in the Guide to the Curriculum chapter of this catalog.

Students who receive four-year ROTC tuition scholarships will be provided with free room and board four-year scholarships from Embry-Riddle. For details on how to apply, contact your campus ROTC representative.

- UNITED STATES MARINE CORPS PLATOON LEADERS CLASS PROGRAM

To be eligible for the U.S. Marine Corps Platoon Leaders Class Program student must be a male (freshman, sophomore or junior) or female (junior) enrolled full time with an expected graduation date of December 1989 or June/August 1990.

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 Haley or Staff Sergeant Alexander at 407-240-2204 or 1-800-432-2061.

- FLIGHT LEADERSHIP/FELLOWSHIP PROGRAM

The Flight Leadership/Fellowship Program is available to students at the Prescott campus who enroll in the Aeronautical Science degree program. Students are selected for the Flight Leadership portion of the program based upon academic excellence and leadership potential. Selections for the Flight Fellowship portion of the program are made from those Flight Leadership students who complete all required flight courses, attain a Certified Flight Instructor Rating and continue to demonstrate outstanding academic and leadership qualities.

While not every Flight Leadership student is offered a fellowship, those who are selected serve as Flight Instructors and, while completing their advanced studies, can accumulate a significant number of flight hours before completing their academic training.

The Flight Leadership/Fellowship Program is highly competitive. Interested students should contact the Chairman of the Flight Department at the Prescott campus for additional information.

