EMBRY-RIDDLE
AERONAUTICAL UNIVERSITY

CONDENSED UNDERGRADUATE

1998-99
CATALOG

DAYTONA BEACH, FLORIDA

ACADEMIC PROGRAMS

Embry-Riddle Aeronautical University offers students opportunities to pursue academic programs in a wide variety of aviation and aerospace fields. Each degree program includes both general education and academic specialization, the two components complementing each other. Detailed information about specific degree programs begins on page 84 of this section of the catalog. Minor courses of study are described on page 128.

The University currently offers the following associate's, bachelor's, and master's degrees programs at the Daytona Beach campus (D), the Prescott campus (P), Extended Campus locations (E), and Center for Distance Learning (C).

Aeronautical Science (Flight)

A. in Airway Science—D
B.S. in Aeronautical Science—D, P
Master of Aeronautical Science—D, E, C

Aerospace Studies

B.S. in Aerospace Studies—D, P

Business Administration

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

Computer Science

B.S. in Computer Engineering—D, P
B.S. in Computer Science—D, P
Master of Software Engineering—D

Engineering

B.S. in Aerospace Engineering—D, P
B.S. in Civil Engineering—D
B.S. in Electrical Engineering—P
B.S. in Engineering Physics—D
Master of Science in Aerospace Engineering—D
Master of Aerospace Engineering—D

Engineering Technology

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

Maintenance

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

Professional Aeronautics

(Non-Traditional Students)
A.S. in Professional Aeronautics - D, E, C
B.S. in Professional Aeronautics - D, P, E, C

Department of Human Factors & Systems

B.S. in Applied Experimental Psychology/Human Factors—D

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

Basic Skills Requirement

Embry-Riddle Aeronautical University recognizes the importance of communications and quantitative skills in all areas of aviation. Successful pilots, airport managers, aviation maintenance technicians, and other aviation professionals must possess these skills to perform their jobs effectively. Embry-Riddle, therefore, requires all students, including transfer students, to demonstrate proficiency in writing, reading, and mathematics before they are permitted to complete registration during their first term at the University. Proficiency may be demonstrated by passing basic skills placement tests, by earning qualifying scores on SAT/ACT tests, or by transferring credit for college-level English and mathematics courses.

If they cannot demonstrate proficiency in these basic skills, students **must** enroll in one or more of the following courses: the reading and study skills course (HU 017) helps students develop the reading, critical thinking, and listening skills necessary for effective communications; students increase writing, reading, and critical thinking skills in developmental English (HU 006), a course that emphasizes the interactive nature of these activities; quantitative skills courses (MA 005, MA 006) help students prepare for introductory mathematics courses required in the various degree programs.

Students whose primary language is not English are required to demonstrate advanced English proficiency by achieving a satisfactory score on a placement test. Students-dents unable to demonstrate such proficiency must enroll in appropriate basic skills courses in their first term at the University. These courses may include HU 003, HU 004, and HU 013, in addition to the reading and writing courses described above.

Although basic skills courses are computed into the student's term grade point average (GPA) and cumulative grade point average (CGPA), credits earned in basic skills courses do not apply to minimum degree requirements in any degree program.

General Education

Introduction

Recognizing its general and special missions in education, Embry-Riddle Aeronautical University embraces a general education program. This course of study ensures that students possess the attributes expected of all university graduates. Encouraging intellectual self-reliance and ability, the general education program enables students, regardless of their degree program, to understand the significance of acquiring a broad range of knowledge.

Throughout the general education program, students gain and enhance competence in written and oral communication. They practice reasoning and critical thinking skills and demonstrate computer proficiency. As students engage in this course of study, they familiarize themselves with and investigate ideas and methodologies from several disciplines. These include the arts and humanities, the social sciences, and the natural sciences and mathematics. The program also helps students recognize interrelationships among the disciplines.

Promoting the appreciation of varied perspectives, the general education program provides intellectual stimulation, ensuring that students are broadly educated. This course of study empowers students to make informed value judgments, to expand their knowledge and understanding of themselves, and to lead meaningful, responsible, and satisfying lives as individuals, professionals, and concerned members of their society and the world.

General Education Requirements

Embry-Riddle Aeronautical University's general education program encourages effective learning and provides a coherent base for students to pursue their academic specializations. In specific support of the goals of general education, candidates for bachelor's degrees must complete course work or demonstrate competency in the following areas. The faculty certify all course work accepted for general education credit as advancing general education objectives. They additionally establish methods for students to demonstrate competency within these areas of study. Since certain degree programs require particular courses in the general education program, please refer to the degree requirements section of the catalog before selecting general education courses.

I. **Communication Theory and Skills**
9 hours

In order to lead meaningful and responsible lives in complex societies, students produce, evaluate, articulate, and interpret information and meanings in oral and written communications.

II. **Mathematics**
6 hours

In order to develop quantitative reasoning skills and to use and understand the language of science and technology, students attain mathematical proficiency. One course must have college algebra as a prerequisite.

III. **Computer Science**
3 hours

In order to use computers and to understand and evaluate their significance in the solution of problems, students study the concepts, techniques, and tools of computing.

IV. **Physical and Life Sciences**
6 hours

In order to appreciate current understandings of the natural world, students study the concepts and methods of the physical and life sciences, applying the techniques of scientific inquiry to problem-solving. All students participate in a laboratory experience.

V. **Humanities**
3 - 6 hours lower level
***3 hours 300-400 level**

In order to participate in the complexity of human experiences that arise in a framework of historical and social contexts, students are exposed to the humanities. Such areas of studies may include cultural, aesthetic, philosophical, and spiritual dimensions of the human condition.

VI. **Social Sciences**
3 - 6 hours lower level
***3 hours 300-400 level**

In order to understand interrelationships between the individual and society and connections between historical memory and the future, students examine the social sciences, including history, economics, psychology, or sociology.

* In order to experience advanced studies in either the humanities or social sciences, students must choose at least one upper level elective in the Humanities or Social Sciences.

General Education Requirements
36 Hours total

Courses	Credits
Communication Theory and Skills (composition, speech, professional writing)	9
Computer Science (software applications and/or programming)	3
Humanities and Social Sciences	12
Mathematics (one course for which college algebra is a prerequisite)	6
Physical/Life Science (one course must include a laboratory)	6
TOTAL	**36**

Aeronautical Science Program
(Professional Pilot)

Bachelor of Science
Airline Pilot
Corporate Pilot
Aviation Studies

Associate in Airway Science

DAYTONA BEACH

DEPARTMENT CHAIRMAN:
Michael E. Wiggins

ASSOCIATE CHAIRMAN:
P. Rounseville

PROGRAM COORDINATOR:
P. Rounseville

EXTENDED CAMPUS

CHAIRMAN:
Paul Bankit

Aeronautical Science

Bachelor of Science

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

All flight training at Embry-Riddle uses 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, flight-training devices and simulators give the student 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.

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

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

The flight training program operates under all applicable FAA rules, regulations, and requirements. The student will be responsible for adhering to all rules, regulations, and procedures contained in the local campus bulletin and flight operations manual. The University and FAA rules and regulations are included in this reference.

Flight Course Scheduling

All flight training courses may begin or end at any time during the academic year and may not coincide with the beginning or ending dates of the published semester schedule. Students should be prepared to continue training into the following semester if the start date or flight course progress does not allow completion prior to the end of the semester.

Flight courses require a 5-6 hour commitment of a student's daily schedule. This includes the class and flight lab section of the course but does not include preparation and study time. Students are cautioned not to overload their schedule when taking a flight course.

See the Daytona Beach campus Academic Regulations and Procedures chapter of this catalog for additional information about University policies on flight courses. The ERAU Flight Operations Manual also contains information concerning flight line policies and procedures.

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

Students may choose one of three possible areas of concentration (AOC's): Airline Pilot, Corporate Pilot, or Aviation Studies. All students must complete the general education and Aeronautical Science core requirements. During their junior year, students should declare one of the AOC's. The student then completes the required credits that make up the selected AOC.

Bachelor of Science Degree in Aeronautical Science

	Hours
GENERAL EDUCATION	39
AERONAUTICAL SCIENCE	43
AREA OF CONCENTRATION	38
Total Degree Credits	120

Students should be aware that several courses in each academic year may have prerequisites and/or co-requisites. Check the course descriptions at the back of this catalog before registering for classes to assure requisite sequencing.

The Aeronautical Science Degree is an FAA-approved program.

General Education

Course	Title	Credits
	Communication Theory and Skills*	9
	Lower Level Humanities*	3
	Lower Level Social Science*	6
	Upper Level Humanities or Social Sciences*	3
	Computer Science Elective	3
MA 111	College Mathematics for Aviation I	3
MA 112	College Mathematics for Aviation II	3
PS 103	Technical Physics I	3
PS 104	Technical Physics II	3
	Management Elective*	3
Total Credits		**39**

Aeronautical Science Core

Commercial Flight Certification

Course	Title	Credits
AS 130	Aeronautics I	4
AS 131	Aeronautics I Flight Lab	2
AS 230	Aeronautics II	3
AS 231	Aeronautics II Flight Lab	2
AS 270	Aeronautics III	3
AS 271	Aeronautics III Flight Lab	1
Total Credits		**15**

Academic Core

Course	Title	Credits
AS 201	Meteorology I	3
AS 309	Aerodynamics	3
AS 310	Aircraft Performance	3
AS 311	Aircraft Engines-Turbine	3
AS 352	Meteorology II	3
AS 356	Systems and Components	3
AS 357	Flight Physiology	3
AS 380	Pilot Career Planning and Interviewing Techniques	1
AS 408	Flight Safety	3
AS 420	Flight Technique Analysis	3
Total Credits		**28**

Airline Pilot Area of Concentration

Course	Title	Credits
AS 320	Commuter Aviation **OR**	
AS 402	Airline Pilot Operations **OR**	
AS 410	Airline Dispatch Operations	3
AS 330	Aeronautics IV	3
AS 340	Instructional Design in Aviation **OR**	
AS 417	Flight Training Methods and Curriculum Analysis	3
AS 370	Advanced Multi-Engine Instrument Flight	1
AS 385	Crew Resource Management	2
AS 411	Jet Transport Systems	3
AS 430	Turbo-prop Techniques and Crew Procedures	2
AS 440	Crew Resource Management Skills	1
AS 452	Electronic Navigation and Flight Control	3
AS 460	International Flight Operations	3
AS 470	Airline Flight Crew Techniques and Procedures	2
	Open Electives	12
Total Credits		**38**

Corporate Pilot Area of Concentration

Course	Title	Credits
AS 330	Aeronautics IV	3
AS 340	Instructional Design in Aviation **OR**	
AS 417	Flight Training Methods and Curriculum Analysis	3
AS 370	Advanced Multi-engine Instrument Flight	1
AS 385	Crew Resource Management	2
AS 412	Corporate Business Aviation	3
AS 430	Turboprop Techniques and Crew Procedures	2
AS 440	Crew Resource Management Skills	1
AS 453	High Performance Aircraft Flight Crew Techniques and Procedures	2
AS 452	Electronic Navigation and Flight Control Systems	3
AS 460	International Flight Operations	3
	Minor in Business Administration/ Open Electives	15
Total Credits		**38**

Aviation Studies Area of Concentration

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

AS 254	Aviation Legislation	3
	One Minor	15-18
	Open Electives	17-20
Total Credits		**38**
Total degree Credits		**120**

Aeronautical Science Notes

*Embry-Riddle courses in the general education categories *Communication Theory and Skills, Humanities, Social Sciences* and *Management* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified in the Aeronautical Science vertical outline.

Communication Theory and Skills:
HU: 122, 143, 219, 221, 222, 362, 410, 420.

Humanities:
LOWER LEVEL: HU 130•, 135•, 140, 141, 142, 144, 145, 250.
UPPER LEVEL: HU 330, 335, 341, 345, 360, 361, 362, 420.

Management:
BA 201

Social Sciences:
LOWER LEVEL: EC 200, PSY 220.
UPPER LEVEL: SS 310, 325, 335, 350, 351, 352.

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

Cooperative Education credits may be used as open electives.

Suggested Program of Study

Airline Pilot Area of Concentration

The Airline Pilot area of concentration is designed for students whose goal is to fly for a scheduled airline. The academic and flight courses are designed to provide exposure to procedures and operations consistent with those found at air carriers. The upper level AS courses are very technical and provide the foundation for the capstone flight courses that are designed to be consistent with current airline transport pilot requirements.

FRESHMAN YEAR

Course	Title	Credits
AS 130	Aeronautics I	4
AS 131	Aeronautics I Flight Lab	2
AS 201	Meteorology I	3
	Communication Theory and Skills*	3
	Lower Level Humanities*	3
	CS Elective	3
	Lower Level Social Science	3
MA 111	College Mathematics for Aviation I	3
MA 112	College Mathematics for Aviation II	3
PS 103	Technical Physics I	3
Total Credits		**30**

SOPHOMORE YEAR

Course	Title	Credits
AS 230	Aeronautics II	3
AS 231	Aeronautics II Flight Lab	2
AS 270	Aeronautics III	3
AS 271	Aeronautics III Flight Lab	1
AS 309	Aerodynamics	3
AS 357	Flight Physiology	3
	Communication Theory and Skills*	6
	Lower Level Social Science*	3
PS 104	Technical Physics II	3
	Management Elective*	3
Total Credits		**30**

JUNIOR YEAR

Course	Title	Credits
AS 310	Aircraft Performance	3
AS 311	Aircraft Engines - Turbine	3
AS 330	Aeronautics IV	3
AS 340	Instructional Design in Aviation **OR**	
AS 417	Flight Training Methods and Curriculum Analysis	3
AS 352	Meteorology II	3
AS 356	Aircraft Systems and Components	3
	Upper Level HU/SS Elective*	3
AS 370	Advanced Multi-engine Instrument Flight	1
AS 380	Pilot Career Planning and Interviewing Techniques	1
AS 385	Crew Resource Management	2
	Open Electives	6
Total Credits		**31**

SENIOR YEAR

Course	Title	Credits
AS 402	Airline Pilot Operations **OR**	
AS 410	Airline Dispatch Operations **OR**	
AS 320	Commuter Aviation	3
AS 408	Flight Safety	3
AS 411	Jet Transport Systems	3
AS 420	Flight Technique Analysis	3
AS 430	Turboprop Techniques and Crew Procedures	2
AS 440	Crew Resource Management Skills	1
AS 452	Electronic Navigation and Flight Control Systems	3
AS 460	International Flight Operations	3
AS 470	Airline Flight Crew Techniques and Procedures	2
	Open Electives	6
Total Credits		**29**
Total Degree Credits		**120**

Corporate Pilot Area of Concentration

The Corporate Pilot area of concentration gives students a curriculum with a selection of courses designed to support the knowledge and training required by non-scheduled employers flying the modern, technically sophisticated multi-crew aircraft found in corporate flight departments today. Management and business courses are provided to further enhance the students' knowledge of corporate-type operations. A business minor is required to complete this area of concentration.

FRESHMAN YEAR

Course	Title	Credits
AS 130	Aeronautics I	4
AS 131	Aeronautics I Flight Lab	2
AS 201	Meteorology I	3
	Communication Theory and Skills*	3
	Lower Level Humanities*	3
	CS Elective	3
	Lower Level Social Science*	3

MA 111	College Mathematics for Aviation I	3
MA 112	College Mathematics for Aviation II	3
PS 103	Technical Physics I	3
Total Credits		**30**

SOPHOMORE YEAR

Course	Title	Credits
AS 230	Aeronautics I	3
AS 231	Aeronautics II Flight Lab	2
AS 270	Aeronautics III	3
AS 271	Aeronautics III Flight Lab	1
AS 309	Aerodynamics	3
AS 357	Flight Physiology	3
	Communication Theory and Skills*	6
	Lower Level Social Science*	3
	Management Elective*	3
PS 104	Technical Physics II	3
Total Credits		**30**

JUNIOR YEAR

Course	Title	Credits
AS 310	Aircraft Performance	3
AS 311	Aircraft Turbine Engines	3
AS 330	Aeronautics IV	3
AS 352	Meteorology II	3
AS 356	Aircraft Systems and Components	3
AS 370	Advanced Multi-engine Instrument Flight	1
AS 380	Pilot Career Planning and Interviewing Techniques	1
AS 385	Crew Resource Management I	2
AS 417	Flight Training Methods and Curriculum Analysis **OR**	
AS 340	Instructional Design in Aviation	3
	Upper Level HU/SS Elective	3
	Minor Courses/Open Electives	6
Total Credits		**31**

SENIOR YEAR

Course	Title	Credits
AS 408	Flight Safety	3
AS 412	Corporate Business Aviation	3
AS 420	Flight Technique Analysis	3
AS 430	Turboprop Techniques and Crew Procedures	2
AS 440	Crew Resource Management Skills	1
AS 452	Electronic Navigation and Flight Control Systems	3
AS 453	High Performance Aircraft Flight Crew Techniques and Procedures	2
AS 460	International Flight Operations	3
	Minor Courses/Electives	9
Total Credits		**29**
Total Degree Credits		**120**

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

Cooperative Education credits may be used as open electives.

Aviation Studies Area of Concentration

The Aviation Studies area of concentration is designed for pilots with career interests requiring a more flexible degree program. The Aeronautical Science core course integrity is maintained, while allowing greater opportunity for the selection of courses to meet the needs of other segments of the aviation industry not specifically addressed by the Airline Pilot or Corporate Pilot areas of concentration.

FRESHMAN YEAR

Course	Title	Credits
AS 130	Aeronautics I	4
AS 131	Aeronautics I Flight Lab	2
AS 201	Meteorology	3
	Communication Theory and Skills*	3
	Lower Level Humanities*	3
	Lower Level Social Sciences*	3
	Computer Science Elective	3
MA 111	College Mathematics for Aviation I	3
MA 112	College Mathematics for Aviation II	3
PS 103	Technical Physics I	3
Total Credits		**30**

SOPHOMORE YEAR

Course	Title	Credits
AS 230	Aeronautics II	3
AS 231	Aeronautics II Flight Lab	2
AS 254	Aviation Legislation	3
AS 270	Aeronautics III	3
AS 271	Aeronautics III Flight Lab	1
AS 309	Aerodynamics	3
	Communication Theory and Skills*	6
	Lower Level Social Sciences*	3
PS 104	Technical Physics II	3
	Management Elective*	3
Total Credits		**30**

JUNIOR YEAR

Course	Title	Credits
AS 310	Aircraft Performance	3
AS 311	Aircraft Engines-Turbine	3
AS 352	Meteorology II	3
AS 356	Aircraft Systems and Components	3
AS 357	Flight Physiology	3
AS 380	Pilot Career Planning and Interviewing Techniques	1
	Open Electives	15
Total Credits		**31**

SENIOR YEAR

Course	Title	Credits
	Upper Level Humanities or Social Sciences*	3
AS 408	Flight Safety	3
AS 420	Flight Technique Analysis	3
	Minor Courses/Elective	20

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

Total Credits	29
Total Degree Credits	120

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

Cooperative Education credits may be used as open electives.