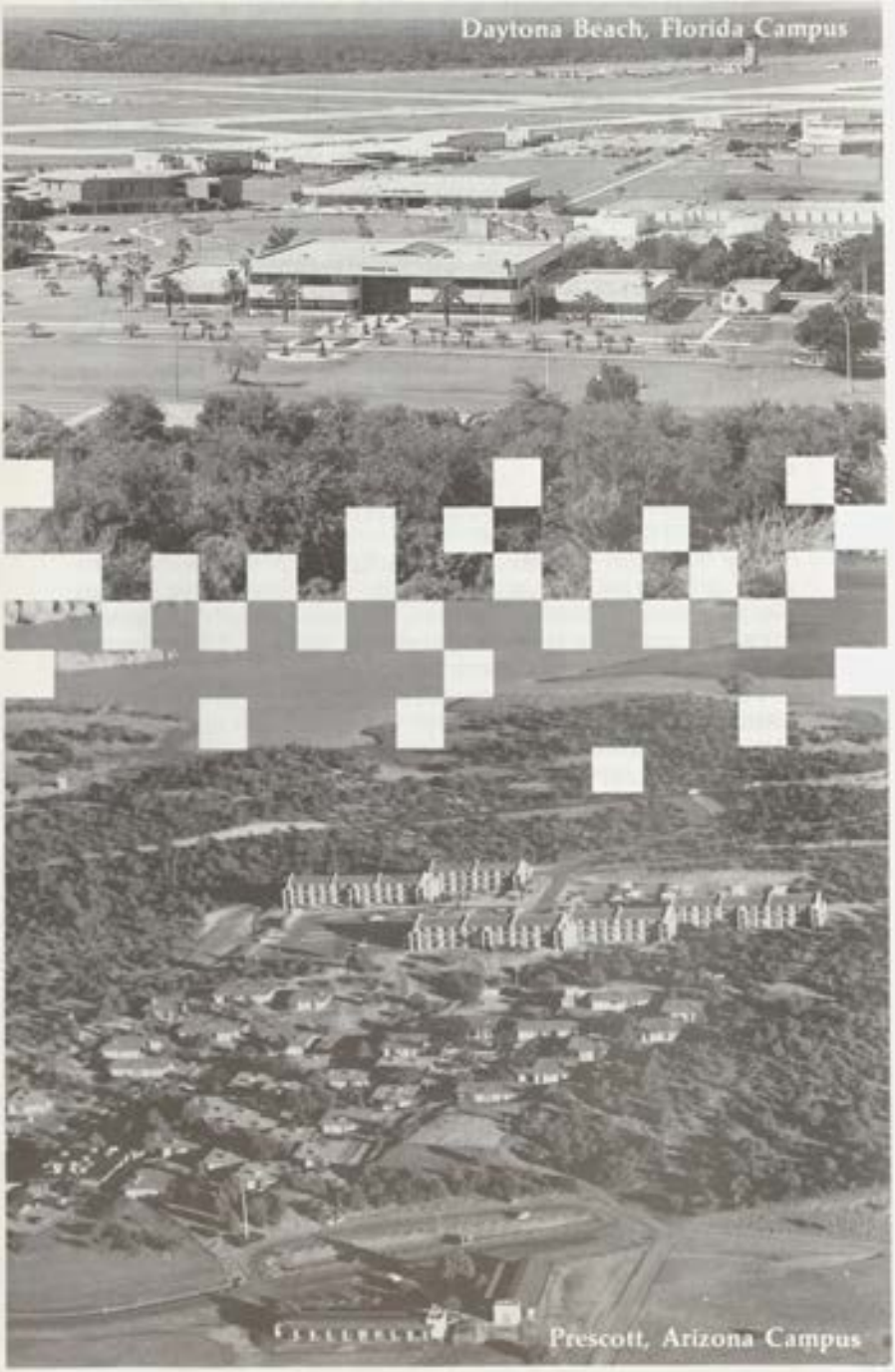
- AVIATION MAINTENANCE TECHNOLOGY FELLOWSHIP PROGRAM

The Aviation Maintenance Technology Fellowship Program is designed to assist students with the desire to complete an Embry-Riddle four-year bachelor degree program a means of utilizing their maintenance skills and certification to defray some of their tuition expenses.

The Fellowship Program provides for a 65 to 100 percent tuition waiver per semester for selected students who possess the Airframe and Powerplant Mechanic ratings. 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.

Fellowship students must agree to a maintenance work load of 350 hours per semester. Maintenance Fellows exceeding the normal load of 350 hours during the semester will be paid for the extra hours in accordance with the established rate for student employees. Maintenance Fellows will be selected from the best qualified candidates who have previously completed a minimum of one semester as a laboratory assistant to an AMT faculty member(s). Students interested in the program should contact the Aviation Maintenance Technology Department's administrative office for further qualifications, information and application procedures.

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.

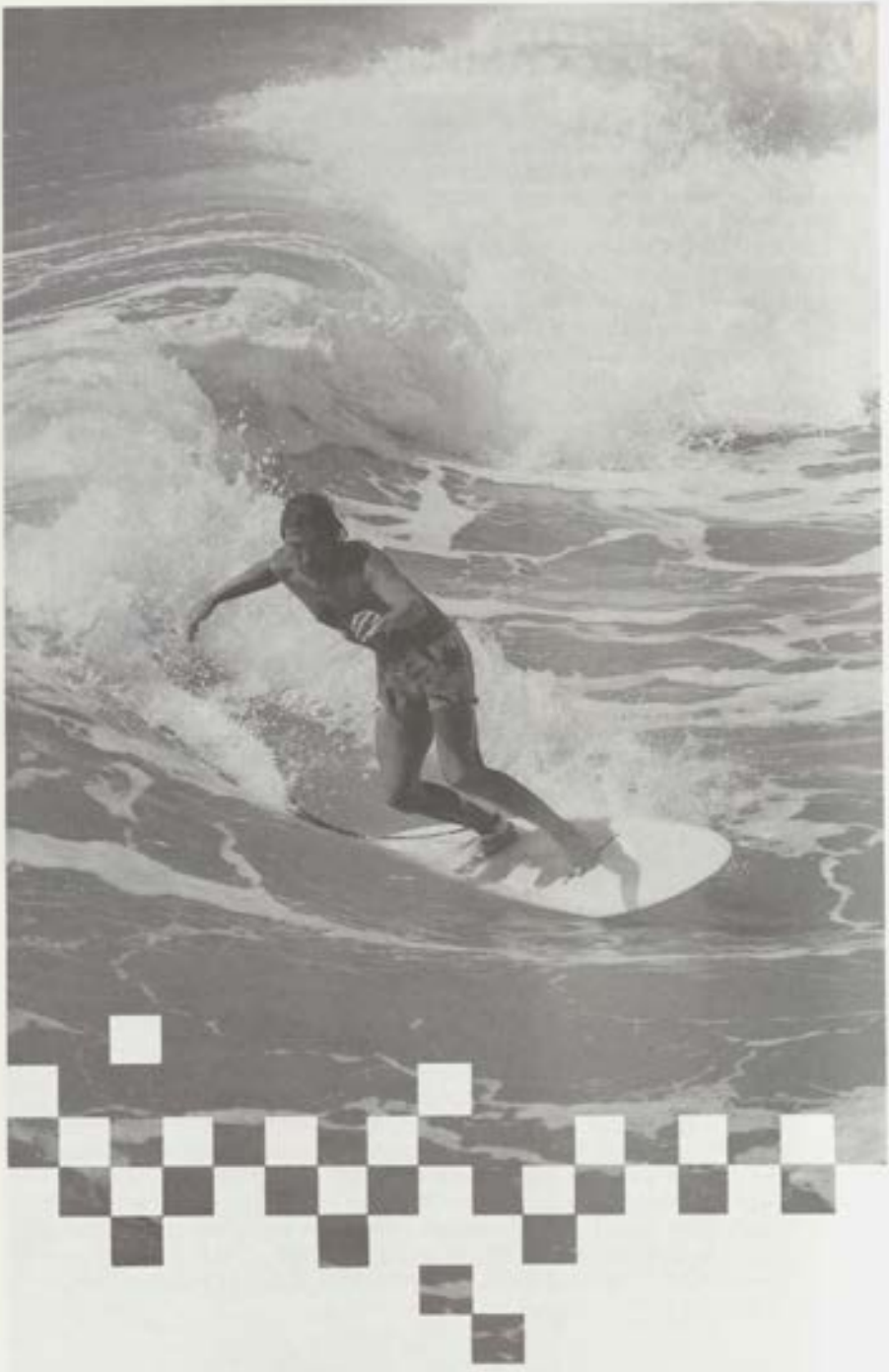
Embry-Riddle offers many co-curricular activities that appeal to almost every taste. Students take advantage of the many opportunities for personal growth and development through social and pre-professional fraternities and sororities and cultural and recreational activities. Embry-Riddle's award-winning 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 the largest all-volunteer Air Force ROTC detachment 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, located adjacent to the Daytona Beach Regional Airport, contains 23 main buildings set on 86 acres and is but a short distance from the world's most famous Atlantic Ocean beach. The high technology industry located in Daytona Beach and in the area around Orlando provides the University with an outstanding support base. In addition, within a one-hour drive is the Kennedy Space Center.