Airway Science

Associate

Degree Requirements

The Associate Degree in Airway Science is intended for those pursuing aviation careers where full professional preparation and a baccalaureate degree are not necessary. Normally, the required 63 credit hours can be completed in four semesters. This program includes qualification for the FAA commercial pilot certificate with an instrument-airplane rating and the flight instructor certificate with airplane single-engine and instrument airplane ratings.

FIRST YEAR

Course	Title	Credits
	Communication Theory and Skills*	3
	Lower Level Humanities*	3
	Lower Level Social Science*	3
	CS Elective	3
AS 130	Aeronautics I	4
AS 131	Aeronautics I Flight Lab	2
AS 201	Meteorology	3
MA 111	College Mathematics for Aviation I	3
MA 112	College Mathematics for Aviation II	3
PS 103	Technical Physics I	3
Total Credits		30

SECOND YEAR

Course	Title	Credits
	Communication Theory and Skills*	6
	Lower Level Social Sciences*	3
AS 230	Aeronautics II	3
AS 231	Aeronautics II Flight Lab	2
AS 254	Aviation Legislation	3
AS 270	Aeronautics III	3
AS 271	Aeronautics III Flight Lab	1
AS 309	Aerodynamics	3
AS 357	Flight Physiology	3
AS 417	Flight Training Methods and Curriculum Analysis**	3
PS 104	Technical Physics II	3
Total Credits		33
Total Degree Credits		63

Airway Science Notes:

*Embry-Riddle courses in the general education categories *Communication Theory and Skills, Humanities, Social Sciences,* and *Management* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Airway Science vertical outline.

Communication Theory and Skills:
HU: 122, 143, 219, 221, 222, 362, 410, 420.

Humanities:
LOWER LEVEL: HU 130•, 135•, 140, 141, 142, 144, 145, 250.
UPPER LEVEL: HU 330, 335, 341, 345, 360, 361, 362 420.

Management:
BA 201

Social Sciences:
LOWER LEVEL: EC 200; PSY 220.
UPPER LEVEL: SS 310, 325, 335, 350, 351, 352.

** Requires CASEL Certificate.

Aircraft Dispatcher Certification Program

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

Licensed dispatchers are employed by airlines to manage the ground-based tasks vital to a successful 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 on equipment failures, weather variations, or traffic delays for monitoring the progress of the flight, issuing safety-of-flight information to the crew, and canceling or redispatching the flight.

To carry out these tasks properly, dispatchers must be knowledgeable in aircraft performance capabilities, meteorology, operating regulations, air traffic control, and instrument flight procedures. They must also be able to make sound decisions that incorporate the company's economic and scheduling considerations. This certificate not available at the Extended Campus.

Certification Requirements

The Aircraft Dispatcher certification program is available only at the Daytona Beach campus. Dispatcher preparation is based on the successful completion of the following Aeronautical Science courses and the applicable prerequisites.

Course	Title	Credits
AS 130	Aeronautics I	4
AS 201	Meteorology I	3
AS 230	Aeronautics II	3
AS 270	Aeronautics III	3
AS 310	Aircraft Performance	3
AS 330	Aeronautics IV	3
AS 352	Meteorology II	3
AT 363	ATC in the National Aerospace System	3
♦AS 410	Air Carrier Operations	3
Total Credits		**28**

♦AS 410 serves as the capstone course to the Aircraft Dispatcher program. Students must not take this course until they are close to 21 years of age and have completed and passed all other required Aeronautical Science courses for the Aircraft dispatcher Program.

This program is offered in the pursuit of a degree and not as separate training. Qualification for FAA testing normally requires a minimum of six trimesters of instruction.

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

For more information, contact the Aeronautical Science Department.

Aerospace Engineering Program

CHAIRMAN
A.I. Ormsbee

PROGRAM COORDINATOR
J.R. Novy

Aerospace Engineering

Bachelor of Science

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.

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

DEGREE REQUIREMENTS

The Bachelor of Science in Aerospace Engineering program requires successful completion of a minimum of 135 credit hours. The program may be completed in eight semesters assuming appropriate background and full-time enrollment. A minimum cumulative grade point average of 2.00 is needed for all required AE, EGR and ES courses, excluding technical electives. The courses necessary to earn this degree are listed below.

Students should be aware that several courses in each academic year may have prerequisites and/or co-requisites. Check the course descriptions at the back of this catalog before registering for classes to assure requisite sequencing.

FRESHMAN YEAR

Course	Title	Credits
	Communication Theory and Skills*	3
	Lower Level Humanities*	3
	Lower Level Social Sciences*	3
AE 101	Introduction to Aerospace Engineering	2
CS 223	Scientific Programming in C	3
EGR120	Graphical Communications	2
MA 241	Calculus and Analytical Geometry I	4
MA 242	Calculus and Analytical Geometry II	4
PS 140	Chemistry for Engineers	4
PS 141	Chemistry for Engineers Laboratory	1
PS 211	Engineering Physics I	4
PS 212	Engineering Physics Lab I	1
Total Credits		**34**

SOPHOMORE YEAR

Course	Title	Credits
	Communication Theory and Skills*	6
ES 201	Statics	3
ES 202	Solid Mechanics	3
ES 204	Dynamics	3
ES 206	Fluid Mechanics	3
MA 243	Calculus and Analytical Geometry III	4
MA 345	Differential Equations and Matrix Methods	4
PS 217	Engineering Physics II	4
PS 218	Engineering Physics Laboratory II	1
Total Credits		**31**

JUNIOR YEAR

Course	Title	Credits
	Lower Level Social Sciences*	3
	Upper Level Humanities or Social Sciences*	3
AE 301	Aerodynamics I	3
AE 302	Aerodynamics II	3
AE 304	Aircraft Structures I	3
AE 309	Experimental Aerodynamics w/Lab	2
AE 404	Aircraft Structures II	3
AE 413	Airplane Stability and Control	3
ES 305	Thermodynamics	3
ES 307	Engineering Materials Science w/Lab	3
ES 402	Electrical Engineering I w/Lab	3
MA 441	Advanced Engineering Mathematics I	3
Total Credits		**35**

SENIOR YEAR

Course	Title	Credits
	Upper Level Humanities or Social Sciences*	6
	Technical Electives	6
	Open Elective	3
AE 408	Turbine and Rocket Engines	3
AE 420	Aircraft Preliminary Design	3
AE 421	Aircraft Detail Design	3
AE 430	Control Systems Analysis and Design	3
ES 405	Electrical Engineering II	3
ES 409	Space Mechanics	3
ES 410	Structures and Instrumentation Lab	2
Total Credits		**35**
Total Degree Credits		**135**

Technical Electives:

AE 350, 399, 401, 407, 409, 411, 415, 425, 433, 499, 5XXU
CE: By Special Arrangement
CS: 335, 395 I
EP: 320
ES: 399**, 499**
MA: 412, 432, 438, 442, 443, 5XXU
MET: 303
PS: 301, 303, 320

Must be approved by the Aerospace Engineering department **before taking this course.

Students may substitute upper-level AF and MY courses or aeronautical certificates for a maximum of 6 credits of the technical electives. Cooperative Education credits may be used as open and/or technical electives with advance approval from the department chair. For details, see the Cooperative Education faculty advisor.

*Embry-Riddle courses in the general education categories *Communication Theory and Skills, Humanities,* and *Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Aerospace Engineering vertical outline.

Communication Theory and Skills:
HU: 122, 143, 219, 221, 222, 315, 319, 351, 355, 360, 361,362, 410, 420.

Humanities:
LOWER LEVEL: HU 130•, 135•, 140, 141, 142, 144, 145, 146, 150•, 151•, 153•, 155•, 157•, 159•, 250.
may not be the student's native language

UPPER LEVEL: HU 300, 305, 310, 320, 325, 330, 335, 341, 345,363, 399**, 499**.

Must be approved by the Aerospace Engineering department **before taking this course.

Social Sciences:
LOWER LEVEL:
EC 200, 210, 211 (EC 200 is not acceptable together with EC 210 or EC 211 or their equivalent),
SS 110, 120, 130, 204, 210,; PSY 220.

UPPER LEVEL:
EC 310, 312, 315, 420, SS 302, 305, 310, 320, 325, 331, 340, 350, 360, 399**, 499**.
HF 300
PSY 350

Must be approved by the Aerospace Engineering department **before taking this course.

Aerospace Studies Program

DEPARTMENT OF HUMANITIES/SOCIAL SCIENCES

Chairman	Associate Chairman	Program Coordinator
R.M. Oxley	*G. Kain*	*N. Parker*

Aerospace Studies

Bachelor of Science

The Aerospace Studies degree program is administered by the Humanities/Social Sciences Department.

Program Plan of Study and Requirements

The Aerospace Studies program consists of core requirements and three minors. The core requirements in this program help make our students more worldly thinkers who understand that information and skills gleaned from one area of life can be applied to other areas. The program's core requirements respond directly to calls by American corporate leaders for graduates who understand both technology and human beings. To that end, students choose from courses in the humanities, geography, international studies, philosophy and ethics, and psychology. The core prepares students to connect their three minor fields of study meaningfully and usefully. The Engineering and Society course, for example, introduces the usefulness of an interdisciplinary approach for learning. In the capstone experience, the student chooses a senior thesis, which includes inquiry into at least two minors, or a co-op in industry.

By combining three minors, students design their own degree programs. Such combinations as air traffic control/psychology/safety or space studies/computer science/psychology offer combinations of fields that the aerospace industry should find useful. Minors in secondary education, humanities, and mathematics can lead to the teaching profession or graduate studies. Minors in the business areas give students practical knowledge that combines well with the more technical areas. The element of choice in the program gives students experience in planning their own futures: the program seeks to produce students with an entrepreneurial spirit who will cross boundaries, make creative connections, and become leaders in aviation and aerospace.

Students should be aware that several courses in each academic year may have prerequisites and/or corequisites. Check the course descriptions at the back of this catalog before registering for classes to assure requisite sequencing.

Degree Requirements

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

General Education

Courses	Credits
Communication Theory and Skills*	9
Computer Science	3
Humanities lower level*	3
Mathematics	6
Physical and Life Science	6
Social Sciences lower level*	6
HU/SS 300-400 level*	3
Total Credits	**36**

*Embry-Riddle courses in the general education categories *Communication Theory and Skills, Humanities,* and *Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories.

Communication Theory and Skills:

HU: 122, 219, 221, 222, 319, 351, 355, 360, 361, 362, 363, 399, 410, 420, 499.

Humanities:

LOWER LEVEL: HU 140-146.
UPPER LEVEL: 300-400 level.

Social Sciences:

LOWER LEVEL: EC 200, 210, 211 (EC 200 is not acceptable together with EC 210 or EC 211 or their equivalent),

SS 110, 120, 204, 210

PSY 220.

UPPER LEVEL: SS 302, 305, 310, 320, 325, 331, 340, 350, 352, 360, 399, 499.

Core Requirements

Course	Title	Credits
AS 120	Introduction to Aeronautical Science OR	
SP 110	Introduction to Space Flight OR	
FAA	Private Pilot Certificate	3
BA 105	American Business Enterprise OR	
BA 201	Principles of Management	3
ES 100	Engineering and Society	3
HU140-HU146*	One course from the Humanities Series OR	
SS 204	Introduction to Geography	3

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

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

Minors

Students must select three minor fields of study. At least one of these must be aviation/aerospace related. Total credits within the minors will vary from 45-63, depending on the minors chosen. See Minor Courses of Study in this catalog.

Open Electives	**0-18**
Total Degree Credits	**120-132**

Aircraft Engineering Technology Program

DEPARTMENT OF TECHNOLOGY

CHAIRMAN
P.S. Pierpont

PROGRAM COORDINATOR
G. McNutt

Aircraft Engineering Technology

Bachelor of Science

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

ADMISSION REQUIREMENTS

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

Students should be aware that several courses in each academic year may have prerequisites and/or corequisites. Check the course descriptions at the back of this catalog before registering for classes to assure requisite sequencing.

DEGREE REQUIREMENTS

The Bachelor of Science in Aircraft Engineering Technology requires successful completion of 125 semester hours, as outlined in the following course list. A minimum cumulative grade point average of 2.00 is needed for all required engineering technology courses.

FRESHMAN YEAR

Course	Title	Credits
	Communication Theory and Skills*	6
	Lower Level Humanities*	3
CS 223	Scientific Programming in C	3
DET 111	Engineering Drawing	2
MA 241	Calculus and Analytical Geometry I	4
MA 242	Calculus and Analytical Geometry II	4
PS 101	Basic Chemistry	3
PS 211	Engineering Physics I	4
PS 212	Engineering Physics Laboratory I	1
Total Credits		**30**

SOPHOMORE YEAR

Course	Title	Credits
	Communication Theory and Skills*	3
	Lower Level Social Science*	3
EET 225	Applied Electrical Science w/Lab	4
MET 201	Applied Statics and Dynamics	4
MET 210	Applied Thermodynamics	3
MET 211	Applied Strength of Materials w/Lab	4
MET 212	Applied Hydraulics	2
MA 245	Applied Differential Equations	3
PS 217	Engineering Physics II	4
PS 218	Engineering Physics Laboratory II	1
Total Credits		**31**

JUNIOR YEAR

Course	Title	Credits
	Upper Level Humanities or Social Science*	6
ACET 301	Manufacturing Processes, Materials and Testing w/Lab	4
ACET 302	Applied Aerodynamics I	3
ACET 311	Aircraft Drafting and Design	3

ACET 312	Applied Aerodynamics II w/Lab	3
ACET 314	Aircraft Structural Analysis	4
LET 304	Applied Reliability and Maintainability Engineering	3
MET 303	Mechanical Design	3
OPEN	Elective	3
Total credits		32

SENIOR YEAR

Course	Title	Credits
	Lower Level Social Sciences*	3
ACET 402	Applied Instrumentation	3
ACET 403	Applied Performance and Design	3
ACET 404	Aircraft Composites w/Lab	2
ACET 405	Aircraft Internal Combustion Engines	2
ACET 406	Introduction to Systems Analysis and Design	3
ACET 407	Aircraft Engines and Gas Turbines	3
ACET 410	Applied Structural Dynamics	3
ACET 412	Aircraft Structures Test Lab	1
ACET 415	Aircraft Detail Design	3
LET 413	Integrated Aviation Logistics Support	3
OPEN	Elective	3
Total Credits		32
TOTAL DEGREE CREDITS		125

Students should enroll in Cooperative Education or Intern programs as early as possible in their program.

Cooperative Education credits may be used as open electives.

*Embry-Riddle courses in the general education categories *Communication Theory and Skills, Humanities and Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Avionics Engineering Technology vertical outline.

COMMUNICATION THEORY AND SKILLS:

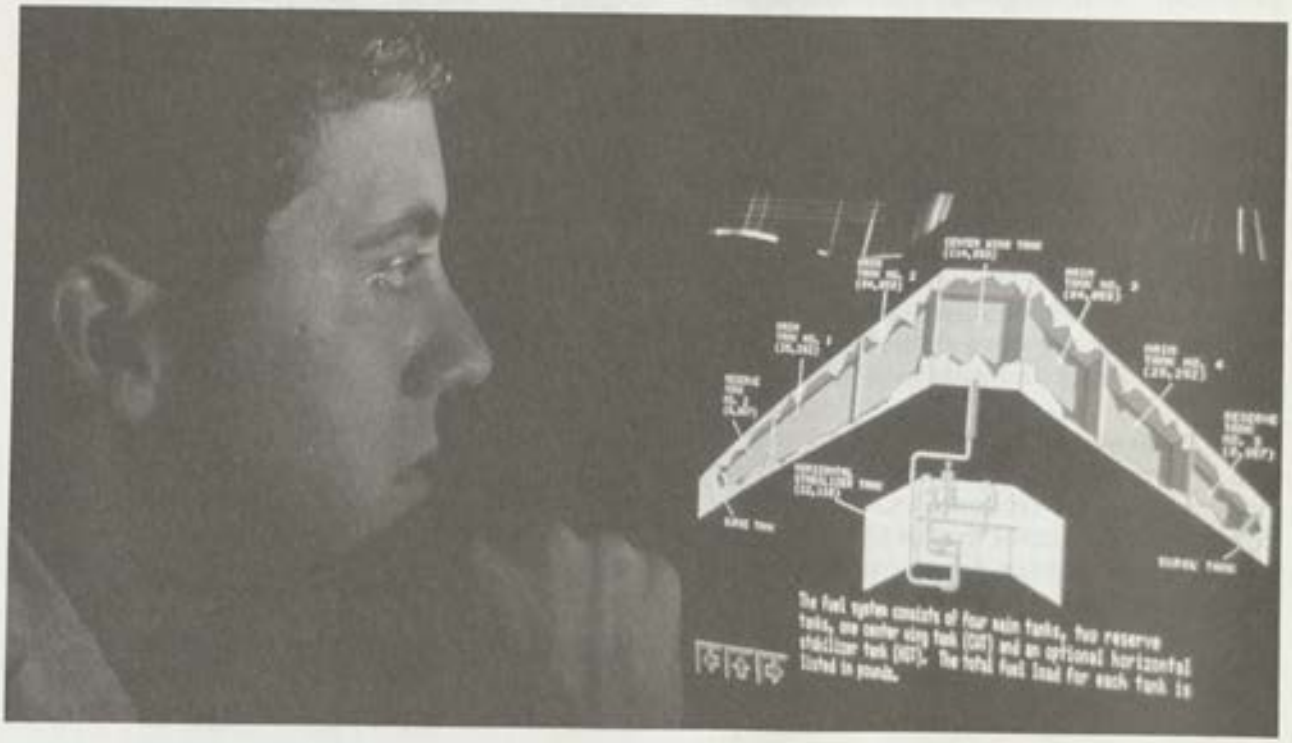
HU: 122, 219, 221, 222.

HUMANITIES:

LOWER LEVEL: HU 140, 141, 145
UPPER LEVEL: HU 300, 305, 310, 320, 325, 330, 335, 341, 345, 399, 499.

SOCIAL SCIENCES:

LOWER LEVEL: EC 200, 210, 211 (EC 200 is not acceptable together with EC 210 or EC 211 or their equivalent),
PSY 220,
SS 110, 120, 204, 210,.
UPPER LEVEL: EC 310, 312, 315, 420, SS 302, 305, 310, 320, 325, 331, 335, 340, 350, 352, 399, 499.