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 dispatch headquarters. Flight instruction is given in Embry-Riddle's fleet of 44 single-engine Cessna 172 trainers and twin-engine Cessna 303 crusaders.

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. The Avionics Lab (FAA certified repair station 707-50) is designed and equipped with state-of-the-art equipment to simulate the avionics environment that graduates will



encounter in industry. Engine test cells allow students to test the effectiveness of their repairs. The advanced reciprocating engine lab (FAA certified repair station 708-55) 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, and the cad/cam system.

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 developing a multi-million dollar airway science simulation laboratory at Daytona which will simulate the various elements of the National Airspace System and be a center for aviation research and education. The elements include air traffic control, pilot simulators, traffic control, weather information, airports, airways, and pilot and aircraft performance. A new center for Aviation/Aerospace Research is being established to support both undergraduate and graduate research and creative activities.

The University Center contains a full service cafeteria, fully-equipped bookstore, mailroom, career planning and cooperative education placement center, the counseling center, health services, flight deck grill, and meeting rooms.

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, university accounting office, student financial services, student employment, cashier, dean of students, financial aid and the office of records and registration. The offices 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 individual study carrels as well as group seating. The collection includes more than 40,800 books; more than 28,000 periodicals, documents and newspapers; 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 rapid interlibrary loans. Dialog service provides access to more than 200 databases that list documents, reports, conference proceedings, journal articles, doctoral dissertations, and many other kinds of information.

COLLEGE OF AVIATION TECHNOLOGY

The College of Aviation Technology is dedicated to providing the highest standard of professional education and training in aviation

maintenance, avionics, and the aeronautical sciences, including flight.

The primary purpose of the college is to provide a marketable, high-quality aeronautically oriented education to prepare its students for immediate productivity and career growth potential. Practical, hands-on experience and exposure to the latest advances in knowledge and equipment are an integral part of all of the college's curricula. Our dedicated, highly-qualified faculty are the primary reason that our programs enjoy both a national and an international reputation for excellence. All of the college's faculty are the holders of impressive industry, academic, and technical credentials, as well as years of flight, maintenance, and teaching experience. The aviation maintenance and flight programs are approved by the Federal Aviation Administration and have unique FAA authorization as part of their curricula.

COLLEGE OF ENGINEERING AND AVIATION SCIENCE

The College of Engineering and Aviation Science offers professional degrees in the fields of engineering, technology, business, and computer science. It has a secondary mission in that it includes the support areas of mathematics, physical sciences, humanities and social sciences, as well as the Reserve Officer Training Corps for the Army and Air Force. Students in the various programs receive a well-rounded education in which not only the technical aspects of their future careers are emphasized, but also the humanistic and social aspects of professional life as well. Particular emphasis is placed on being able to communicate effectively by helping the students to acquire both written and verbal communication skills.

Throughout the various programs offered within the college, primary emphasis is placed on aviation and aerospace. A unique opportunity is thus furnished to those students whose future career plans include these two fields. Students may, for example, take courses in aeronautical design while, at the same time, being able to examine (or to fly if they are qualified) actual aircraft in which the various design components are being used. A complete laboratory experience is provided in those curricula to which it is appropriate. Our graduates enjoy a vast horizon of career opportunities.