Aviation Maintenance and Technology Programs

DEPARTMENT OF TECHNOLOGY

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

DAYTONA BEACH

Aircraft Maintenance

Aviation Maintenance Technology

CHAIRMAN
P.S. Pierpont

PROGRAM COORDINATOR
M. Williams

PROGRAM COORDINATOR
Aviation Technology
G. Travis

EXTENDED CAMPUS

Aircraft Maintenance

Associate in Science

PROGRAM CHAIRMAN
T.M. Edwards

Aircraft Maintenance

Associate in Science

Maintenance technology training may be taken as an integral part of the Associate in Aviation Maintenance Technology, the Associate in Science in Aircraft Maintenance, the Bachelor of Science in Aviation Technology, or the Aviation Maintenance Management programs. In addition, 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 Embry-Riddle degree programs.

AIRFRAME AND POWERPLANT TECHNOLOGY

Embry-Riddle offers two distinct types of AMT degree programs for students who want to prepare for the FAA airframe and/or powerplant (A&P) examinations and pursue degree programs which require those skills.

The Type 147 program, offered only at the Daytona Beach campus, presents a carefully selected blend of theory and practical applications, which gives the student an opportunity to prepare for and take the FAA airframe and/or powerplant examinations. A minimum grade point average of 2.0 is required for each of the three sections (general, airframe, and powerplant) of the Type 147 AMT program. Students perform actual repairs and overhaul of engines and accessories, including those used in Embry-Riddle's fleet of aircraft. The Samuel Goldman AMT Center at the Daytona Beach campus is fully approved under Part 147 of the Federal Aviation Regulations and holds Air Agency Certificate No. NX4T404M and FAA Repair Station Certificate No. NX42404M.

In the Type 65 program, Embry-Riddle offers special AMT courses to students in the Extended Campus 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 airworthy condition.The completion of Type 65 courses does not influence the determination by the FAA of eligibility to take the airframe and/or powerplant examinations. The courses, together with on-the-job experience and/or successful completion of the A&P examinations, may be applied toward meeting the requirements of various Embry-Riddle degree programs. Type 65 courses are offered at various Extended Campus centers.

Students should be aware that several courses in each academic year may have prerequisites and/or co-requisites. Check the course description at the back of this catalog before registering for classes to assure requisite sequencing.

Degree Requirements

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

ERAU Type 147 Aviation Maintenance Technology Program (48 Credits)

Type 147 Aviation Maintenance Technology Program is available only at the Daytona Beach campus.

Course	Title	Credits
AVMT 111	Applied Science for Aerospace Technicians	2
AVMT 112	Aviation Regulations, Records and Documents	2
AVMT 113	Aircraft Familiarization and Flight Line Operations	2
AVMT 114	Aviation Material	2
AVMT 115	Direct Current Electricity	2
AVMT 116	Alternating Current Electricity	2
AVMT 211	Introduction to Aircraft Electrical Systems	2
AVMT 212	Aircraft Sheet Metal Structures Fabrication	2
AVMT 213	Aircraft Instruments and Communication /Navigation Systems	2
AVMT 214	Aircraft Composite Structures	2
AVMT 215	Classic Airframe Structures	2
AVMT 216	Airframe Inspections and Rigging	2
AVMT 221	Introduction to Aircraft Powerplants	2
AVMT 222	Aircraft Powerplant Systems	2
AVMT 223	Engine Electrical and Ignition Systems	2
AVMT 224	Propellers and Propeller Systems	3
AVMT 311	Aircraft Environmental and Fuel Systems	2
AVMT 312	Aircraft Fluid Power Systems	2
AVMT 313	Aircraft Electrical Systems	2
AVMT 321	Aircraft Engine Line Maintenance	3
AVMT 322	Reciprocating Engine Overhaul	3
AVMT 323	Turbine Engines and Turbine Engine Systems	3
Total Credits		**48**

ERAU Type 65 Aviation Maintenance Technology Program (36 Credits)

Type 65 Aviation Maintenance Technology Program is available only at the Extended Campus.

Course	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
Electives	(AMT, AS, AV, CS, EL, FA, MS) or AMT 275 and AMT 285	15
Total Credits		**36**

AND

33 designated credits as follows:

Course	Title	Credits
	Communication Theory and Skills*	9
	Lower Level Humanities*	3
	Lower Level Social Science*	6
BA 201	Principles of Management	3
CS 109	Introduction to Computers and Applications OR	
CS 210	Scientific Programming OR	
CS 223	Scientific Programming in C	3
MA 111	College Mathematics for Aviation I OR	
MA 120	Quantitative Methods I OR	
MA 140	College Algebra	3
MA 112	College Mathematics for Aviation II **OR**	
MA 211	Statistics with Aviation Applications **OR**	
MA 222	Business Statistics	3
PS 102	Explorations in Physics	3
Total Credits		**33**

Total credits required vary from 69 to 81 depending on the method of obtaining the maintenance qualification.

*Embry-Riddle courses in the general education categories *Communication Theory and Skills, Humanities* and *Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Aviation Maintenance and Technology vertical outlines.

COMMUNICATION THEORY AND SKILLS:

HU: 122, 219, 221, 222.

HUMANITIES:

LOWER LEVEL: HU 140 - 145

SOCIAL SCIENCES:

LOWER LEVEL: EC 200, 210, 211 (EC 200 is not acceptable together with EC 210 or EC 211 or their equivalent),
PSY 220,
SS 110, 120, 204, 210.

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 following list:

FRESHMAN YEAR

(General Aeronautics)

Course	Title	Credits
	Communication Theory and Skills*	3
AVMT 111	Applied Science for Aerospace Technicians	2
AVMT 112	Aviation Regulations, Records and Documents	2
AVMT 113	Aircraft Familiarization and Flight Line Operations	2
AVMT 114	Aviation Material	2
AVMT 115	Direct Current Electricity	2
AVMT 116	Alternating Current Electricity	2

(Airframe I)

	Lower Level Humanities*	3
AVMT 211	Introduction to Aircraft Electrical Systems	2
AVMT 212	Aircraft Sheet Metal Structures Fabrication	2
AVMT 213	Aircraft Instruments and Communication/Navigation Systems	2
AVMT 214	Aircraft Composite Structures	2
AVMT 311	Aircraft Environmental and Fuel Systems	2
AVMT 312	Aircraft Fluid Power Systems	2
MA 111	College Mathematics for Aviation I **OR**	
MA 140	College Algebra	3
Total Credits		**33**

SOPHOMORE YEAR

(Airframe II)

Course	Title	Credits
	Communication Theory and Skills	3
AVMT 215	Classic Airframe Structures	2
AVMT 216	Airframe Inspections and Rigging	2
AVMT 313	Aircraft Electrical Systems	2

(Powerplant I)

AVMT 221	Introduction to Aircraft Powerplants	2
AVMT 222	Aircraft Powerplant Systems	2
AVMT 223	Engine Electrical and Ignition Systems	2
AVMT 224	Propellers and Propeller Systems	3
AVMT 321	Aircraft Engine Line Maintenance	3
AVMT 322	Reciprocating Engine Overhaul	3
AVMT 323	Turbine Engine & Turbine Engine Systems	3
BA 120	Introduction to Computer Based Systems **OR**	
CS 109	Introduction to Computers and Applications **OR**	
CS 210	Scientific Programming	3
SS	Elective	3
Total Credits		**33**
TOTAL DEGREE CREDITS		**66**

Cooperative Education credits are in excess of degree requirements.

Aviation Technology

Bachelor of Science

Degree Requirements

The Bachelor of Science in Aviation Technology, which is available at the Daytona Beach campus only, requires successful completion of 120 to 128 credit hours. The student must complete general education, program support and two of the three options in aviation electronics (avionics), maintenance, and flight. A minimum cumulative grade point average is required in all course work.

Type 147 AMT/Flight

FIRST YEAR

Course	Title	Credits
AS 130	Aeronautics I	4
AS 131	Aeronautics I Flight Lab	2
AS 201	Meteorology I	3
AVMT 111	Applied Science for Aerospace Technicians	2
AVMT 112	Aviation Regulations, Records & Documents	2
AVMT 113	Aircraft Familiarization and Flight Line Operations	2
AVMT 115	Direct Current Electricity	2
CS 109	Introduction to Computers and Applications	3
HU	Lower Level Humanities	3
HU 122	English Composition and Literature	3
MA 111	College Mathematics for Aviation I	3
Total Credits		**29**

SECOND YEAR

Course	Title	Credits
AS 230	Aeronautics II	3
AS 231	Aeronautics II Flight Lab	2
AVMT 114	Aviation Materials	2
AVMT 116	Alternating Current Electricity	2
AVMT 211	Introduction to Aircraft Electrical Systems	2
AVMT 212	Aircraft Sheet Metal Structures Fabrication	2
AVMT 214	Aircraft Composite Structures	2
AVMT 215	Classic Airframe Structures	2
HU 219	Speech	3
HU 221	Technical Report Writing	3
MA 112	College Mathematics for Aviation II	3
PS 103	Technical Physics I	3
PS 104	Technical Physics II	3
Total Credits		**32**

THIRD YEAR

Course	Title	Credits
AS 270	Aeronautics III	3
AS 271	Aeronautics III Flight Lab	1
AS 309	Basic Aerodynamics	3
AS 310	Aircraft Performance	3
AS 352	Meteorology II	3
AS 357	Flight Physiology	3
AVMT 213	Aircraft Instruments and Comm/Nav Systems	2
AVMT 311	Aircraft Environmental and Fuel Systems	2
SS	Lower Level Social Science Elective	3
AVMT 216	Aircraft Inspections and Rigging	2
AVMT 221	Introduction to Aircraft Powerplants	2
AVMT 313	Aircraft Electrical Systems	2
Total Credits		**29**

FOURTH YEAR

Course	Title	Credits
AS 408	Flight Safety	3
AS 417	Flight Training Methods and Curriculum Analysis **OR**	
AS 340	Instructional Design in Aviation **OR**	
FA 495	Beech 1900 Flight Simulator **(and)**	2
AS 420	Flight Technique Analysis	3
AVMT 222	Aircraft Power Plant Systems	2
AVMT 223	Engine Electrical And Ignition Systems	2
AVMT 224	Propellers and Propeller Systems	3
AVMT 312	Fluid Power Systems	2
AVMT 321	Aircraft Engine Line Maintenance	3
AVMT 322	Reciprocating Engine Overhaul	3
AVMT 323	Turbine Engines and Turbine Engine Systems	3
HU	Upper Level Humanities Elective	3
SS	Upper Level Social Science Elective	3
Total Credits		**30 or 32**

Type 147 AMT/Avionics

FIRST YEAR

Course	Title	Credits
AVMT 112	Aviation Regulations, Records and Documents	2
AVMT 113	Aircraft Familiarization and Flight Line Operations	2
AVMT 114	Aviation Materials	2
DET 111	Engineering Graphics	2
EET 105	Direct and Alternating Current Fundamentals Circuit Analysis	4
EET 110	Direct and Alternating Current Laboratory	1
HU	Lower Level Humanities	3
HU 122	English Composition and Literature	3
MA 111	College Mathematics for Aviation I	3
MA 112	College Mathematics for Aviation II	3
PS 103	Technical Physics I	3
SS	Lower Level Elective	3
Total Credits		**31**

SECOND YEAR

Course	Title	Credits
AVMT 211	Introduction to Aircraft Electrical Systems	2
AVMT 212	Aircraft Sheet Metal Structures Fabrication	2
AVMT 213	Aircraft Instruments and Com/Nav Systems	2
AVMT 214	Aircraft Composite Structures	2
AVMT 215	Classic Airframe Structures	2
AVMT 216	Airframe Instructions and Rigging	2
CS 223	Scientific Programming in C	3
EET 205	Microelectronics Fundamentals and Circuit Analysis	4
EET 206	Microelectronics Laboratory	1
EET 210	Digital Circuits and Systems Analysis	4
EET 211	Digital Circuits Laboratory	1
EET 219	Pulse Component Laboratory	1
EET 220	Pulse Components and Circuit Applications	2
HU 219	Speech	3
PS 104	Technical Physics	3
Total Credits		**34**

THIRD YEAR

Course	Title	Credits
AVMT 221	Introduction to Aircraft Powerplants	2
AVMT 222	Aircraft Power Plant Systems	2
AVMT 223	Engine Electrical and Ignition Systems	2
AVMT 311	Aircraft Environmental and Fuel Systems	2
AVMT 312	Aircraft Fluid Power Systems	2
AVMT 313	Aircraft Electrical Systems	2
AVMT 321	Aircraft Line Maintenance	3
EET 215	Electronics Communications Systems	3
EET 216	Electronics Communications Laboratory	1
EET 226	Microprocessor Systems	3
EET 227	Microprocessor Laboratory	1
HU	Upper Level Elective	3
HU 221	Technical Report Writing	3
SS	Upper Level Elective	3
Total Credits		**32**

FOURTH YEAR

Course	Title	Credits
	Upper Level Elective	3
AVMT 224	Propellers and Propeller Systems	3
AVMT 322	Reciprocating Engine Overhaul	3
AVMT 323	Turbine Engines and Systems	3
AVT 303	Pulse Systems	3
AVT 305	Avionics Laboratory	2
AVT 310	Aircraft Surveillance Systems	3
AVT 312	System Integration	3
AVT 315	Advanced Avionics Laboratory	2
AVT 320	Aircraft Communications Systems	3
AVT 325	Aircraft Navigation and Landing Systems	3
Total Credits		**31**
Total Degree Credits		**128**

Avionics/Flight

FIRST YEAR

Course	Title	Credits
AS 130	Aeronautics I	4
AS 131	Aeronautics I Flight Lab	1
AS 201	Meteorology I	3
CS 223	Computer Programming in C	3
DET 111	Engineering Graphics	2
EET 105	Direct and Alternating Current Fundamental Circuit Analysis	4
EET 106	Direct and Alternating Current Laboratory	1
HU	Lower Level Humanities	3
HU 122	English Composition and Literature	3
MA 111	College Mathematics for Aviation I	3
MA 112	College Mathematics for Aviation II	3
Total Credits		**31**

SECOND YEAR

Course	Title	Credits
AS 230	Aeronautics II	3
AS 231	Aeronautics II Flight Lab	2
AS 270	Aeronautics III	3
AS 271	Aeronautics III Flight Lab	1
EET 205	Microelectronics Fundamentals and Circuit Analysis	4

EET 206	Microelectronics Fundamental Laboratory	1
EET 210	Digital Circuits and Systems Analysis	4
EET 211	Digital Circuits Laboratory	1
EET 219	Pulse Components and Circuit Laboratory	1
EET 220	Pulse Components and Circuit Applications	2
HU 219	Speech	3
PS 103	Technical Physics I	3
PS 104	Technical Physics II	3
Total Credits		**31**

THIRD YEAR

Course	Title	Credits
AS 309	Basic Aerodynamics	3
AS 310	Aircraft Performance	3
AS 352	Meteorology II	3
AS 357	Flight Physiology	3
EET 215	Electronics Communications Systems	3
EET 216	Electronics Communication Laboratory	1
EET 226	Microprocessor Systems	3
EET 227	Microprocessor Laboratory	1
HU 221	Technical Report Writing	3
HU	Upper Level Elective	3
SS	Lower Level Elective	3
Total Credits		**29**

FOURTH YEAR

Course	Title	Credits
AS 408	Flight Safety	3
AS 417	Flight Training Methods and Curriculum Analysis **OR**	3
AS 340	Instructional Design in Aviation **OR**	
FA 495	Beech 1900 Flight Simulator **AND**	2
AS 420	Flight Technique Analysis	3
AVT 303	Pulse Systems	3
AVT 305	Avionics Laboratory	2
AVT 310	Aircraft Surveillance Systems	3
AVT 312	System Integration	3
AVT 315	Advanced Avionics Laboratory	2
AVT 320	Aircraft Communications Systems	3
AVT 325	Aircraft Navigation and Landing Systems	3
SS	Upper Level Elective	3
	Upper Level Elective	3
Total Credits		**31 or 33**
Total Degree Credits		**122/124**

*Embry-Riddle courses in the general education categories *Communication Theory and Skills, Humanities* and *Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Aviation Maintenance and Technology vertical outlines.

COMMUNICATION THEORY AND SKILLS:

HU: 122, 219, 221, 222.

HUMANITIES:

LOWER LEVEL: HU 140, 141, 145
UPPER LEVEL: HU 300, 305, 310, 320, 325, 330, 335, 341, 345, 399, 499.

SOCIAL SCIENCES:

LOWER LEVEL: EC 200, 210, 211 (EC 200 is not acceptable together with EC 210 or EC 211 or their equivalent),
PSY 220,
SS 110, 120, 204, 210,.

UPPER LEVEL: EC 310, 312, 315, 420, SS 302, 305, 310 320, 325, 331, 335, 340, 350, 352, 399, 499.

Avionics Engineering Technology Program

DEPARTMENT OF TECHNOLOGY

CHAIRMAN
P.S. Pierpont

PROGRAM COORDINATOR
P.S. Pierpont

Avionics Engineering Technology

Bachelor of Science

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

ADMISSIONS REQUIREMENTS

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

Students should be aware that several courses in each academic year may have prerequisites and/or co-requisites. Check the course description at the back of this catalog before registering for classes to assure requisite sequencing.

DEGREE REQUIREMENTS

The Bachelor of Science in Avionics Engineering Technology requires successful completion of 129 semester hours, as outlined in the following course list. A minimum cumulative grade point average of 2.00 is needed for all required engineering technology courses.

FRESHMAN YEAR

Course	Title	Credits
	Communication Theory and Skills*	3
	Lower Level Humanities*	3
CS 223	Scientific Programming in C	3
DET 111	Engineering Drawing	2
EET 105	Direct and Alternating Current Fundamentals and Circuit Analysis	4
EET 106	Direct and Alternating Current Laboratory	1
EET 205	Microelectronics Fundamentals and Circuit Analysis	4
EET 206	Microelectronics Laboratory	1
MA 241	Calculus and Analytical Geometry I	4
PS 101	Basic Chemistry	3
Total Credits		**28**

SOPHOMORE YEAR

Course	Title	Credits
	Communication Theory and Skills*	3
EET 210	Digital Circuit and Systems Analysis	4
EET 211	Digital Circuits Laboratory	1
EET 219	Pulse Circuits Laboratory	1
EET 220	Pulse Components and Circuit Applications	2
EET 226	Microprocessor Systems	3
EET 227	Microprocessor Systems Laboratory	1
MA 242	Calculus and Analytical Geometry II	4
MA 245	Applied Differential Equations	3
MET 201	Applied Statics and Dynamics	4
PS 211	Engineering Physics I	4
PS 212	Engineering Physics Laboratory I	1
PS 217	Engineering Physics II	4
PS 218	Engineering Physics Laboratory II	1
Total Credits		**36**

JUNIOR YEAR

Course	Title	Credits
	Communication Theory and Skills*	3
	Lower Level Social Science*	3
AET 311	Advanced Communications Systems Analysis w/Lab	5
AET 312	Applied Control Systems Analysis	2
AET 313	Microwave and Radar Systems Analysis	2
EET 301	Linear Systems Analysis	3
EET 302	Elements of Engineering Design and Laboratory Procedures	3
LET 304	Applied Reliability and Maintainability Engineering	3
MET 210	Applied Thermodynamics	3
MET 211	Applied Strength of Materials w/Lab	4
Total Credits		**31**

SENIOR YEAR

Course	Title	Credits
	Upper Level Humanities or Social Science*	3
ACET 301	Manufacturing Processes Materials and Testing w/Lab	4
AET 406	Avionics Analog Systems Design Considerations w/Lab	4
AET 407	Avionics Digital Systems Design Considerations w/Lab	4
AET 417	Avionics System Integration and Design	3
EC	Elective	3
LET 413	Integrated Aviation Logistics Support	3
SS 335	Human Factors	3
OPEN	Electives	6
Total Credits		**33**
TOTAL DEGREE CREDITS		**129**

Early participation in Intern or Cooperative Education positions is encouraged.