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 co-curricular 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 ACTIVITIES

The Student Activities Office is the central location for the programming of campus events. Valuable educational and social experiences may be obtained through active participation in campus activities and organizations. This involvement complements the educational process and contributes to the overall development of the student. This office is the registration point for chartered clubs and organizations. Students interested in joining or establishing a club should contact the staff for information.

There are approximately seventy chartered clubs on the Daytona Beach campus. The types of organizations include fraternities, a sorority, sports clubs, special interest groups, honorary societies, aviation clubs, military organizations, and religious clubs. The center for co-curricular programming is the University Center. Activities provided in this building include concerts, dances, movies, lectures, and social events. The University Center houses the Dean of Student Affairs, Student Activities Office, Student Government Association, AVION Newspaper, PHOENIX Yearbook, Entertainment Committee, Career Center, Information/Communication Center, Cafeteria, Common Purpose Room, Faculty/Staff Lounge, Health Services, Counseling Center, The Hairport, Bookstore, and Mailroom.

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.

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RECREATION

The Department of Recreation 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 12 nautilus machines and several exercise bikes and is complemented by an adjoining, newly-renovated free weight room. The jogging/exercise trail, with 20 exercise stations along its route, is under reconstruction. Outdoor lighted basketball courts, tennis courts, a lighted softball field, four volleyball courts, and an indoor racquetball complex round out the recreational facilities.

The Director of Recreation works closely with clubs and organizations to assist with planning and implementing sports programs and activities. The Recreation Office provides most of the equipment needed for sports activities; however, students are encouraged to bring basic sporting equipment with them.

VARSITY SPORTS

The Department of Varsity Sports was recently created to oversee the planning and instituting of an intercollegiate athletic program. It is anticipated the University in the near future will field varsity teams that meet NAIA membership affiliation. Presently, the golf, baseball, soccer, and lacrosse clubs participate on the intercollegiate level with other clubs, colleges, and universities.

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 HANDICAPPED STUDENTS

All new students must learn to adjust to a new environment and University life. For the handicapped, this adjustment is not always an easy one. Recognizing the possible need for additional or special services, the University has appointed the director of health services

as coordinator for handicapped students. Each student's needs are addressed on an individual basis. Resource assistance is provided in such areas as barrier-free access, lifestyle management, testing arrangements, and tutoring referrals. Early registration for courses may be arranged in advance through the Department of Admissions. Individuals who require special assistance with certain aspects of their education at Embry-Riddle are encouraged to contact the Admissions Department at their earliest convenience.

HEALTH SERVICES

Good health, which insures a productive college career, is the responsibility of the individual student. The Health Services staff is committed to providing students the education and guidance needed to achieve and maintain a healthy lifestyle. Available services include treatment of minor illnesses and injuries, individual health counseling, referrals, medical grounding for flight students, and educational programming. Reference materials and audiovisual learning aids complement the personal aspects of a preventive approach to student health care. Local hospitals, some with 24-hour emergency services, are within a short distance of the Daytona Beach campus.

All students are responsible for completing the Medical Report form provided by the Admissions Department. This form provides permission from the parents, sponsor, or student, if a legal entity, to the University administration for emergency treatment as directed by competent medical authority. It is agreed that no legal action will be brought against the University or its officers when such authorization is granted. Students are also requested to have a physician certify, on the Medical Report form, their immunity to measles, rubella, and tetanus. Those who will enroll in flight courses should also obtain, prior to arrival, a Class I or Class II Medical Certificate from a physician certified as an Aviation Medical Examiner. This certificate is required for all flight courses.

Health insurance is not mandatory but is strongly recommended. Student group insurance is available at the Daytona Beach campus. Rates are determined annually and premiums are non-refundable. Students may purchase group health insurance each semester during the preregistration and registration periods. Information on benefits and premiums is available at Health Services.

THE COUNSELING CENTER

The Counseling Center staff assists students in pursuing successful college careers through individual counseling, university-related educational programs and experiential groups. Professionals trained in counseling and guidance help students discuss and explore personal, social, family, peer, and other concerns in complete confidence. Areas of concern may include homesickness, social relationships, illness or death in the family, poor academic

performance, study skills, stress reduction, time management, and basic adjustment to university life. For those students whose concerns are outside the scope of the Center, referral services are available. Staff members will assist students in identifying University and/or community resources to meet their individual needs. Additionally, the Center maintains a variety of self-help materials. Books, pamphlets, and audio-cassette tapes are available to students on a loan basis.

The Counseling Center coordinates Student and Parent Orientation programs. The goal of Student Orientation is to assist students in making a smooth transition into the Embry-Riddle community. Through interactions among students, upper-classmen, faculty and staff, information and guidance are combined with friendship and entertainment. Parent Orientation provides parents of new students an introduction to the campus and student life. Presentations by faculty, staff, and student orientation leaders address concerns which are common to families of new students.

UNIVERSITY-MANAGED HOUSING

University Housing provides and operates residential facilities for full-time, unmarried students. These facilities include two on-campus residence halls and two off-campus apartment complexes which, combined, house over 1,100 students. Each residence hall and apartment complex is co-educational and is operated by a specially trained live-in staff member. 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. NOTE: The office cannot reserve housing for individuals or give out listings

over the telephone. A Discount Motel Program is available and is designed to offer students a comfortable and economical place to stay while looking for permanent accommodations. The program is available at the beginning of the spring and fall semesters. The beginning and ending dates for the program and the rates vary by season. The office also provides information concerning tenant/landlord rights, advice on general housing problems, information on Small Claims Court, and referrals to local agencies when appropriate. 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.

FOREIGN STUDENT SERVICES

The Office of Foreign Student Services assumes primary responsibility within the University for the general welfare of foreign students. The staff provides a variety of special technical and advisory services which include the processing of forms and documentation required by the students' government or sponsors, the institution, or the U.S. Government, including immigration liaison. In addition, the office coordinates a wide variety of campus and community programs which strive to facilitate an interchange of cultures and enrich the students' sojourn in the United States. Staff members also provide information and orientation about the American educational system and the University at large.

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 engineering laboratories at Prescott are among the best undergraduate facilities in the world. They include four wind tunnels, one of which is a supersonic wind tunnel; a materials lab; a composite lab with an electron microscope capable of magnifying images 100,000 times; electrical engineering labs; an engineering graphics and design lab; and an aircraft structures lab.

The Flight Training Center, which is located at Ernest A. Love Field, just minutes from campus, includes the simulator laboratory and the flight operations center. Flight instruction is given in the University's fleet of Cessna single-engine aircraft and Piper Seminole twin-engine aircraft which are outfitted with the most advanced communications and navigational equipment.

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.

New facilities to support classroom instruction include an increased number of student computers with the latest software, an Aviation Safety Center and a newly expanded library. A 10,000-square-foot-facility, the library provides individual student desks, group study tables and study rooms. The 20,000 volume collection includes 375 periodical subscriptions and a technical and historical book collection. The library is computer-linked to over 7,900 libraries nationwide to provide access to materials and databases that identify journal articles, conference proceedings, dissertations and other kinds of information through subject searches. The campus library is also a member of a network which shares an automated circulation system with local community colleges and public libraries. More than 150,000 titles can be accessed by this system. The media section of the library contains over 8,000 audio/visual materials including films and videotapes for both classroom and individual student use. The library is open seven days a week with extended hours during final examinations.

Another outstanding facility on campus is a 350-seat amphitheater-style auditorium. This auditorium is used for seminars, workshops, and many other events that can utilize its superb acoustics, theatrical lighting, and complete audiovisual systems.

STUDENT SERVICES AND ACTIVITIES

Embry-Riddle Aeronautical University takes the position that students' academic experience should be supplemented with athletic programs and other character-building opportunities to provide for physical, social, spiritual, and intellectual development. At Prescott, there are numerous opportunities for co-curricular involvement.

STUDENT ACTIVITIES

The Student Activities Department networks with other areas of the campus to develop a master calendar of campus programs and activities. Events scheduled during the year include concerts, performing arts, lectures, films/movies, field trips, dances, and theme events. A student involved in the organization of these programs can receive training and experience in the areas of finance, contracts, publicity, and public relations.

The Student Activities Department serves the students and the university community by assisting and maintaining club and organization registration. Currently, there are 28 campus-recognized clubs and organizations on campus. The Student Activities Department has a professional staff which assists students interested in forming a new club or organization. Students wanting to join or establish a club should contact the office for more information.

The types of organizations include fraternities, sports clubs, special interest groups, honorary societies, aviation clubs, military organizations, and religious clubs.

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, running track, gymnasium, and a fully-equipped weight room.

The Athletic Department in the Student Affairs 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, you're sure to find what you'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 billiards. 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.

Wrestling, soccer and rugby teams currently participate 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 opportunities, 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.

STUDENT GOVERNMENT ASSOCIATION

All full-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 the **SGA**. 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 **SGA** also provides a number of valuable student services through the four campus service organizations. These are the **Student Entertainment Committee, Horizons Newspaper, K.F.L.I. Radio Station** and **Contrails Yearbook.**

UNIVERSITY-MANAGED HOUSING

University Housing at the Prescott campus offers both on-campus and off-campus facilities. Since applications for this housing usually exceed available accommodations, students are advised to apply as early as possible.