Avionics Technology Program

Associate in Science

DEGREE REQUIREMENTS

The Associate in Science degree in Avionics Technology requires successful completion of 69 semester credit hours as indicated in the following outline.

FRESHMAN YEAR

Course	Title	Credits
	Communication Theory and Skills*	3
	Lower Level Humanities*	3
	Lower Level Social Science*	3
CS 223	Scientific Programming in C	3
DET 111	Engineering Drawing	2
EET 105	Direct and Alternating Current Fundamentals Circuit Analysis	4
EET 106	Direct and Alternating Current Laboratory	1
EET 205	Microelectronics Fundamentals and Circuit Analysis	4
EET 206	Microelectronics Laboratory	1
EET 210	Digital Circuits and Systems Analysis	4
EET 211	Digital Circuits Laboratory	1
MA 145	College Algebra and Trigonometry	4
PS 103	Technical Physics	3
Total Credits		**36**

SOPHOMORE YEAR

Course	Title	Credits
	Communication Theory and Skills*	3
AVT 303	Pulse Systems	3
AVT 305	Avionics Laboratory	2
AVT 310	Aircraft Surveillance Systems	3
AVT 312	Systems Integration	3
AVT 315	Advanced Avionics Laboratory	2
AVT 320	Aircraft Communications Systems	3
AVT 325	Aircraft Navigation and Landing Systems	3
EET 215	Electronics Communications Systems	3
EET 216	Electronics Communications Laboratory	1
EET 219	Pulse Components and Circuit Laboratory	1
EET 220	Pulse Components and Circuit Applications	2
EET 226	Microprocessor Systems	3
EET 227	Microprocessor Laboratory	1
Total Credits		**33**
TOTAL DEGREE CREDITS		**69**

*Embry-Riddle courses in the general education categories *Communication Theory and Skills, Humanities and Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Avionics Engineering Technology and Avionics Technology vertical outlines.

COMMUNICATION THEORY AND SKILLS:

HU: 122, 219, 221, 222.

HUMANITIES:

LOWER LEVEL: HU 140, 141, 145
UPPER LEVEL: HU 300-420.

SOCIAL SCIENCES:

LOWER LEVEL: EC 200, 210, 211 (EC 200 is not acceptable together with EC 210 or EC 211 or their equivalent), SS 110, 120, 204, 210, PSY 220.

UPPER LEVEL: EC 310, 312, 315, 420, SS 302, 305, 310, 320, 325, 331, 335, 340, 350, 352, 399, 499.

Aviation Business and Management Programs

Aviation Business Administration
Aviation Maintenance Management
Management of Technical Operations
Aviation Management

DAYTONA BEACH

CHAIRMAN
A. Harraf

PROGRAM COORDINATOR
K. Wilson

EXTENDED CAMPUS

CHAIRMAN
V. Mitchell

PROGRAM COORDINATOR
V. Mitchell, Aviation Business Administration
T.M. Edwards, Aviation Maintenance Management
W.F. Herlehy, Management of Technical Operations

Embry-Riddle Aeronautical University, through its Business Administration department at the Daytona Beach campus, is accredited by:

- The Association of Collegiate Business Schools and Programs (ACBSP).
- The Council on Aviation (CAA) under CAA's Aviation Management option.

The department is working with the National Business Aircraft Association (NBAA), in cooperation with the University Aviation Association (UAA) to establish minimum management certification requirements.

The degree programs offered by the Business Administration department meet the needs of the continually changing environment of education and business. The curriculum is designed to provide graduates with knowledge and skills essential to their entry into the workplace and society. Emphasis is placed on communication and quantitative skills, global awareness, social responsibility and ethics, information technology, critical thinking and teamwork, business functional skills, aviation/aerospace industry familiarity and experience, as well as development of an attitude of continual and lifelong learning.

Each degree program offers a unique educational experience for the student and serves as the appropriate foundation for entry into a specific business arena. The curriculum is frequently enriched by colloquia, forums, visiting speakers, and other programs. Classroom work incorporates computer applications, group as well as individual projects and presentations, and provides a blend of theory and applications that prepares students for a variety of positions in the workplace. Cooperative education experiences are encouraged, with faculty assigned to assist students in co-op placement. In addition, elective courses allow students to broaden their general education or pursue specific interests in aviation/aerospace-related topics. Active guidance on the needs of aviation management is provided by the Business Advisory Committee. Department-sponsored tutoring and labs are also provided.

Students should be aware that several courses in each academic year may require prerequisite subject knowledge and/or class standing. Check the course descriptions at the back of this catalog before registering for classes to assure appropriate placement.

Aviation Business Administration

Bachelor of Science

Degree Requirements

The Bachelor of Science degree in Aviation Business Administration requires successful completion of a minimum of 120 credit hours, and is normally completed in eight semesters. Designed for students interested in obtaining a strong business foundation with emphasis on specific aviation applications, the student may select an Area of Concentration in Airport Management, Airline Management, Aviation Marketing Management, International Air Transportation Management, Flight Operations, or General Management. Students should declare their Area of Concentration at the beginning of their Junior year. Students who want to specialize in more than one Area of Concentration may transfer up to 6 credit hours toward the second area of concentration. Students who participate in the Cooperative Education program may substitute up to 6 credit hours, if approved, toward the specified courses required in their Area of Concentration. Not all Areas of Concentration may be offered at all campuses.

Students enrolled in the Army or Air Force ROTC program may substitute MY or AF courses for the open elective courses. The Aviation Business Administration degree is an FAA-approved program.

	Hours
GENERAL EDUCATION	36
PROGRAM SUPPORT	12
BUSINESS CORE	48
AREA OF CONCENTRATION	15
OPEN ELECTIVES	9
Total Degree Credits	120

GENERAL EDUCATION:

Communication Theory and Skills*	9
Mathematics*	6
Computer Science*	3
Physical and Life Sciences*- One course must include a lab. At Daytona Beach campus, one course must be either chemistry or physics.	6
Humanities lower level course*	3
Social Sciences lower level course* (one course must be economics)	6
Humanities/Social Sciences upper level course	3
Total Credits	**36**

PROGRAM SUPPORT:

AS 120	Principles of Aeronautical Science	3
EC 210	Microeconomics **OR**	
EC 211	Macroeconomics	3
MA 222	Business Statistics **OR**	
MA 211	Statistics with Business Applications	3
MA 320	Decision Math	3
Total Credits		**12**

BUSINESS CORE:

BA 201	Principles of Management	3
BA 210	Financial Accounting	3
BA 212	Advanced Financial Accounting	3
BA 221	Advanced Computer Based Systems	3
BA 311	Marketing	3
BA 312	Managerial Accounting	3
BA 314	Human Resource Management	3
BA 317	Organizational Behavior	3
BA 320	Business Information Systems	3
BA 325	Social Responsibility and Ethics	3
BA 332	Corporate Finance I	3
BA 335	International Business	3
BA 390	Business Law	3
BA 420	Management of Production and Operations	3
BA 436	Strategic Management	3
EC 315	Managerial Economics	3
Total Credits		**48**

AREAS OF CONCENTRATION:

International Air Transportation Management:		
EC 420	Economics of Air Transportation	3
BA 426	International Aviation Management.	3
BA 430	International Trade and Regulations	3
BA/EC	300-400 Business Electives	6
Total Credits		**15**
Airport Management:		
BA 408	Airport Management	3

BA 412	Airport Planning & Design Standards	3
BA 428	Airport Finance	3
BA/EC	300-400 Business Electives	6
Total Credits		**15**

Airline Management:		
EC 420	Economics of Air Transportation	3
BA 410	Management of Air Cargo	3
BA 415	Airline Management	3
BA/EC	300-400 Business Electives	6
Total Credits		**15**

Aviation Marketing Management:		
BA 405	General Aviation Marketing	3
BA 449	Strategic Marketing Management	3
BA 450	Airline/Airport Marketing	3
BA/EC	300-400 Business Electives	6
Total Credits		**15**

Flight Operations:		
AS 130	Aeronautics I	4
AS 131	Aeronautics I Flight Lab	2
AS 230	Aeronautics II	3
AS 231	Aeronautics II Flight Lab	2
AS 270	Aeronautics III	3
AS 271	Aeronautics III Flight Lab	1
Total Credits		**15**

Note: See University policies regarding flight training at other institutions

General Management:		
Select any five BA/EC 300-400 level courses		15
OPEN ELECTIVES		**9**
Total Degree Requirements		**120**

Courses Available as BA300-400 Business Electives:

EC 420	Economics of Air Transportation
BA 308	Public Administration
BA 331	Transportation Principles
BA 322	Aviation Insurance
BA 405	General Aviation Marketing
BA 408	Airport Management
BA 410	Management of Air Cargo
BA 412	Airport Planning & Design Standards
BA 415	Airline Management
BA 419	Maintenance Management
BA 421	Small Business Management
BA 424	Project Management
BA 426	International Aviation Management
BA 427	Management of Multicultural Workforce
BA 428	Airport Economics & Finance
BA 430	International Trade and Regulations
BA 450	Airline/Airport Marketing
BA 449	Strategic Marketing Management
CE/AM	Co-op or Internship

*Embry-Riddle courses in the general education categories of *Communication Theory and Skills, Mathematics, Computer Science, Physical and Life Sciences, Humanities,* and *Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Aviation Business Administration vertical outline. Other courses may also be used with permission of the Undergraduate Program Coordinator.

COMMUNICATION THEORY AND SKILLS:
HU 122, 219, 221, 222, 319, 351-420.

HUMANITIES:
LOWER LEVEL: HU 130-135, 140-146, 150-159, 250
UPPER LEVEL: HU 300-420

SOCIAL SCIENCES:
LOWER LEVEL:
EC 200-211,
SS 110-130, 204, 210,
PSY 220.
UPPER LEVEL: SS 302-360

MATHEMATICS:
MA111-112, MA 120-220, MA140-145, MA241-243

COMPUTER SCIENCE:
BA120,
CS101-114

PHYSICAL AND LIFE SCIENCES:
PS101-109, PS142, PS302, PS 304, PS308, PS309

Suggested Program of Study

FRESHMAN YEAR		
	Communication Theory and Skills*	3
	Lower level Humanities*	3
	Lower level Social Science*	3
	Computer Science*	3
	Mathematics*	6
	Physical and Life Sciences*	3
BA 201	Principles of Management	3
BA 221	Advanced Computer Based Systems	3
EC 211	Macroeconomics	3
		30

SOPHOMORE YEAR		
	Communication Theory and Skills*	6
	Physical and Life Sciences*	3
AS 120	Principles of Aeronautical Science	3
EC 210	Microeconomics	3
MA 222	Business Statistics	3
MA 320	Decision Mathematics	3
BA 210	Financial Accounting	3
BA 212	Advanced Financial Accounting	3
BA 320	Business Information Systems	3
		30

JUNIOR YEAR		
	Upper level Humanities or Social Sciences*	3

EC 315	Managerial Economics	3
BA 311	Marketing	3
BA 312	Managerial Accounting	3
BA 314	Human Resource Management	3
BA 317	Organizational Behavior	3
BA 332	Corporate Finance	3
BA 335	International Business	3
BA 390	Business Law	3
	Open Elective	3
		30

SENIOR YEAR

BA 325	Social Responsibility and Ethics	3
BA 420	Management of Production and Operations	3
BA 436	Strategic Management	3
	Concentration Courses	15
	Open Electives	6
		30
Total Degree Credits		**120**

Aviation Business Administration

Associate in Science

Degree Requirements

The Associate in Science degree in Aviation Business Administration requires successful completion of 60 credit hours and is normally completed in four semesters. The degree provides courses in general education and an introduction to business coupled with some aviation business applications.

	Hours
GENERAL EDUCATION	**30**
PROGRAM SUPPORT	**9**
BUSINESS CORE	**18**
OPEN ELECTIVE	**3**
Total Degree Requirements	**60**

GENERAL EDUCATION:

Communication Theory and Skills*	9
Computer Science*	3
Humanities - Lower level course*	3
Mathematics*	6
Physical and Life Sciences*	3
Social Sciences - Lower level course; one course must be economics*	6
Total Credits	**30**

PROGRAM SUPPORT:

AS 120	Principles of Aeronautical Science	3
EC 210	Microeconomics **OR**	
EC 211	Macroeconomics	3
MA 211	Statistics with Aviation Applications **OR**	3
MA 222	Business Statistics	3
Total Credits		**9**

BUSINESS CORE:

BA 201	Principles of Management	3
BA 210	Financial Accounting	3
BA 221	Advanced Computer Based Systems	3
BA/EC	200-300 Business Electives	9
Total Credits		**18**

OPEN ELECTIVE (The open elective should be a non-Business course.) **3**

Total Degree Requirements **60**

*Embry-Riddle courses in the general education categories of *Communication Theory and Skills, Mathematics, Computer Science, Physical and Life Sciences, Humanities,* and *Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Business Administration vertical outline. Other courses may also be used with permission of the Undergraduate Program Coordinator.

COMMUNICATION THEORY AND SKILLS:
HU 122, HU 219, HU 221, 222

MATHEMATICS:
MA 111-112, MA 120-220, MA 140-145,

COMPUTER SCIENCE:
BA 120,
CS 101-114

PHYSICAL AND LIFE SCIENCES:
PS 101-109, PS 142, PS 302, PS 304, PS 308, PS 309

HUMANITIES - LOWER LEVEL COURSE:
HU 130-135, HU 140-146, HU 150-159, HU 250

SOCIAL SCIENCES - LOWER LEVEL COURSE:
EC 200-211,
PSY 220
SS 110-130, SS 204, SS 210,

Suggested Program of Study

FRESHMAN YEAR

Communication Theory and Skills*	3
Lower level Humanities*	3
Lower level Social Science*	3
Computer Science*	3

	Mathematics*	6
	Physical and Life Sciences*	3
AS 120	Principles of Aeronautical Science	3
BA 201	Principles of Management	3
EC 211	Macroeconomics	3
		30

SOPHOMORE YEAR

	Communication Theory and Skills*	6
BA 210	Financial Accounting	3
BA 221	Advanced Computer Based Systems	3
EC 210	Microeconomics	3
MA 222	Business Statistics	3
	Business Electives	9
	Open Elective	3
		30

Total Degree Credits 60

Aviation Maintenance Management

Bachelor of Science

DEGREE REQUIREMENTS:

The Bachelor of Science in Aviation Maintenance Management requires successful completion of both Department of Technology (AMT or Avionics) course work and/or FAA A&P Certificate as well as academic courses. The total degree requirements are 126-140 and is normally completed in eight to ten semesters. This degree is designed for students who earn or already possess certification or licenses in airframe and/or powerplant, yet who also wish to develop an expertise in business. Cooperative Education credits are in excess of degree requirements. Students should note that different business core courses are required in AMT compared with Avionics. As a result, students should consult their academic advisor or Undergraduate Program Chair if clarification is needed. The Aviation Maintenance Management degree is an FAA-approved program.

DEPT. OF TECHNOLOGY COURSE WORK or A&P CERTIFICATE	**36-48**
GENERAL EDUCATION	**36**
PROGRAM SUPPORT (AMT only)	**6**
BUSINESS CORE	**48**
Total Degree Requirements	**126-138**

DEPT. OF TECHNOLOGY COURSEWORK:

Type 147 AMT: (available at Daytona Beach only)

Aviation Maintenance Technology courses (see page 98)	48

OR

Type 65 AMT: (available at Extended Campus locations)

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
	Electives: AMT, AS, AV, CS, EL, FA, BA	
	OR AMT 275 and AMT 285	15
	Total AMT Credits	36

OR

Airframe and Powerplant Maintenance Certificate:

Credits granted to students who possess the FAA A&P Maintenance Certificate	36

OR

Avionics:

AVT 303	Pulse Systems	3
AVT 305	Avionics Laboratory	2
AVT 310	Surveillance Systems	3
AVT 311	Long Range Navigation Systems	3
AVT 312	Systems Integration	3
AVT 315	Advanced Avionics Laboratory	2
AVT 320	Aircraft Communication Systems	3
AVT 325	Aircraft Navigation & Landing Systems	3
EET 105	Direct & Alternating Current Fundamentals and Circuit Analysis	4
EET 106	Direct & Alternating Current Laboratory	1
DET 111	Engineering Drawing	2
EET 205	Microelectronics Fundamentals and Circuit Analysis	4
EET 206	Microelectronics Laboratory	1
EET 210	Digital Circuits and Systems Analysis	4
EET 211	Digital Circuits Laboratory	1
EET 215	Electronics Communications Systems	3
EET 216	Electronics Systems Laboratory	1
EET 219	Pulse Circuits Laboratory	1
EET 220	Pulse Components and Circuit Applications	2
EET 226	Microprocessor Systems	3
EET 227	Microprocessor Laboratory	1
Total Credits		**50**

GENERAL EDUCATION:

Communication Theory & Skills*	9
Mathematics*	6
Computer Science*	3

Physical and Life Sciences* - One course must include a lab. At Daytona Beach, one course must be either chemistry or physics.	6
Humanities Lower level course*	3
Social Sciences Lower level courses*; one course must be economics	6
Humanities/Social Sciences* - Upper level course	3
Total Credits	**36**

PROGRAM SUPPORT: (AMT only)

MA 222	Business Statistics **OR**	
MA 211	Statistics with Aviation Applications	3
MA 320	Decision Math	3
Total Credits		6

BUSINESS CORE:

BA 201	Principles of Management	3
BA 210	Financial Accounting	3
BA 212	Advanced Financial Accounting	3
BA 221••	Advanced Computer Based Systems	3
BA 311	Marketing	3
BA 312	Managerial Accounting	3
BA 314	Human Resource Management **OR**	3
BA 317	Organizational Behavior	3
BA 320••	Business Information Systems	3
BA 324	Aviation Labor Relations	3
BA 325	Social Responsibility and Ethics	3
BA 332	Corporate Finance	3
BA 335•	International Business	3
BA 390••	Business Law	3
BA 419	Maintenance Management	3
BA 420	Management of Production and Operations	3
BA 422	Life Cycle Analysis for Systems and Programs	3
BA 424•	Project Management	3
EC 315••	Managerial Economics	3
Total Credits		**42-48**

•Avionics only

••AMT only

Total Degree Requirements **126-150**

*Embry-Riddle courses in the general education categories of *Communication Theory and Skills, Mathematics, Computer Science, Physical and Life Sciences, Humanities,* and *Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Aviation Maintenance Management vertical outline. Other courses may also be used with permission of the Undergraduate Program Chair.