On-campus housing is provided for 450 students in five three-story residence halls. These accommodations are reserved for new students during their first academic year. The residence halls are completely furnished. They are air conditioned and have telephones in the bedrooms and a hook-up for cable television in each lounge. Coin-operated laundry and vending facilities are available. Although there is no cooking allowed in the residence halls, the University provides barbecue and picnic areas for student use.

Contracted off-campus housing is provided for 275 students in University-managed apartments. These accommodations are reserved for continuing students. Each apartment is furnished and includes a full kitchen, air conditioning, and semi-furnished bedrooms. There is no specified married housing.

OFF-CAMPUS HOUSING

The Housing Office is equipped to serve the needs of those students not living in University-managed housing. Listings of current rentals and of students seeking roommates are maintained. Brochures, maps, and other information about Prescott living are available.

Information concerning tenant/landlord rights, advice on general housing problems, information on Small Claims Court and referrals to local agencies is provided where appropriate.

In addition, the office provides a **Commuter Student Information Manual, Apartment Complex Guide,** sample leases, guide to area realtors, city maps, bus schedules and consumer and legal information.

FOOD SERVICES

Food services at the Prescott campus are designed to provide a wide variety of nutritious and great-tasting meals for all students. All campus residential students are required to join the meal plan. The cafeteria provides three meals a day (two a day on weekends) with a wide selection at each meal. The snack bar (Aerodrome) provides fast foods such as pizza, sandwiches, fruits, salads, and ice cream on a cash basis. From time-to-time, the student Entertainment Committee provides performances by local and regional entertainers in the Aerodrome's relaxed coffee-house atmosphere.

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 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. Listings of community health service facilities are available for students requiring further medical services.

Supplemental health insurance is available through the Health Services Office to active students. It is recommended but not mandatory.

COUNSELING SERVICES

The Counseling Office was added to the Student Life Center last year. This office provides a network of services to generate the self-development and well-being of the students.

Personal counseling sessions provide an opportunity for students to discuss and explore any concerns or feelings that are important to their growth. Educational programs in "wellness" such as stress management, values clarification, test anxiety, physical health, building relationships, effective communication and leadership skills, and exploring chemical dependency and AIDS issues provide opportunities for individual enhancement. The Counseling Office also acts as a liaison between students, faculty, administration, and the community to promote a consortium of caring resources anxious to meet the needs of our students.

CAMPUS MINISTRY

Student Life Center staff members recognize that the purpose for students attending the University is to develop skills and acquire knowledge for future life. The staff also realizes that at the very time students are experiencing exponential growth intellectually, it may be at the expense of neglecting other facets of wellness which is necessary for academic success. 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.

Devotional, meditative, and Bible enrichment programs are offered on campus. Pastoral counseling is provided as requested. Participation of church groups at Freshman Orientation, as well as an area **Church Directory**, is provided to encourage continued spiritual enhancement of our students.

FOREIGN STUDENT SERVICES

The Office of Foreign 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.

CAREER CENTER

The Career Center offers a variety of services and programs to help students prepare for success. Career information in each degree area, the availability of specific jobs, the most recent data on trends in aviation, and advice from industry leaders are available.

Services include career counseling, job referrals and job placement as well as help with resume writing, job search methods, and interviewing skills.

MAIL SERVICE

Prior to a student's arrival, all personal mail and baggage should be addressed as follows:

NAME Embry-Riddle Aeronautical University Prescott, Arizona 86301

All baggage and express packages must be prepaid. Baggage is stored at the risk of the student and the University accepts no responsibility for theft or missing luggage.

During registration 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

For more than eighteen years, Embry-Riddle has recognized that the people who work in civilian and military aviation are highly motivated to seek a college education. 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. For the remainder who could fit classes into their schedules, the available programs did not match their interests and career objectives. Embry-Riddle has responded to this lack of opportunity by accepting invitations to open resident centers at locations with large populations of aviation professionals. These resident centers now number more than eighty and, together with the Department of Independent Studies, make up the College of Continuing Education of the University.

Innovation to meet the needs of adult, part-time students has been the main trigger for the growth and success of the College of Continuing Education. Innovation continues to provide a primary solution to obstacles frustrating those who seek higher education in aviation. Some examples include scheduling terms and classes to fit the off-duty hours of the students served by a resident center. Study is accelerated by compressing the same number of classroom hours scheduled at the residential campuses into terms which are several weeks shorter. The starting and ending dates of terms vary from one resident center to another. Classes may be scheduled in the early morning, at lunch hours, in the evening, on weekends, and at shift changes, depending upon the need 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 and classes necessitates that adjustments be made to some procedures and 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, all programs and courses listed in the catalog are not available at every center. The program and course selection at individual resident centers is based upon the assessed needs of the students and other local factors. Certain degree programs are available at most resident centers, while others may be found at only a few locations.

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 to Hawaii, with more than

forty sites in the continental United States. Our students are employees of many of the major airlines, airports, aviation manufacturers, the Federal Aviation Administration or on active, Reserve or National Guard duty with the Air Force, Army, Coast Guard, Marine Corps, and Navy. They work as air traffic controllers, aircraft mechanics, pilots, dispatchers, flight attendants and engineers, avionics specialists, inspectors, and managers. In addition to the servicemembers stationed at an installation, many of the resident centers located on military installations are authorized to enroll civilian government employees, dependents, and local civilians. All resident centers are approved for veterans' educational training 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 and they should be contacted directly for specific program information.

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. Standardization of individual course content is accomplished by the Department of Academic Standards and the Department of Academic Support, which provide course outlines, identify textbooks, and obtain and disseminate instructional support materials. Students are able to transfer from one center to another, or to process an intrauniversity transfer to one of the residential campuses, confident that their previous academic work will integrate smoothly at the new location. Contact a resident center for specific information.

Faculty are selected based upon their academic credentials and professional experience. The currency of their background and its relevance to aviation are emphasized. The faculty includes Amerian and foreign aviation and business executives, professional pilots, civilian and military technical specialists, and professors from other prestigious academic institutions. The applications of faculty candidates are reviewed and approved by the deans of the United States and Europe divisions and the Dean of the College of Continuing Education.

Generally, working toward a college degree on a part-time basis is considered to require a long, hard effort. Though it is perhaps the only alternative for some, students do report some compensating advantages. The subject matter of many of the courses frequently ties in directly with a problem or project at work. This sets up a special exchange of knowledge which enhances both the job and classroom experience. Since many faculty and students are employed in full-time aviation careers, classes often provide a unique opportunity to study the application of new techniques and theories to the challenges and problems of aviation as they are happening. The College of Continuing Education student graduates with a unique and valuable combination of academic and experiential credentials.

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:

Associate in Science in Professional Aeronautics
Bachelor of Science in Professional Aeronautics

Degree requirements may be completed through a combination of independent study, completion of general education courses at local accredited colleges or universities, and completion of standardized national testing programs such as CLEP or DANTES. The requirements 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.

Independent study versions of many of the aviation oriented and other Embry-Riddle courses are offered through the department. Each course includes the textbook(s), a specially developed study guide, and a set of audio/video cassette tapes. A term of twelve weeks is allowed to complete a course. A comprehensive, proctored final examination is required at the end of each course; some courses may also have a proctored mid term exam. If a student is ready, the final examination can be taken and the course can be completed before the end of the twelve-week period.

Pursuit of a degree through the Department of Independent Studies is approved for Veterans Administration 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).

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.

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.

A complete application for admission consists of the following:

1. Completed College of Continuing Education Application for Admission form.
2. Application fee of $15 (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. Official transcripts sent directly to an Embry-Riddle resident center from all postsecondary institutions previously attended.
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.
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 should contact the nearest resident center or the College of Continuing Education Admissions and Records Department for information concerning additional requirements.

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.

CONTRACT FOR DEGREE

The Contract for Degree is an alternative designed for active duty military personnel and others who may be involuntarily relocated to areas not served by Embry-Riddle. Applicants for a Contract for Degree must be, or have been, enrolled in Embry-Riddle courses at a College of Continuing Education resident center. Once approved for a Contract for Degree, students can continue to work toward a degree from Embry-Riddle by taking courses at regionally accredited colleges or universities in their local area. All courses must be approved in advance of enrollment by the Admissions and Records Department. Contract for Degree students must pay an annual contract maintenance fee and complete a minimum of the equivalent of twelve semester credit hours in each year that the contract is in effect. The requirement that the student must be enrolled at the University during the last term preceding graduation is waived for students participating in a valid Contract for Degree.

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.

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

The length of terms varies at College of Continuing Education locations. Therefore, the following student classifications and credit hour load limitations apply:

Full-Time Student — enrolled in a minimum of 6 credits in any term of 12 weeks or less.
Maximum Student Enrollment — 12 credit hours.

GRADING SYSTEM

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 who wish to appeal a final course grade should first discuss the matter with the instructor. If the matter remains unresolved, students should 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

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.

DEANS 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. 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 overall 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 probation. A student whose cumulative GPA remains below 2.0 for a 3rd 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.