COMMUNICATION THEORY AND SKILLS:

HU 122, HU 219, HU 221, 222, HU 319, HU 351-420

MATHEMATICS:

MA 111-112, MA 120-220, MA 140-145, MA 241-243

COMPUTER SCIENCE:

BA 120, CS 101-114

PHYSICAL AND LIFE SCIENCES:

PS 101-109, PS 142, PS 302, PS 304, PS 308, PS 309

HUMANITIES:

- LOWER LEVEL:

HU 130-135, HU 140-146, HU 150-159, HU 250

UPPER LEVEL: HU 300-420,

SOCIAL SCIENCES:

- LOWER LEVEL:

SS 110-130, SS 204, SS 210,, EC 200-211, PSY 220

UPPER LEVEL: SS 302-360

Required For Avionics only:

Mathematics:	MA 241 and MA 222	7
Computer Science:	CS 223	3
Physical Science:	PS 101 and PS 103	6

Suggested Program of Study

Courses sponsored by the Department of Technology (AMT or Avionics courses) may be taken prior to taking academic courses or as part of the normal semester's academic program of study. The Department of Technology Undergraduate Program Chair and/or advisor will assist the student in determining the best way to arrange the course schedule. Academic requirements are suggested below:

AMT:

Dept. of Technology-AMT Coursework		36-48
FRESHMAN YEAR		
	Communication Theory and Skills*	3
	Lower level Humanities*	3
	Lower level Social Science*	3
	Computer Science*	3
	Mathematics*	6
	Physical and Life Sciences*	3
BA 201	Principles of Management	3
BA 221	Advanced Computer Based Systems	3
EC 210	Microeconomics	3
Total Credits		**30**
SOPHOMORE YEAR		
	Communication Theory and Skills*	6
	Physical and Life Sciences*	3
BA 210	Financial Accounting	3

BA 212	Advanced Financial Accounting	3
BA 314	Human Resource Management **OR**	
BA 317	Organizational Behavior	3
BA 320	Business Information Systems	3
MA 222	Business Statistics	3
MA 320	Decision Mathematics	3
Total Credits		27
JUNIOR YEAR		
	Upper level Humanities or Social Sciences*	3
BA 311	Marketing	3
BA 312	Managerial Accounting	3
BA 324	Aviation Labor Relations	3
BA 325	Social Responsibility and Ethics	3
BA 332	Corporate Finance	3
BA 390	Business Law	3
EC 315	Managerial Economics	3
Total Credits		24
SENIOR YEAR		
BA 419	Maintenance Management	3
BA 420	Management of Production and Operations	3
BA 422	Life Cycle Analysis for Systems	3
Total Credits		9
Total Degree Requirements		126-138

AVIONICS:

Dept. of Technology-Avionics Coursework		50
FRESHMAN YEAR		
	Communication Theory and Skills*	3
	Lower level Humanities*	3
	Lower level Social Science*	3
	Computer Science*	3
	Mathematics*	7
	Physical and Life Sciences*	3
BA 201	Principles of Management	3
EC 210	Microeconomics	3
Total Credits		28
SOPHOMORE YEAR		
	Communication Theory and Skills*	6
	Physical and Life Sciences*	3
BA 210	Financial Accounting	3
BA 212	Advanced Financial Accounting	3
Total Credits		15
JUNIOR YEAR		
	Upper level Humanities or Social Sciences*	3
BA 311	Marketing	3
BA 312	Managerial Accounting	3
BA 314	Human Resource Management **OR**	
BA 317	Organizational Behavior	3
BA 324	Aviation Labor Relations	3
BA 325	Social Responsibility and Ethics	3
BA 332	Corporate Finance	3
BA 335	International Business	3
Total Credits		24
SENIOR YEAR		
BA 419	Maintenance Management	3
BA 420	Management of Production and Operations	3
BA 422	Life Cycle Analysis for Systems	3
BA 424	Project Management	3
		12
Total Degree Requirements		129

Management of Technical Operations

Bachelor of Science

DEGREE REQUIREMENTS:

The Bachelor of Science in Management of Technical Operations requires successful completion of 120 credit hours. Designed for the student who possesses some technical expertise either through previous course work, licensing or experience, this degree provides the student a flexible yet solid business program. The degree allows a minimum of 15 semester hours earned in an area of technical operations or through CLEP, DANTES, or military or industrial education programs recognized by the American Council on Education. In addition, credit may be granted for aviation-related licenses such as A&P or flight ratings as well as equivalent supervisory experience. Supervisory experience, however, must be no less than 5 years in a mid-level position.

TECHNICAL SPECIALTY	**15**
GENERAL EDUCATION	**36**
PROGRAM SUPPORT	**6**
BUSINESS CORE	**33**
TECHNICAL MANAGEMENT CORE♦	**12**
SPECIFIED ELECTIVES	**9**
OPEN ELECTIVES	**9**
Total Degree Requirements	**120**

♦Students at Extended Campus may substitute additional specified elective courses and/or open electives courses.

TECHNICAL SPECIALTY: 15

GENERAL EDUCATION:

Communication Theory & Skills*	9
Mathematics*	6

Computer Science*		3
Physical and Life Sciences* -		
One course must include a lab.		6
At Daytona Beach, one course must be either chemistry or physics.		
Humanities* - Lower level course		3
Social Sciences* - Lower level courses;		
one course must be economics		6
Humanities/Social Science* - Upper level course		3
Total Credits		**36**

PROGRAM SUPPORT:

EC 210	Microeconomics **OR**	
EC 211	Macroeconomics	3
MA 222	Business Statistics **OR**	
MA 211	Statistics with Aviation Applications	3
Total Credits		**6**

BUSINESS CORE:

BA 201	Principles of Management	3
BA 210	Financial Accounting	3
BA 221	Advanced Computer Based Systems	3
BA 311	Marketing	3
BA 312	Managerial Accounting	3
BA 314	Human Resource Management	3
BA 317	Organizational Behavior	3
BA 320	Business Information Systems	3
BA 325	Social Responsibility and Ethics in Management	3
BA 335	International Business	3
BA 390	Business Law	3
Total Credits		**33**

TECHNICAL MANAGEMENT CORE:♦

BA 406	Strategic Management of Tech. Op.	3
BA 419	Aviation Maintenance Management	3
BA 420	The Management of Production and Operations	3
BA 424	Project Management in Aviation Operations	3
Total Credits		**12**

SPECIFIED ELECTIVES:	9
OPEN ELECTIVES:	9
Total Degree Requirements	**120**

♦Students at Extended Campus may substitute additional specified elective courses and/or open elective courses.

Courses Available as Specified Electives:
300-400 level courses in the following disciplines:
Business Administration
Economics
Aeronautical Science
Safety
Engineering
Engineering Technology
Flight

OR

Approved Cooperative Education Experience or Internship

Note: Prerequisite courses, knowledge or class standing may be required for taking upper level courses in some disciplines. Check the course descriptions at the back of this catalog before registering for classes to assure appropriate placement.

*Embry-Riddle courses in the general education categories of *Communication Theory and Skills, Mathematics, Computer Science, Physical and Life Sciences, Humanities,* and *Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Management of Technical Operations vertical outline. Other courses may also be used with permission of the Undergraduate Program Coordinator.

COMMUNICATION THEORY AND SKILLS:
HU 122, HU 219, HU 221, 222, HU 319, HU 351-420

MATHEMATICS:
MA 111-112, MA 120-220, MA 140-145, MA 241-243

COMPUTER SCIENCE:
BA 120, CS 101-114

PHYSICAL AND LIFE SCIENCES:
PS 101-109, PS 142, PS 302, PS 304, PS 308, PS 309

HUMANITIES - LOWER LEVEL COURSE:
HU 130-135, HU 140-146, HU 150-159, HU 250

SOCIAL SCIENCES - LOWER LEVEL COURSE:
PSY 220, SS 110-130, SS 204, SS 210, EC 200-211

HUMANITIES/SOCIAL SCIENCES - UPPER LEVEL COURSE:
HU 300-420, SS 302-360

Suggested Program of Study

TECHNICAL SPECIALTY		**15**
FRESHMAN YEAR		
	Communication Theory and Skills*	3
	Lower level Humanities*	3
	Lower level Social Science*	3
	Computer Science*	3
	Mathematics*	6
	Physical and Life Sciences*	3
BA 201	Principles of Management	3
BA 221	Advanced Computer Based Systems	3
EC 211	Macroeconomics	3
Total Credits		**30**

SOPHOMORE YEAR		
	Communication Theory and Skills*	6
	Physical and Life Sciences*	3
EC 210	Microeconomics	3
MA 222	Business Statistics	3
BA 210	Financial Accounting	3
BA 320	Business Information Systems	3
	Open Electives	3
Total Credits		24
JUNIOR YEAR		
	Upper level Humanities or Social Sciences*	3
BA 311	Marketing	3
BA 312	Managerial Accounting	3
BA 314	Human Resource Management	3
BA 317	Organizational Behavior	3
BA 335	International Business	3
BA 390	Business Law	3
	Specified Electives	3
	Open Elective	3
Total Credits		27
SENIOR YEAR		
BA 325	Social Responsibility and Ethics	3
BA 406*	Strategic Management	3
BA 419	Maintenance Management	3
BA 420	Management of Production and Operations	3
BA 424	Project Management	3
	Specified Electives	6
	Open Electives	3
Total Credits		24
Total Degree Requirements		120

*A senior level experience emphasizing strategic management and program synthesis may be accomplished by the successful completion of BA406, BA436, or Senior Thesis as determined by the campus MTO Degree Program Coordinator.

Aviation Management

Bachelor of Science

Degree Requirements:

The Bachelor of Science degree in Aviation Management requires successful completion of a minimum of 120 credit hours, and is normally completed in four semesters, pending total credits transferred into the University. This degree is designed to accommodate the transfer student who has either completed an Associate Degree at an accredited regional college or university (generally 60 semester credit hours) or a minimum of 60 credit hours which must be comprised of courses from the following broad areas: Communication Skills, Mathematics, Physical Sciences, Computers, Business, Economics, Management, Humanities, and/or Social Sciences. In the business core courses, prerequisites not previously met may be taken from open elective credit hours. The curriculum for the degree provides a sound business foundation in all disciplines of business, enhanced by aviation business applications. Courses include accounting and finance, law, ethics, human resources, production and strategic management.

ASSOCIATE DEGREE CREDIT•• or MINIMUM OF 60 CREDIT HOURS IN COURSE WORK	60
BUSINESS CORE	36
AVIATION MANAGEMENT CORE	15
OPEN ELECTIVES	9
Total Degree Requirements	120

•• Assumes University general education requirements have been met and no further credit hours are required in this area.

ASSOCIATE DEGREE CREDIT 60

or

Minimum of 60 credit hours in course work which must be comprised of courses from the following broad areas: Communication Skills, Mathematics, Physical Sciences, Computers, Business, Economics, Management, Humanities, and/or Social Sciences.

BUSINESS CORE		
BA 311	Marketing	3
BA 312	Managerial Accounting	3
BA 314	Human Resource Management	3
BA 317	Organizational Behavior	3
BA 320	Business Information Systems	3
BA 325	Social Responsibility and Ethics	3
BA 332	Corporate Finance	3
BA 335	International Business	3
BA 390	Business Law	3
BA 406	Strategic Management of Technical Operations	3
BA 420	Management of Production and Operations	3
EC 315	Managerial Economics	3
Total Credits		36

AVIATION MANAGEMENT CORE	15
Five BA300-400 business elective courses	
OPEN ELECTIVES	9
Total Degree Requirements	**120**

Courses Available as BA300-400 Business Electives:

BA 322	Aviation Insurance
BA 405	General Aviation Marketing
BA 408	Airport Management
BA 410	Management of Air Cargo
BA 415	Airline Management
BA 419	Aviation Maintenance Management
BA 421	Small Business Management
BA 424	Project Management
BA 426	International Aviation Management
BA 427	Management of Multicultural Workforce
BA 450	Airline/Airport Marketing
CE/AM	Coop or Internship
EC 420	Economics of Air Transportation

Suggested Program of Study

Associate Degree or Transfer Credits		**60**
JUNIOR YEAR		
BA 312	Managerial Accounting	3
BA 314	Human Resource Management	3
BA 317	Organizational Behavior	3
BA 320	Business Information Systems	3
BA 390	Business Law	3
EC 315	Managerial Economics	3
	Business Electives	6
	Open Electives	6
Total Credits		**30**
SENIOR YEAR		
BA 311	Marketing	3
BA 325	Social Responsibility and Ethics	3
BA 332	Corporate Finance	3
BA 335	International Business	3
BA 406	Strategic Management of Technical Operations	3
BA 420	Management of Production and Operations	3
	Business Electives	9
	Open Electives	3
Total Credits		**30**
Total Degree Requirements		**120**

Civil Engineering Program

PROGRAM COORDINATOR
Mark D. Fugler, Ph.D, P.E.

Civil Engineering

Bachelor of Science

Embry-Riddle's Civil Engineering Program is uniquely designed to address the challenges the civil engineer will face when applying their problem-solving skills in the aerospace and aviation transportation arena. The demand for civil engineers trained in this area is strong and rapidly growing. Ever-expanding air travel demands have driven the need for new and improved air transportation facilities. Space exploration initiatives and expanding launch schedules worldwide have fueled a need for civil engineers in the aerospace industry. Embry-Riddle's Civil Engineering Program's curriculum is designed to prepare the student to step into these fields, or any of the myriad of other related civil engineering disciplines, and make an immediate and positive contribution. Civil Engineering students will learn about transportation and airport design, structural engineering, hydraulics and hydrology, civil engineering materials, geotechnical and environmental engineering, and many other aspects of civil engineering fields - each from an aviation/aerospace perspective.

ADMISSION REQUIREMENTS

To enter this program, students should have demonstrated 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 who wish to strengthen their background in mathematics and physical science should consult the program chair for guidance before enrolling in the prescribed courses.

Students should be aware that several courses in each academic year may have prerequisites and/or co-requisites. Check the course descriptions at the back of this catalog before registering for classes to assure requisite sequencing.

DEGREE REQUIREMENTS

The bachelor of science in Civil Engineering program requires successful completion of a minimum of 131 semester hours. The program may be completed in eight regular semesters, assuming appropriate background and full-time enrollment. A minimum cumulative grade point average of 2.00 is needed for all required CIV, AE, EE, EGR and ES courses, including engineering electives.

FIRST SEMESTER

Course	Title	Credits
	Communication Theory and Skills*	3
	Social Science Lower Level*	3
CIV 101	Topics in Civil Engineering	2
MA 241	Calculus and Analytical Geometry I	4
PS 101	Basic Chemistry	3
Total Credits		**15**

SECOND SEMESTER

Course	Title	Credits
	Humanities Lower Level*	3
CIV 140	Engineering Measurements (w/Lab)	2
EGR 120	Graphical Communications	2
MA 242	Calculus and Analytical Geometry II	4
PS 215	Physics I	3
PS 216	Physics Laboratory I	1
Total Credits		**15**

THIRD SEMESTER

Course	Title	Credits
	Communication Theory and Skills*	3
CIV 310	Intermodal Transportation Engineering	3
ES 201	Statics	3

MA 243	Calculus and Analytical Geometry III	4
PS 208	Physics II	3
Total Credits		**16**

FOURTH SEMESTER

Course	Title	
	Communication Theory and Skills*	3
ES 204	Dynamics	3
ES 206	Fluid Mechanics	3
ES 202	Solid Mechanics	3
MA 345	Differential Equations and Matrix Methods	4
Total Credits		**16**

FIFTH SEMESTER

Course	Title	Credits
	Social Science Lower Level*	3
CIV 307	Civil Engineering Materials w/Lab	4
CIV 316	Hydraulics	3
ES 305	Thermodynamics	3
	Elective (Engineering)	3
	Elective (Math/Physical Science)	3
Total Credits		**19**

SIXTH SEMESTER

Course	Title	Credits
	Humanities/Social Science Upper Level*	1
	Electives (Engineering)	7
CIV 304	Structural Analysis	3
CIV 320	Soil and Foundation Engineering	3
EE 306	Introduction to Electrical Systems	2
Total Credits		**16**

SEVENTH SEMESTER

Course	Title	Credits
	Humanities/Social Science Upper Level*	3
BA	Management Elective Upper Level	3
MA/PS	Math/Physical Science Elective (200-400)	3
	Electives (Engineering)	9
Total Credits		**18**

EIGHTH SEMESTER

Course	Title	Credits
	Humanities/Social Science Upper Level*	3
CIV 490	The Civil Engineering Profession	1
CIV 460	Senior Design Project	3
	Electives (Engineering)	9
Total Credits		**16**
TOTAL DEGREE CREDITS		**131**

*Embry-Riddle courses in the general education categories *Communication Theory and Skills, Humanities and Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Civil Engineering vertical outline. Course substitutions may be made upon approval of the program chairman.

COMMUNICATION THEORY AND SKILLS:

HU 122, 219, 221, 222, 315, 319, 351, 355, 360, 361, 362, 410, 420.

HUMANITIES:

LOWER LEVEL: HU 130**, 135**, 140-145, 150**, 151**, 153**, 155**, 157**, 159**, 250.
**Must not be the student's native language
UPPER LEVEL: HU 300, 305, 310, 320, 325, 330, 335, 341, 345, 399, 499.

SOCIAL SCIENCES:

LOWER LEVEL: EC 200, 210, 211 (EC 200 is not acceptable together with EC 210 or EC 211 or their equivalent)
PSY 220,
SS 110, 120, 204, 210.
UPPER LEVEL: EC 310, 312, 315, 420, SS 302, 305, 310, 320, 325, 331, 335, 340, 350, 352, 399, 499.

ELECTIVES: CIVIL ENGINEERING

Students must choose a minimum of 13 credit hours from Group 2.

ENGINEERING TOPICS ELECTIVES (GROUP 1)

Course	Title	Credits
AE 350	Project Engineering	3
AE 425	Aircraft Acoustics and Noise Control	3
CIV 315	Airport Appurtenances	2
CIV 330	Computer Applications in Transportation	2
CIV 340	Construction Engineering	3
CIV 355	Social Factors in Engineering	2
CIV 380	Federal Aviation Regulations/ Environmental Impact	3
CIV 199, 299, 399	Directed Topics in Civil Engineering	1-3
CIV 405	Atmospheric Turbulence and Dispersion	2

ENGINEERING DESIGN ELECTIVES (GROUP 2)

Course	Title	Credits
CIV 321	Hydrology and Stormwater Management	3
CIV 323	Project Estimating	3
CIV 407	Design of Civil Engineering Structures	3
CIV 408	Design of Portland Cement Mixtures	3
CIV 420	Foundation Analysis and Design	3
CIV 426	Architectural Acoustics	3
CIV 445	Airport Pavement Design	3
CIV 446	Pavement Performance Evaluation	3
CIV 447	Airport Design	3
CIV 499	Directed Design Project	1-3

Computer Engineering Program

DAYTONA BEACH

CHAIRMAN
I. Hirmanpour

PROGRAM COORDINATOR
A. Kornecki

PRESCOTT CAMPUS

CHAIRMAN
R. Bellem

PROGRAM CHAIRMAN
F. Whetten

Computer Engineering

Bachelor of Science

The bi-located program offering the Bachelor of Science degree in Computer Engineering provides the student with the opportunity to acquire a broad background in computing machinery: programming languages, circuit theory, computer design, telecommunication systems, embedded control systems, real-time systems, and software engineering. The student also gains specialization in avionics appropriate for entry-level engineering positions in the aerospace industry. The curriculum includes courses in general education, computer science, software engineering, electrical engineering, and the capstone sequence of senior design classes.

This added emphasis in avionics, real-time embedded control systems, and hardware/software interfaces places the ERAU Computer Engineering program in a unique position to increase employment opportunities after graduation. In addition, the distributed nature of the program (between the campuses of ERAU) is designed to prepare students to work as part of a distributed team on the development of complex systems including both software and hardware. It allows the student opportunities to build expertise with remote computing, workgroup software, and telecommunications systems. Many of the upper level computer engineering classes shall be delivered in a distance education paradigm from either the Daytona Beach (DB) or Prescott (PR) campus (see the vertical outline for the bi-located courses).

DEGREE REQUIREMENTS

The Bachelor of Science in Computer Engineering can be earned in eight semesters assuming appropriate background and full-time enrollment. Successful completion of a minimum of 128 credit hours is required.

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 and Analytical Geometry I. They should have

demonstrated proficiency in algebra and trigonometry. Students can prepare themselves for this program, if required, by taking College Algebra and/or Trigonometry at Embry-Riddle prior to taking MA 241, Calculus and Analytical Geometry I.

Student should be aware that several courses in each academic year may have prerequisites and/or co-requisites. Check the course descriptions at the back of this catalog before registering for classes to assure requisite sequencing

FRESHMAN YEAR

Course	Title	Credits
	Communication Theory and Skills*	3
	Lower Level Social Sciences*	3
	Lower Level Humanities*	3
CEC 100•	Introduction to Computer Engineering	2
CS 125	Computer Science I	4
CS 222	Discrete Math	3
CS 225	Computer Science II	4
MA 241	Calculus and Analytical Geometry I	4
MA 242	Calculus and Analytical Geometry II	4
HU/SS BA	General Education Requirement	3
Total Credits		**33**

SOPHOMORE YEAR

Course	Title	Credits
CEC 220	Digital Circuit Design	3
CEC 222	Digital Circuit Design Laboratory	1
CEC 320	Microprocessor Systems	3
CEC 322	Microprocessor Systems Laboratory	1
CS 344	C and UNIX	3
HU 219	Speech	3
HU 221	Technical Report Writing	3
MA 345	Differential Equations and Matrix Methods	4
PS 211	Engineering Physics I	4
PS 212	Engineering Physics I with Lab	1
PS 217	Engineering Physics II	4
PS 218	Engineering Physics II with Lab	1
Total Credits		**31**

JUNIOR YEAR

Course	Title	Credits
	Upper Level Humanities or Social Sciences*	3
	Upper Level Humanities*	3
CEC 310•	Distance Technology	3
CS 450•	Real Time Systems	3
EE 223	Linear Circuit Analysis	3
EE 224	Electrical Engineering Laboratory I	1
EE 300•	Linear Circuits Analysis	3
EE 301	Electrical Engineering Laboratory II	1
MA 412	Probability and Statistics	3
SE 300	Software Engineering	4
	Technical Elective	3
	Open Elective	3
Total Credits		**33**

SENIOR YEAR

Course	Title	Credits
CEC 420•	Computer Systems Design I	3
CEC 421•	Computer Systems Design II	3
CS 470•	Computer Architecture	3
EE 303•	Signals and Filters	3
EE 401•	Control Systems Analysis and Design	3
EE 402	Control Systems Laboratory	1
	Technical Electives	9
	Open Electives	6
Total Credits		**31**
Total Degree Credits		**128**

•Courses may be bi-located.

*Embry-Riddle courses in the general education categories *Communication Theory and Skills, Humanities,* and *Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Computer Engineering vertical outline.

COMMUNICATION THEORY AND SKILLS:
HU 122, 143, 219, 221, 222, 315, 319, 351, 355, 360, 361, 362, 410, 420.

HUMANITIES:
LOWER LEVEL: HU 140, 141, 142, 144, 250.
UPPER LEVEL: HU 300, 305, 310, 320, 325, 330, 335, 341, 345, 399, 499.

SOCIAL SCIENCES:
LOWER LEVEL: EC 200, 210, 211 (EC 200 is not acceptable together with EC 210 or EC 211 or their equivalent),
PSY 220
SS 110, 120, 204, 210,.
UPPER LEVEL: EC 310, 312, 315, 420, SS 302, 305, 310, 320, 325, 331, 335, 340, 350, 352, 360, 399, 499.

Computer Science Program

CHAIRMAN
I. Hirmanpour

Computer Science

Bachelor of Science

The curriculum for the Bachelor of Science degree in Computer Science includes courses in software development, computer organization, database systems, graphics, simulation, artificial intelligence, real-time systems, and software engineering. The program provides a blend of theory and applications that prepares students for a variety of computer science positions in scientific and business fields, and lays the foundation for graduate studies in computer science and software engineering. Upper-level courses involve students in team projects related to realistic aviation/aerospace applications. The elective courses in the program let students broaden their general education or pursue specific interests in aviation or aerospace technology.

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 have not 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 for this program by taking MA 140 College Algebra and MA 142 Trigonometry prior to taking MA 241. For those students who have not taken physics in high school, it is recommended that PS 103 Technical Physics I be taken prior to PS 211. For those students who have not taken a course in computer programming in high school, it is strongly recommended that CS 118, Fundamentals of Computer Programming, be taken before CS 125.

The Computer Science program is designed to adhere to the ACM/IEEE Curriculum 91. The program is designed to prepare students to work as part of a team on the development of software systems. Software engineering concepts are integrated through the curriculum. The curriculum includes courses in general education, aviation foundation, and computing. The latter is divided into computing fundamentals, advanced concepts, applied computing, and senior design.

Students should be aware that several courses in each academic year may have prerequisites and/or co-requisites. Check the course descriptions at the back of this catalog before registering for classes to assure requisite sequencing.

FRESHMAN YEAR

Course	Title	Credits
	Communication Theory and Skills*	3
	Lower Level Humanities*	3
	Lower Level Social Sciences*	3
AS 120	Principles of Aeronautical Science	3
CS 100	Introduction to Computing	2
CS 125	Computer Science I	4
CS 222	Introduction to Discrete Structures	3
CS 225	Computer Science II	4
MA 241	Calculus and Analytical Geometry I	4
MA 242	Calculus and Analytical Geometry II	4
Total Credits		**33**

SOPHOMORE YEAR

Course	Title	Credits
	Communication Theory and Skills*	3
	Lower Level Humanities*	3
CEC 220	Digital Circuit Design	3
CEC 222	Digital Circuit Design Laboratory	1
CEC 320	Microprocessor Systems	3
CEC 322	Microprocessor Systems Laboratory	1
CS 315	Data Structures and Algorithms	3
MA 245	Applied Differential Equations	3
PS 211	Engineering Physics I	4
PS 212	Engineering Physics Laboratory I	1
PS 217	Engineering Physics II	4
PS 218	Engineering Physics Laboratory II	1
Total Credits		**30**

JUNIOR YEAR

Course	Title	Credits
	Communication Theory and Skills*	3
	Lower Level Social Sciences*	3
	Upper Level Humanities or Social Science*	3
CS 317	Files and Database Systems	3
CS 321	Advanced Programming Practices	2
CS 332	Organization of Programming Languages	3
CS 420	Operating Systems	3
SE 300	Software Engineering	4
SE 310	Analysis and Design of Software Systems	3
MA 412	Probability and Statistics	3
OPEN	Elective	3
Total Credits		**33**

SENIOR YEAR

Course	Title	Credits
	Upper Level Humanities or Social Sciences*	6
AS/AT	Elective	6
CS/SE/CEC	Elective (300/400 Level)	6
CS 450	Real-Time Systems	3
CS 470	Computer Architecture	3
SE 450	Software Team Project	3
OPEN	Elective	3
Total Credits		**30**
Total Degree Credits		**126**

*Embry-Riddle courses in the general education categories *Communication Theory and Skills, Humanities,* and *Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Computer Science vertical outline.

COMMUNICATION THEORY AND SKILLS:
HU 122, 219, 221, 222.

HUMANITIES:
LOWER LEVEL: HU 140, 141, 142, 144, 145, 250.
UPPER LEVEL: HU 300, 305, 310, 320, 325, 330, 335, 341, 345.

SOCIAL SCIENCES:
LOWER LEVEL: EC 200, 210, 211 (EC 200 is not acceptable together with EC 210 or EC 211 or their equivalent),
PSY 220,
SS 110, 120, 204, 210,.
UPPER LEVEL: EC 310, 312, 315, 420, SS 302, 305, 310, 320, 325, 331, 335, 340, 350, 352, 360.

Engineering Physics Program

DEPARTMENT OF PHYSICAL SCIENCES

CHAIRMAN
J.J. Olivero

PROGRAM COORDINATOR
H.E. Palmer

Engineering Physics

Bachelor of Science

The Engineering Physics degree program is administered by the Physical Sciences Department.

The Bachelor of Science in Engineering Physics, offered only on the Daytona Beach campus, is designed to produce graduates who can operate at the interface between scientists and design engineers. Combining the skills of engineering and applied physics, this program focuses on the scientific challenges and planning associated with the operations and research related to the near-earth space environment. Because of the strong emphasis on fundamentals, the Engineering Physics program provides not only an excellent stepping stone into the space program, but also the flexibility to enter a broad variety of engineering applications and graduate programs.

ADMISSION REQUIREMENTS

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

DEGREE REQUIREMENTS

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

Students should be aware that several courses in each academic year may have prerequisites and/or co-requisites. Check the course descriptions at the back of this catalog before registering for classes to assure requisite sequencing.

FRESHMAN YEAR

Course	Title	Credits
	Communication Theory and Skills*	6
	Lower Level Humanities*	3
	Lower Level Social Science*	3
DET 111	Engineering Drawing	2
MA 241	Calculus and Analytical Geometry I	4
MA 242	Calculus and Analytical Geometry II	4
PS 109	Current Topics in Space Sciences	1
PS 140	Chemistry for Engineers	4
PS 141	Chemistry for Engineers Laboratory	1
PS 215	Physics I	3
PS 216	Physics Laboratory I	1
Total Credits		32

SOPHOMORE YEAR

Course	Title	Credits
	Communication Theory and Skills*	3
	Humanities Elective	3
CS 223	Scientific Programming in C	3
ES 201	Statics	3
ES 202	Solid Mechanics	3
ES 204	Dynamics	3
MA 243	Calculus and Analytical Geometry III	4
MA 345	Differential Equations and Matrix Methods	4
PS 208	Physics II	3
PS 219	Physics III	3

PS 220	Physics Laboratory III	1
PS 290•	Physics Laboratory Practicum	0
Total Credits		**33**

•May be taken in the fourth or fifth semester.

JUNIOR YEAR

Course	Title	Credits
EP 320	Electro Optical Engineering	3
EP 393	Space Systems Engineering I	2
EP 394	Space Systems Engineering II	3
EP 396	Introduction to Design I	1
EP 397	Introduction to Design II	1
ES 206	Fluid Mechanics	3
ES 305	Thermodynamics	3
ES 402	Electrical Engineering with Laboratory	3
MA 441	Advanced Engineering Mathematics I	3
MA 442	Advanced Engineering Mathematics II	3
PS 303	Modern Physics	3
PS 305	Modern Physics Laboratory	1
PS 320	Classical Mechanics	3
Total Credits		**32**

SUMMER SESSION

(MUST be taken before seventh semester)

Course	Title	Credits
	Social Science Elective	3
ES 307	Engineering Materials Science with Lab	3
	Open/Design Elective**	3
Total Credits		**9**

** At least one design elective must be included in the program

SENIOR YEAR

Course	Title	Credits
	Upper Level Social Sciences*	3
	Upper Level Humanities Elective	3
AE/EP	Open/Design Elective	3
EP 391	Microcomputers & Electronic Instrumentation	3
EP 410	Space Physics	3
EP 440	Engineering Electricity and Magnetism	3
EP 455	Quantum Physics	3
EP 496	Design Senior Project I	2
EP 497	Senior Design Project II	3
MET 200	Machine Shop Laboratory	1
	Open Elective	3
Total Credits		**30**
TOTAL DEGREE CREDITS		**136**

*Embry-Riddle courses in the general education categories *Communication Theory and Skills, Humanities,* and *Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified above in the Engineering Physics vertical outline.

COMMUNICATION THEORY AND SKILLS:

HU: 122, 143, 219, 221, 222, 315, 319, 351, 355, 360, 361, 362, 410, 420.

HUMANITIES:

LOWER LEVEL: HU 140, 141

UPPER LEVEL: HU 300, 305, 310, 320, 325, 330, 335, 341, 345.

SOCIAL SCIENCES:

LOWER LEVEL: EC 200,
PSY 220,
SS 110, 120, 204, 210,
UPPER LEVEL: SS 302, 305, 310, 320, 325, 331, 335, 340, 350, 352, 360.

DESIGN ELECTIVES:

AE 301, 302, 304, 309, 350, 404, 430,
EP 420, 492, 493,
PS 401.

Students may take other AE and HU/SS courses with the approval of the department chair/program coordinator.

Professional Aeronautics Program
(Non-Traditional Students)

Associate in Science
Bachelor of Science

DAYTONA BEACH

PROGRAM COORDINATOR:
P. Rounseville

EXTENDED CAMPUS

PROGRAM CHAIRMAN:
T.M. Edwards

The Professional Aeronautics degree program was conceived and developed specifically for people who have already established and progressed in an aviation career. The curriculum is designed to build on 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 can document achievement of a verifiable level of competence in an aviation occupation.

AVIATION OCCUPATIONS

Many aviation occupations have been approved as 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 credit for prior learning, labeled aeronautical technology credit. Training and experience in closely related occupations may be combined. The number of aeronautical technology credits granted is determined by an evaluation of professional credentials and qualifications that may include FAA certificates; completion of formal technical schools; level of responsibility attained; and evidence of knowledge acquired and level of competence achieved in the aviation occupation.

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

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

Duplicate Credit

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

Evidence of Prior Aviation Learning

Just as official transcripts are required to transfer credit from one university to another, original or authenticated documentation of prior learning from professional training and experience must be presented to qualify for admission to Professional Aeronautics and the award of aeronautical technology credit. Documentary evidence must be from objective third-party sources and clearly describe the applicant's professional training, duties, 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 prior aviation learning. Using each student's aviation speciality as a foundation, the curriculum requires courses in communications, computer science, humanities, mathematics, and physical sciences to provide the basic academic education found in every Embry-Riddle degree program. The remaining component of the curriculum lets students select courses that 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 previous learning from professional aviation training and experience.

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 area, but lack exposure to other aspects of airframe and powerplant maintenance and underlying theory. The Type 65 Aviation Maintenance Technology series of courses was developed at Embry-Riddle to expand the knowledge of experienced, but unlicensed, aircraft maintenance personnel. Completion of the Type 65 courses is not a factor in the FAA's determination of eligibility to take the airframe and/or powerplant examinations.

The courses provide information about a wide variety of problems, considerations, and practices involved in maintaining an aircraft or fleet of aircraft in airworthy condition. The courses 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 and also with the degree programs to which they apply.

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

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

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

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

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

Professional Aeronautics Curriculum

The curriculum to be followed by each student depends on the amount of aeronautical technology credit granted and whether the objective is the associate of bachelors' degree. The column of numbers on the right specifies the requirements for the Bachelor of Science.

CURRICULUM		A.S.	B.S.
Aeronautical Technology Credit (Maximum)		18	36
Aeronautical Science			
AS 254	Aviation Legislation	3	3
AS 405	Aviation Law	3	3
Communication Theory and Skills		9	9
Humanities/Social Sciences*			
	Lower Level Humanities	3	3
	Upper Level Humanities or Social Sciences	3	3
	Lower Level Social Sciences	3	3
Computer Science/Mathematics			
CS 109	Introduction to Computers and Applications **OR**	3	3
BA 120	Introduction to Computer Based Systems	3	3
MA 111	College Math for Aviation I	3	3
MA 112	College Math for Aviation II **OR**		
MA 320	Decision Mathematics	3	3
MA 211	Statistics with Aviation Applications **OR**		
MA 222	Business Statistics	3	3
Physical Sciences			
Physical science, chemistry, physics, earth science, astronomy, geology, biology, zoology, or physiology courses. One course must include a lab.			
Economics/Management			
EC 210•	Microeconomics	3	3
EC 211	Macroeconomics	3	3
BA 201	Principles of Management	3	3
BA 210	Financial Accounting I		3
Specified Electives (select from the list on the following page)		3	3
Open Electives (any discipline)		3	3
Total Degree Credits		63	126

• Either EC 210 or EC 211 satisfies the requirements of the associate degree curriculum.

*Embry-Riddle courses in the general education categories of *Communication Theory and Skills, Humanities,* and *Social Sciences* may be chosen from those listed below, assuming prerequisite requirements are met. Courses from other institutions are acceptable if they fall into these broad categories and are at the level specified in the Professional Aeronautics vertical outline.