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 thirty 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 concerning any of the following topics:

1. Course Equivalency Examinations
2. Academic Advising
3. Changing Degree Programs or Catalogs
4. Financial Assistance
5. Veterans Educational Benefits
6. Withdrawal from the University or dropping individual courses
7. Readmission Procedure after Suspension or Dismissal

1. For general academic and admission information:

Admissions and Records Department
College of Continuing Education
Embry-Riddle Aeronautical University
Daytona Beach, Florida 32014
Telephone: (904) 239-6910/6911

2. For information about resident centers in the United States:

   Dean, United States Division
   College of Continuing Education
   Embry-Riddle Aeronautical University
   Daytona Beach, Florida 32014

3. For information about resident centers in Florida:

   Director of Embry-Riddle Programs, South Florida
   Embry-Riddle Aeronautical University
   Executive Airport Business Center
   1895 West Commercial Boulevard, Suite 140
   Fort Lauderdale, Florida 33309

4. For information about resident centers in Europe:

   Dean, European Division
   HQ USAFE/DPPEA
   Attention: Embry-Riddle Aeronautical University
   APO, New York 09633-6441

5. For information about independent study, contact the director of the nearest resident center or write:

   Director, Department of Independent Studies
   College of Continuing Education
   Embry-Riddle Aeronautical University
   Daytona Beach, Florida 32014

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Brown, William H.
Regional Director, United Kingdom Region. B.A., Pepperdine University; M.A., Webster University.

Hagelberger, Robert L.
Regional Director, Germany Region. B.A., Auburn University; M.Ed., and M.S.B.A., Boston University.

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

Hennings, Paul E.
Director, North Central Region. B.G.E., University of Nebraska at Omaha; M.S., Troy State University; Command Pilot (USAF).

Hopper, Richard S.
Director, Northwestern Region. B.S., University of Oregon; C-ASMEL-I; H-I.

Lepore, Charles J.
Director, Gulf Region. B.G.S., University of Nebraska; M.B.A., Troy State University.

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

Pamplona, Karen L.
Director, Mediterranean Region. B.A., University of Minnesota; M.S., Troy State University.

Pettit, Thomas W.
Director, Department of Independent Studies. B.S., Embry-Riddle Aeronautical University; M.S. and Ed.S., Troy State University; C-ASMEL-H-I.

Sellinger, Howard S.
Director, Florida Region. B.S., LeMoyne College; M.S., Niagara University.

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

Vanderland, Peter A.
Director, Central Region. B.A., Widener University; M.A., University of Pennsylvania.

COLLEGE OF CONTINUING EDUCATION RESIDENT CENTERS

Air Force Locations

United States:
Andrews Air Force Base, Maryland
Barksdale Air Force Base, Louisiana
Castle Air Force Base, California
Davis-Monthan Air Force Base, Arizona
Ellsworth Air Force Base, South Dakota
Elmendorf Air Force Base, Alaska
Grand Forks Air Force Base, North Dakota
Griffiss Air Force Base, New York
Hickam Air Force Base, Hawaii
Holloman Air Force Base, New Mexico
Homestead Air Force Base, Florida
Keesler Air Force Base, Mississippi
Kirtland Air Force Base, New Mexico
Langley Air Force Base, Virginia
Laughlin Air Force Base, Texas
Loring Air Force Base, Maine
Luke Air Force Base, Arizona
March Air Force Base, California
McClellan Air Force Base, California
MacDill Air Force Base, Florida
Minot Air Force Base, North Dakota
Mountain Home Air Force Base, Idaho
Nellis Air Force Base, Nevada
Norton Air Force Base, California
Offutt Air Force Base, Nebraska
Patrick Air Force Base, Florida
Pope Air Force Base, North Carolina
Seymour-Johnson Air Force Base, North Carolina
Williams Air Force Base, Arizona
Wright-Patterson Air Force Base, Ohio

Europe:
England
West Germany
Netherlands
Spain

Army Locations

United States:
Fort Bragg, North Carolina
Fort Campbell, Kentucky
Fort Eustis, Virginia
Fort Shafter, Hawaii
Hunter Army Air Field, Georgia
Fort Knox, Kentucky

Fort Lewis, Washington
Fort Rucker, Alabama

Europe:
West Germany

Navy Locations

United States:
Naval Air Station Alameda, California
Naval Air Station Cecil Field, Florida
Naval Air Station Corpus Christi, Texas
Naval Air Station Lemoore, California
Naval Air Station Memphis, Tennessee
Naval Air Station Meridian, Mississippi
Naval Air Station Moffett Field, California
Naval Air Station Norfolk, Virginia
Naval Air Station Patuxent River, Maryland
Naval Air Station Whidbey Island, Washington

Europe:
Sicily

Marine Corps Locations

United States:
Kanehoe Marine Corps Air Station, Hawaii

Civilian Locations

United States:
Central and South Florida
FAA Technical Center, Atlantic City, New Jersey
Phoenix, Arizona

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

Tallman, Kenneth L.
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