Communication Theory and Skills:

HU 122, 143, 219, 221, 222

Humanities:

LOWER LEVEL: 100 - 200 level

UPPER LEVEL: 300 - 400 level

Social Sciences:

LOWER LEVEL: 100 - 200 level

UPPER LEVEL: 300 - 400 level

Specified Electives:

AS 305*, AS 309*, AS 310*, AS 311*, AS 340*, AS 352*, AS 357, AS 402*, AS 409, AS 410*, AS 412;

AT 363*, AT 365*, AT 462*, AT 464*

BA 308, BA 311, BA 312, BA 314, BA 317, BA 320, BA 322, BA 324, BA 325, BA 331, BA 332, BA 390, BA 405, BA 408, BA 410, BA 415, BA 419, BA 420*, BA 421*, BA 425*, BA 426*, BA 427*, BA 428*, BA 433*;

EC 315, EC 410

SF 320, SF 330, SF 335, SF 345, SF 435, SF 445.

*These specified electives are offered only on the Daytona Beach Campus.

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

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

Applied Experimental Psychology/Human Factors Program

DEPARTMENT OF HUMAN FACTORS AND SYSTEMS

Applied Experimental Psychology/Human Factors

Bachelor of Science

DEPARTMENT CHAIR
D. J. Garland

The Bachelor of Science degree in Applied Experimental Psychology emphasizes human factors psychology. The program seeks to develop a student with the capacity to design, conduct, and apply human factors research to the design of simple and complex systems. The goal of the program is to educate and graduate professionals who are equipped for employment in industry and government as human factors specialists, or to continue their education in graduate school.

Applied Experimental Psychology is an applied discipline which develops knowledge concerning the abilities and limitations of humans to sense, store, process information, and to act. This knowledge is applied to the design, use, and maintenance of human/machine systems. Depending on its goals, the system is then optimized with respect to human performance. The environmental factors affecting system performance are recognized as important and are considered systematically. When relevant data are not available, it must be uncovered through research efforts. This requires considerable skill in experimental design and quantitative methodology. Students will receive training in the content and techniques of human factors - including statistical and quantitative procedures, experimental design, survey methods, computer techniques, and other research methodologies.

DEGREE REQUIREMENTS

The Bachelor of Science in Applied Experimental Psychology/Human Factors can be earned in eight semesters assuming appropriate background and full-time enrollment. Successful completion of a minimum of 120 credit hours is required.

Students are encouraged to choose an area of specialization and/or a minor field of study. Specializations are available in human-computer interaction, human-machine-interaction, human performance and information processing, simulation and training, human factors and safety or other areas of interest with the department's authorization. In addition, there are numerous minor fields of study to choose from in order to orient the degree program to the student's needs.

Students will be required to have an applied practicum experience. This requirement may be fulfilled in several ways including, Co-Ops, Internships, or working on an on-campus research team. Practicums provide opportunities to gain practical experience in "real world" settings. A practicum experience is highly regarded by employers and increases the students employment potential once they have obtained their degree. Typically, students will engage in practica experience activities toward the end of the degree program so that students can take maximum advantage of their undergraduate experience.

General Education

Courses	Credits
Communication Theory and Skills	9
Mathematics	6
Computer Science	3
Physical and Life Sciences (one course must include a laboratory)	6
Humanities lower level	3
Social Sciences lower level	6
HU/SS/PSY 300-400 level	3
Total Credits	**36**

Embry-Riddle courses in general education may be chosen from those listed below, assuming prerequisites are met. Courses from other institutions are acceptable if they fall into these broad categories.

Communication Theory and Skills:

HU 122, 143, 219, 221, 222, 319, 351 - 420

Mathematics:

MA 106, 111, 112, 140, 142, 145, 211, 222, 241, 242, 243

Computer Science:

CS 101 - 118, BA 120

Physical and Life Sciences:

PS 101 - 109, 142, 302, 304, 308, 309

Humanities:

LOWER LEVEL: HU 140s series, 250
UPPER LEVEL: 300 - 315, 320 - 345

Social Sciences:

LOWER LEVEL: PSY 220 (required) and 3 credits from the following: EC 200 - 211, SS 110 - 130, 204, 210.
UPPER LEVEL: PSY 300 - 405, HF 300, SS 302 - 360.

Core Requirements

Advanced Communication

(6 credit hours from below. These courses are in addition to those taken as General Education)
HU 122 OR 222, 319, 351 - 420
(Other courses with approval of advisor)

Computer Science / Mathematics

(6 credit hours from MA or CS courses listed below. These courses are in addition to those taken as General Education)
MA 111 - 143
(other courses with approval of advisor)
OR
CS 101 - 118, 200 - 400 level. BA 120, 221
(other courses with approval of advisor)

Psychology and Human Factors

Course	Title	Credits
PSY 225	Research Analysis in Psychology	3
PSY 300	Research Design in Psychology	3
PSY 305	Experimental Psychology	3
PSY 310	Sensation and Perception	3
PSY 315	Cognitive Psychology	3
PSY 335	Physiological Psychology	3
HF 300	Human Factors I: Principles and Fundamentals	3
HF 302	Human Factors II: Analytic Methods and Techniques	3
HF 305	Human Factors III: Ergonomics and Bioengineering	3
HF 400	Human Factors IV: System Design	3
Total Credits		**30**

Aviation

Course	Title	Credits
AS 120 SP 110 FAA	Principles of Aeronautical Science **OR** Introduction to Space Flight **OR** Private Pilot Certificate	
Total Credits		**3**

Practicum

Course	Title	Credits
HF 490	Practicum in Applied Experimental Psychology	3
Total Credits		**3**
Total Core Credits		**48**

Specified Electives

(18 Credit hours from the following:)

Course	Title	Credits
PSY 320	Aviation Psychology	3
PSY 325	Group Structure and Process	3
PSY 330	Learning and Motivation	3
PSY 340	Industrial-Organizational Psychology	3
PSY 345	Training and Development	3
PSY 350	Social Psychology	3
PSY 400	Introduction to Cognitive Science	3
PSY 405	History and Systems of Psychology	3
HF 310	Human-Computer Interaction	3
HF 315	Automation and Systems Issues in Aviation	3
HF 320	Processes Underlying Crew Resource Management	3
HF 325	Human Factors and System Safety	3
HF 330	Human Factors in Space	3
HF 335	Human Factors in Air Traffic Control	3
HF 405	System Performance Modeling	3
HF 410	Human Factors Engineering: Crew Station Design	3
HF 415	Human Factors in Simulation Systems	3
HF 420	Human Factors in Human Computer	

		Interaction	3
HF	425	Human Factors in Computer Systems Design	3
(Other courses with approval of advisor)			
Open Elective Credits			**18**
Total Elective Credits			**36**
Total Degree Credits			**120**

Specializations

Students are encouraged to choose an area of specialization and/or a minor field of study. Specializations are available in human-computer interaction, simulation and training, human factors and safety, human-machine-environment interaction, human performance and information processing, or other areas of interest with the department's authorization. Courses required for the specializations will count toward specified and/or open electives.

Human-Computer Interaction Specialization

(15 Credit hours from the following:)

Course		Title	Credits
HF	310	Human-Computer Interaction	3
HF	315	Automation and Systems Issues in Aviation	3
HF	405	System Performance Modeling	3
HF	410	Human Factors Engineering: Crew Station Design	3
HF	415	Human Factors in Simulation Systems	3
HF	420	Advanced Topics in Human-Computer Interaction	3
HF	425	Human Factors in Computer Systems Design	3
PSY	400	Introduction to Cognitive Science	3

(other courses with approval of advisor)

Simulation and Training Specialization

(15 Credit hours from the following:)

Course		Title	Credits
PSY	320	Aviation Psychology	3
PSY	325	Group Structure and Process	3
PSY	330	Learning and Motivation	3
PSY	345	Training and Development	3
HF	315	Automation and Systems Issues in Aviation	3
HF	320	Processes Underlying Crewt Resource Management	3
HF	405	System Performance Modeling	3
HF	415	Human Factors in Simulation Systems	3

(other courses with approval of advisor)

Human Factors and Safety Specialization

(15 Credit hours from the following:)

Course		Title	Credits
AS	409	Aviation Safety	3
HF	315	Automation and Systems Issues in Aviation	3
HF	325	Human Factors and System Safety	3
HF	410	Human Factors Engineering: Crew Station Design	3
SF	320	Human Factors in Aviation Safety	3
PSY	320	Aviation Psychology	3
PSY	340	Industrial-Organizational Psychology	3

(other courses with approval of advisor)

Human-Machine-Environment Interaction Specialization

(15 Credit hours from the following:)

Course		Title	Credits
PSY	320	Aviation Psychology	3
PSY	325	Group Structure and Process	3
PSY	340	Industrial-Organizational Psychology	3
PSY	350	Social Psychology	3
HF	310	Human-Computer Interaction	3
HF	315	Automation and Systems Issues in Aviation	3
HF	325	Human Factors and System Safety	3
HF	330	Human Factors in Space	3
HF	335	Human Factors in Air Traffic Control	3
HF	405	System Performance Modeling	3
HF	420	Advanced Topics in Human-Computer Interaction	3

(other courses with approval of advisor)

Human Performance and Information Processing Specialization

(15 Credit hours from the following:)

Course		Title	Credits
PSY	320	Aviation Psychology	3
PSY	325	Group Structure and Process	3
PSY	330	Learning and Motivation	3
PSY	350	Social Psychology	3
PSY	400	Introduction to Cognitive Science	3
HF	320	Processes Underlying Cockpit Resource Management	3
HF	330	Human Factors in Space	3
HF	335	Human Factors in Air Traffic Control	3

(other courses with approval of advisor)

Suggested Program of Study

Students should be aware that several courses in each academic year may have prerequisites and/or corequisites. Check the course descriptions at the back of this catalog before registering for classes to assure requisite sequencing.

FRESHMAN YEAR

Course	Title	Credits
CS	Computer Science*	3
HF 300	Human Factors I: Principles and Fundamentals	3
HU	Communication Theory and Skills*	6
HU	Humanities Lower Level*	3
HU	HU/SS 300-400 Level*	3
MA	Mathematics*	6
PS	Physical and Life Sciences*	3
PSY 220	Introduction to Psychology*	3
Total Credits		30

SOPHOMORE YEAR

Course	Title	Credits
CS/MA	Computer Science/Math**	3
HF 302	Human Factors II: Analytic Methods and Techniques	3
HU	Communication Theory and Skills*	3
HU	Advanced Communication**	6
SS	Social Sciences lower level*	3
PS	Physical and Life Sciences*	3
PSY 225	Research Analysis in Psychology	3
PSY 300	Research Design in Psychology	3
AS 120	Principles of Aeronautical Science **OR**	
SP 110	Introduction to Space Flight **OR**	
FAA	Private Pilot Certificate	3
Total Credits		30

JUNIOR YEAR

Course	Title	Credits
CS/MA	Computer Science/Math**	3
HF 305	Human Factors III: Ergonomics and Bioengineering	3
HF/PSY	Specified Electives	6
HF 490	Practicum	3
PSY 305	Experimental Psychology	3
PSY 310	Sensation and Perception	3
PSY 315	Cognitive Psychology	3
PSY 335	Physiological Psychology	3
Electives	Open Electives	3
Total Credits		30

SENIOR YEAR

Course	Title	Credits
HF 400	Human Factors IV: System Design	3
HF/PSY	Specified Electives	12
Electives	Open Electives	15
Total Credits		30
Total Degree Credits		120

*General Education Requirement
**Degree Core Requirement

Department of Mathematics

Chairman
J.H. George

Associate Chairman
J.R. Watret

The Mathematics department consists of a group of dedicated professionals who use innovative ways to get students involved in learning mathematics. From self-paced learning labs to the student instruction program, the Mathematics department continually strives to enhance and develop teaching techniques that will assist students in improving their learning strategies and provide a solid foundation that supports Embry-Riddle degree programs.

Through use of the symbolic manipulator Maple in calculus courses, students can quickly grasp new concepts without losing time on computational details.

Many areas for improving a student's learning and retention of material are being investigated. The use of technology is an important part of these studies.

Minor Courses of Study

Minor courses of study are academic programs designed to satisfy students' personal interests and to meet their professional needs. Students explore, in some depth, the offerings in a field of study. A minor course of study provides the student with significant experience in a discipline organized around skills, methodology, and subject matter.

Signifying a certain level of knowledge and experience that is not at the depth of a major program, all minors consist of at least 15-21 hours of coherent academic course work. At least 6 hours must be fulfilled at the upper level. In addition, at least 6 hours of course work applied to a minor must be completed at Embry-Riddle Aeronautical University and at least 3 of those hours completed in residence must be at the upper level. Students must earn a 2.0 GPA or higher within the minor to complete that program of study successfully.

To gain the greatest value from their academic experiences, students are encouraged to select minors that complement their degree program and/or other minors they are pursuing. They are also encouraged to declare a minor by the beginning of their senior year. Designed to include a minimum number of required courses, minors provide students, whenever possible, with flexibility in fulfilling program requirements. No more than two substitutions (6 hours) are permitted in any one minor or in any combination of multiple minors. A student who seeks three minors could have two substitutions in one minor, or one substitution in two of the three minors.

Not all minors are offered at all Embry-Riddle Aeronautical University locations.

The University offers the following minors at the Daytona Beach campus (D) and the Prescott campus (P). Most of these minors are offered at the Extended Campus (EC), but availability differs at each center. Minors offered through the Center for Distance Learning (C) are also notated.

Air Traffic Control - D
Aviation Business Administration - D, C
Aviation Safety - D, P
Aviation Weather - D
Computer Applications - D, P
Computer-Integrated Manufacturing - D
Computer Science - D, P
Environmental Studies - D
Humanities - D, P
Logistics - EC
Mathematics - D, P
Professional Communication - D
Psychology - D, P
Secondary Education - D
Space Studies - D

Minor in Air Traffic Control

The air traffic control (ATC) minor provides the fundamental traffic controller knowledge and technical competency through a mix of classroom instruction, computer-based instruction, and realistic ATC laboratory simulations.

ERAU has a formal partnership agreement with the FAA that designates the university as an FAA-approved air traffic control training school. This partnership insures that the learning objectives and the standards of student achievement are relevant to the needs of the FAA.

To qualify for the ATC minor, students must successfully complete the required prerequisites, listed below, and the four ATC courses, which must be taken in sequence.

Course	Title	Credits
AS 201	Meteorology 1	3
AT 363	ATC in the National Airspace System	3
AT 365	ATC Operations and Procedures	3
AT 462	Terminal/Enroute ATC w/Lab	3
AT 464	Advanced Air Traffic Control Operations	3

One of the following is required:

Course	Title	Credits
AS 120	Principles of Aeronautical Science **OR**	3
AS 131	Commercial Flight Operations I **OR** FAA Private Pilot Certificate	2 2
Total credits required		**17-18**

Minor in Business Administration

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

Course	Title	Credits
BA 201	Principles of Management	3
EC 200	An Economic Survey **OR**	
EC 210	Microeconomics	3
BA 210	Financial Accounting	3
BA 311	Marketing	3
Specified Electives		6
Total credits required		**18**

SPECIFIED ELECTIVES:

Aviation Marketing:

BA 405	General Aviation Marketing	3
BA 450	Airline/Airport Marketing	3

Airline Management:

BA 410	Management of Air Cargo	3
BA 415	Airline Management	3

Airport Management:

BA 408	Airport Management	3
BA 412	Airport Planning and Design Standards	3

International Air Transportation Management

BA 426	International Aviation Management	3
EC 420	Economics of Air Transportation	3

This minor in Business Administration is not open to students pursuing degrees offered by the Business Administration Department.

Minor in Aviation Safety

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

Course	Title	Credits
SF 210	Introduction to Aerospace Safety	3
SF 320	Human Factors in Aviation Safety	3

Nine additional credit hours must be completed from the following:

Course	Title	Credits
SF 330	Aircraft Accident Investigation	3
SF 335	Mechanical and Structural Factors of Aviation Safety	3
SF 345	Aviation Safety Program Management	3
SF 350	Aircraft Crash and Emergency Management	3
SF 435	Aircraft Crash Survival Analysis and Design	3
SF 445	System Safety in Aviation	3
SF 399/499	Selected Topic in Aerospace Safety	3
Total credits required		**15**

NOTE: Aeronautical Science students in the Safety minor who complete SF 210/320 and one other upper-level SF course will not be required to take AS 408. Students taking AS 408 are not required to take SF 210. Students selecting this option must still meet the minimum number of hours required for degree completion in their declared area of concentration.

Minor Courses of Study

Minor in Aviation Weather

The minor in Aviation Weather introduces the student pilot to the myriad of weather products provided to the aviation community by commercial vendors and government agencies around the world. Students will learn about flying weather over the seven continents as well as how to recognize atmospheric conditions that favor the development of convective storms and other weather hazards to aviation. Requires 15 hours of weather courses.

Course	Title	Credits
AS 201	Meteorology I	3
AS 352	Meteorology II	3
AS 363	The Thunderstorm and Its Environment	3
AS 364	Weather Information Available to Aircrews	3
AS 261	Aviation Climates of the World	3
Total credits required		**15**

MAS 517, Advanced Meteorology, may be substituted for one of the above courses with advance approval of the Graduate Program coordinator.

Minor In Computer Applications

The minor in Computer Applications is designed to provide a utilitarian knowledge of desktop computers and local area networks (LAN). Students completing this minor will be able to function as computer specialists within their domain of expertise. The minor is open to all majors and requires 18 credit hours of computer courses. Prerequisite knowledge to start this program is at the level of CS 109.The goal of the minor in Computer Applications is to provide students with a working knowledge of Computer Applications, Local Area Networks, Windows Based Systems, Analysis of End-User Requirements, and Computer Hardware.

Course	Title	Credits
CS 117	Computer Configurations	3
CS 118	Fundamentals of Computer Programming	
	OR	
	Equivalent programming course	3
CS 206	End-User Computing Analysis	3
CS 207	Network Based Computing	3
CS 308	Practicum	3
	Specified Electives	3
Total credits required		**18**

* Specified Electives are chosen from the following list:

CS 106	Introduction to Internet	1
CS 107	Operating Systems and Windows	1
CS 108	Word Processing	1
CS 111	Spreadsheet	1
CS 112	Database	1
CS 113	Desktop Publishing	1
CS 114	Presentation Graphics	1
CS 116	Recent Trends in Application Software	1

Minor In Computer-Integrated Manufacturing

Students may earn a minor in Computer-Integrated Manufacturing by successfully completing the following:

Course	Title	Credits
CS 335	Introduction to Computer Graphics	3
CS 344	C Programming and UNIX or equivalent C programming course	3
EP 330	Introduction to CAD/CAM	3
EP 492	Robotics and Computer-Aided Manufacturing	3
EP 493	Concurrent Engineering	3
Total credits required		**15**

Minor In Computer Science

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

Course	Title	Credits
CS 125	Computer Science I	4
CS 225	Computer Science II	4
	Specified Elective*	3
	SC/SE CEC Elective (300 - 400 level)	6
Total credits required		**17**

* CS 118, a CS/SE/CEC 200 - 400 level course, EET 202, ES 405, or other computing-related courses approved by the Computer Science Department.

Minor In Environmental Studies

The minor in Environmental Studies is an interdisciplinary program designed to impart a fundamental knowledge of the natural environment, the dimensions of the human impact on the environment, and an integrated approach to solving problems resulting from this impact. The minor is open to all majors and requires 18-20 hours of coursework. Students may earn a minor in Environmental Studies by completing the following:

Course	Title	Credits
PS 107	Elements of Biological Science	3
PS 108	Contemporary Chemistry **OR**	
PS 101	Basic Chemistry **OR**	3
PS 140	Chemistry for Engineers **AND**	4
PS 141	Chemistry for Engineers Laboratory	1
PS 142	Introduction to Environmental Science	3
SS 360	Environmental Law	3
PS 309	Principles of Ecology	3
PS 308	Atmospheric Environmental Studies **OR**	
AS 352	Meteorology II	3
Total credits required		**18-20**

Minor In Humanities

Students may earn a minor in Humanities by successfully completing 18 hours selected from four areas. Two courses must be completed from the HU 140-HU 146 series for a total of 6 credits.

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

NARRATIVE

Course	Title	Credits
HU 300	World Literature	3
HU 305	Modern Literature	3
HU 310	American Literature	3
HU 325	Exploring Film	3

SPECULATIVE

Course	Title	Credits
HU 330	Values and Ethics	3
HU 335	Technology and Modern Civilization	3
HU 341	World Philosophy	3

Minor Courses of Study

RELIGION AND FINE ARTS

Course	Title	Credits
HU 320	Aesthetics of Visual and Musical Arts	3
HU 345	Comparative Religions	3
HU 355	Creative Writing	3
		12
Total credits required		**18**

HU 399/HU 499, Special Topics in Humanities, may be included with advance permission of the department chair.

Minor in Logistics

Students may earn a minor in Logistics by successfully completing the following:

Course	Title	Credits
BA 331	Transportation Principles	3
BA 410	Management of Air Cargo	3
BA 411	Logistics Information Systems	3
BA 422	Life Cycle Analysis for Systems and Programs in Aviation/Aerospace	3
	Two of the following are required:	
BA 321	Aviation Systems Analysis Methods	3
BA 419	Aviation Maintenance Management	3
BA 420	Industrial Management	3
Total credits required		**18**

This minor in Logistics is not open to students pursuing degrees in Aviation Business Administration and Aviation Maintenance Management.

Minor in Mathematics

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

Course	Title	Credits
MA 241	Calculus and Analytical Geometry I	4
MA 242	Calculus and Analytical Geometry II	4
MA 243	Calculus and Analytical Geometry III	4
MA 245	Applied Differential Equations OR	3
MA 345	Differential Equations and Matrix Methods	3-4
MA	Electives (400-500 level)	5-6
Total credits required		**21**

Minor In Professional Communication

The minor in Professional Communication is designed to encourage an appreciation of communication as the basis of shared meaning, to provide the interpersonal competencies which will benefit students in any workplace, and to provide the advanced course work in communication which high-skill, high-wage jobs require or encourage.

Students may earn a minor in Professional Communication by successfully completing 18 credit hours from the following:

Course	Title	Credits
HU 219	Speech	3
HU 221	Technical Report Writing or HU 222 Business Communication	3
HU 351	Journalism	3
HU 355	Creative Writing	3
HU 360	Persuasive Communication	3
HU 361	Interpersonal Communication in the Work Group	3
HU 362	Communication and Organizational Culture	3
HU 363	Communication and Society	3
HU 410	Advanced Professional Communication	3
HU 420	Applied Cross Cultural Communication	3
CEAR 396	Co-op EDA/SP Studies (only 3 hours of earned credit apply toward minor. Co-op must be approved by program chair to count for the minor.)	3
Total credits required		**18**

Minor In Psychology

Students may earn a minor in Psychology by completing the following:

Course	Title	Credits
PSY 220	Introduction to Psychology	3

Twelve additional credits in psychology must be chosen from the following:

Course	Title	Credits
BA 317	Organizational Behavior	3
SS 310	Personality Development	3
HF 300	Human Factors	3
SS 350	Psychology of Relationships	3
PSY 350	Social Psychology	3
Total credits required		**15**

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

Minor in Secondary Education

In conjunction with the minor in Mathematics students may earn a minor in Secondary Education through a collaborative agreement between Embry-Riddle and the University of Central Florida (UCF) by completing the following courses at UCF:

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

In conjunction with the minor in Secondary Education, students seeking to acquire teacher certification at the secondary level have the opportunity to satisfy both education and internship requirements through collaborative agreements with UCF.

Minor In Space Studies

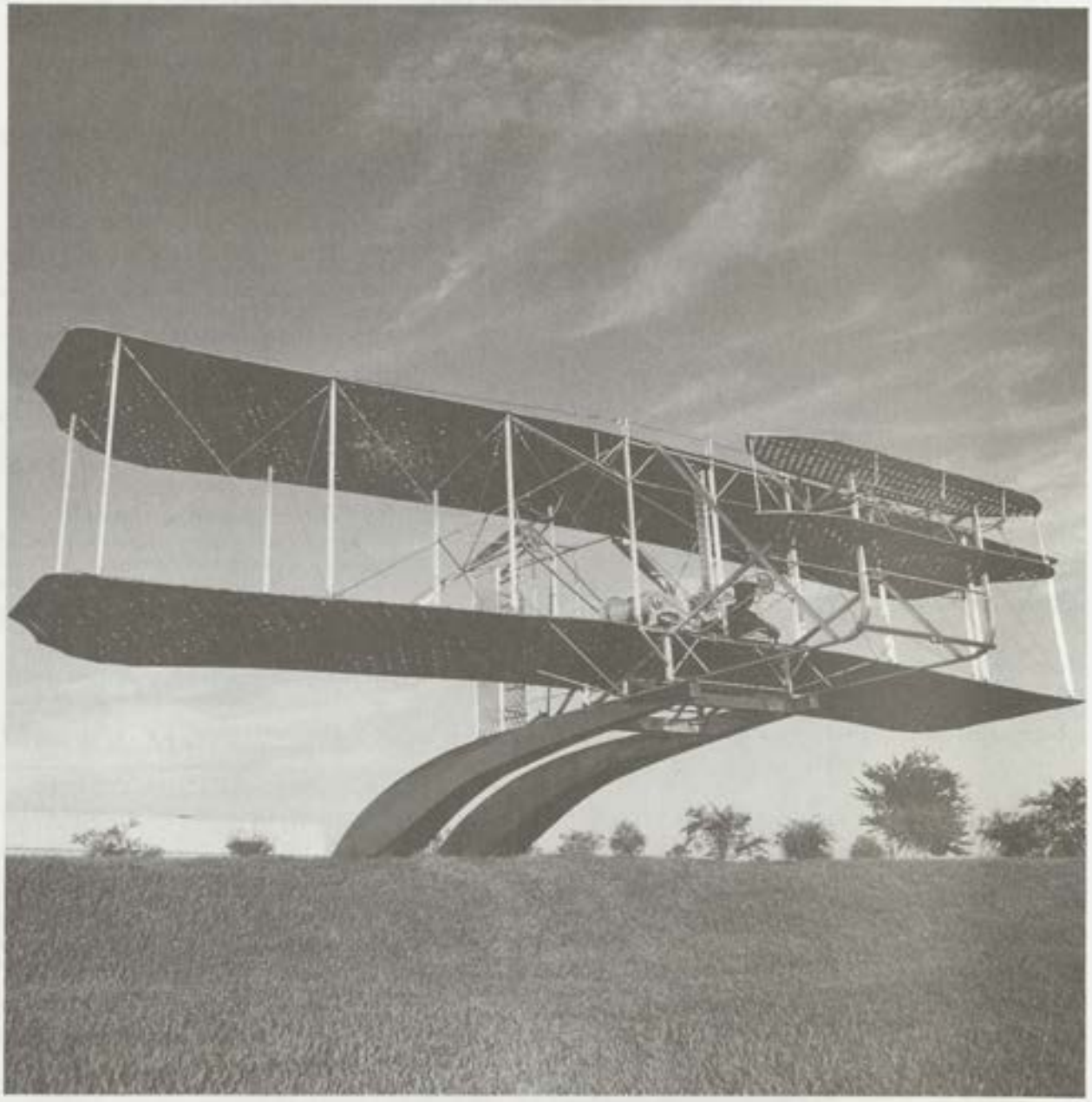
Students may earn a minor in Space Studies by completing 15 credits from the following list.

Twelve credits selected from:

Course	Title	Credits
SP 110	Introduction to Space Flight	3
SP 200	Planetary and Space Exploration	3
SP 210	Space Transportation System	3
SP 215	Space Station Systems and Operations	3
SP 220	Life Support Systems	3
SP 300	Introduction to Satellite and Spacecraft Systems	3
SP 400	Introduction to Space Navigation	3
SP 299/ 399/499	Special Topics in Space Studies	3

In addition, all students must complete:

SP 425	Selected Topics in Space and Aerospace	3
Total credits required		**15**



Daytona Beach Campus

FALL 1998/SPRING 1999 TUITION

Undergraduate	Engineering Programs	All Other Programs
1-11 credit hours	$430 per credit hour	$400 per credit hour
12-16 credit hours	$5,160 per semester	$4,800 per semester
Over 16 credit hours	$430 per credit hour	$400 per credit hour

Students whose undergraduate course loads during Fall or Spring semesters are greater than 16 hours are charged the semester rate listed above plus a per-credit-hour charge for those credit hours over 16.

Graduate	Engineering Programs	All Other Programs
	$450 per credit hour	$425 per credit hour

Engineering degree programs include the bachelor of science programs in aerospace engineering, civil engineering, and engineering physics, and the master of science in aerospace engineering/master of aerospace engineering, and the master of software engineering program. The computer science and the master's of software engineering programs are included in the engineering grouping for the purpose of charging tuition.

SUMMER 1999 TUITION

Undergraduate	Engineering Programs	All Other Programs
	$380 per credit hour	$360 per credit hour
Graduate	**Engineering Programs**	**All Other Programs**
	$400 per credit hour	$370 per credit hour

There is no term rate for Summer. Summer tuition rates are determined solely by the number of credit hours per term. Each Summer term is billed separately.

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

FLIGHT TRAINING COSTS

In addition to academic credit hour tuition, students enrolled in flight courses pay for flight training.

Commercial Pilot Certification Program

Without Private Pilot Certificate

This Commercial Pilot Certification Program includes a Private Pilot Certificate, Commercial Certificate with Instrument and Multi-Engine Ratings. This FAA certified program curriculum contains over 345 combined hours of ground instruction, flight

instruction and solo practice time. We will offer the program described at a fixed, not to exceed, price of $21,770 (including a one-time non-refundable administrative fee of $100)*.

This price comes packaged with an exclusive financing program providing the following options:

1. 35 consecutive monthly payments of $622.00, **or**
2. $170 down and six consecutive semester payments of $3600.00.

With Private Pilot Certificate

This Commercial Pilot Certification Program includes a Commercial Certificate with Instrument and Multi-Engine Ratings. The FAA certified program curriculum contains over 232 combined hours of ground instruction, flight instruction and solo practice time. We will offer the program described at a fixed, not to exceed, price of $17,780 (including a one-time non-refundable fee of $100)*. This price comes packaged with an exclusive financing program providing the following options:

1. 28 consecutive monthly payments of $635.00, **or**
2. five consecutive semester payments of $3556.00

The University reserves the right to remove any student from the Commercial Pilot Certification Program in the event that a management review, evaluation, and/or plan of action fails to resolve any unsatisfactory training circumstances.

*Not to exceed price and payments may be adjusted pending FAA approval of flight training curriculum hours per new regulatory requirements.

In such case, total student training costs will be calculated at current training rates and the difference between the calculation and the total payments made by the student will be debited/credited to the student's University account. All flight courses taken in addition to the Commercial Pilot Certification Program require a deposit.

Required Flight Courses for Continuing Students

Students who begin their Embry-Riddle flight training before the effective date of this catalog take a series of flight courses during their enrollment with each flight course requiring a separate deposit to cover hourly flight fees for aircraft, simulators, and flight instructors. Deposit schedules are reviewed periodically and are based on averages of actual costs to complete each flight course.

Required Flight Course Deposits

FA110 Commercial Pilot Flight Operations I	$6,000
FA200 Commercial Pilot Flight Operations II	$5,000
FA250 Commercial Pilot Flight Operations III	$5,000
FA300 Commercial Pilot Flight Operations IV	$3,800
AS 430 Turbo Prop Techniques and Crew Procedures (B 1900)	$3,525
AS 470 Airline Flight Crew Techniques & Procedures (B 737)	$4,600

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

Elective Flight Courses

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

Hourly Flight Rates

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

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

* A fuel charge adjustment may be made as fuel prices vary.

Room, Board, and Fees

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

Housing

All freshmen and sophomore students with less than 58 earned credit hours are required to live in University-managed housing and first year freshmen are required to participate in the ERAU Dining Services meal program.

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

Dining Services

The Daytona Beach campus provides two meal plan options. Meal plans begin with the first day of orientation and end with the last day of final examinations. The 12 meal per week plan is required of all entering freshmen for the first two semesters of attendance. In addition to the meal plans, students may use Eagle Dollars at any dining service location. Please refer to the dining service brochure for a complete description of plans and services.

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

Mandatory Fees

Student Government Association fee . . . . . $ 40 per semester
Health service fee . . . . $ 25 per semester
International student insurance fee . . . . . $ 160 per semester
International student service fee. . . . . $ 50 per semester
Technology Fee (not applicable Summer) $ 80 per semester

User Fees

Reinstatement of canceled registration fee $100
Transcript fee, academic or financial (per transcript). . . . . $ 5
Commencement fee (non-refundable) . . . . . $ 40
Duplicate diploma . . . . . $ 15
Previously earned diploma . . . . . $ 40
Army ROTC fee . . . . . $ 15
Course equivalency examination fee (non-refundable) $100
Co-op education fee (full term)
Engineering $430
Other $400
Co-op education fee (Summer A or B)
Engineering $215
Other $200
Extended Campus Co-op (1 Credit) $130
Graduate internship fee (full term)
Engineering $450
Other $425
Graduate internship fee (Summer A or B)
Engineering $225
Other $215
FAA designated mechanic examiner fee $180
Annual vehicle registration fee
Automobile . . . . . $ 25
Motorcycle. . . . . $ 5
Aviation maintenance technology testing fee . . . . . $ 15

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

Refund Policy

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

During all terms the effective date of the withdrawal, as determined by the Records and Registration Office, governs refund computations.

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

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

University Withdrawal/Refund Schedule

Fall/Spring Semesters

Period I	Class days 1-3	100%*

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

*Less $100 administrative fee

Summer A/B and AMT terms

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

*Less $100 administrative fee

Department of Education
Withdrawal/Refund Schedule

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

Pro Rata Schedule

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

Federal Refund Schedule

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

Required Advance Tuition Deposit (new students only): Refundable in full, provided written notice is furnished at least 60 days before the first day of registration for the semester.

Flight Course Deposits: See flight course deposit listing.

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

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

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

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

Refund petition requests will normally be processed within ten business days.

Personal appeals for denied requests, must contain additional documentation not previously presented.

Extended Campus

Undergraduate Tuition

$ 130 - 145/credit hour

Graduate Tuition

$ 220 - 375/credit hour

User Fees

Application fee	$ 30
Late registration fee	$ 25
Deferred payment fee	$ 50
Transcript fee (per transcript)	$ 5
Commencement fee (non-refundable)	$ 40
Duplicate diploma	$ 15
Previously earned diploma	$ 40
Contract for degree (not required if student pays application fee)	$ 30
Annual contract for degree maintenance fee	$ 100
Extension fee	$ 35
California registration fee (per course)	$ 10
MSTM transfer credit fee (per hour)	$ 50

Withdrawal/Refund Policy

There are currently four refund schedules operative within the Extended Campus. Which refund schedule applies depends upon the student's status and location and is governed by, contracts, state laws, and federal regulations.

U.S. Military Students Receiving Tuition Assistance (TA)

First week		100%
After first week		0%

All Other Non-TA Students

Period 1	Class Days 1-7	88%
Period II	Class Days 8-14	75%
Period III	Class Days 15-21	50%
Period IV	Class Days 22-28	20%
Period V	Class Days 29-35	5%

Non-TA Students Under California Enrollment Agreement

California refund tables available at California Centers.

Military Students and Dependents Enrolling under the DOD European Contract

Prior to first class	100%
Less than 1/8th class meetings	75%
More than 1/8th but less than 1/4 class meetings	25%
More than 1/4 class meetings	0%

Students receiving financial aid who withdraw during their first term are subject to the refund policy specified by the U.S. Department of Education. Refer to page 64 for the Department of Education Withdrawal/Refund Schedule.

Student Accounts

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

Billing Address

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

Payment Procedures

Cash, Visa, MasterCard, Discover, AMEX, and personal checks are acceptable forms of payment. Payments made by mail should be addressed to the campus Cashier's Office and timed to arrive prior to the first day of class. Charges incurred subsequent to registration are due 30 days from the date of invoice or the last day of class, whichever occurs first. All payments should include student's name and identification number.

Books, Supplies and Tools

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

Temporary Loans

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

Check Cashing

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

Delinquent Accounts

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

Financial Assistance

Embry-Riddle participates in a number of federal, state, and University-administered programs that help students and their families meet educational costs.

Embry-Riddle believes the primary responsibility for financing education lies with the student and the student's family.

Therefore, the student should apply for financial aid early, save money, look for ways to reduce costs, and become aware of specific program requirements by reading all financial aid publications. Financial aid awards are meant to supplement what the student and family can contribute toward costs and rarely cover all educational expenses.

A complete description of financial assistance programs and optional financing programs available to students and their parents is published annually by the Financial Aid Office. Students should consult this publication for information about eligibility criteria, application procedures, and deadline dates. Students who expect to need help in meeting their financial obligations are encouraged to seek such assistance through one or more of the programs available for this purpose.

Eligibility Requirements

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

1. Be U.S. citizens or eligible non-citizens;
2. Be enrolled or accepted for enrollment as at least a half-time student in a degree program;
3. Be making satisfactory progress toward a degree;
4. Be registered with Selective Service if required to do so;
5. Establish financial need;
6. Not be in default on a loan or owe a repayment on a previous financial aid award received at any institution.

The Application Process

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

Extended Payments

Students who use financial assistance to pay their University charges may have the payment date extended for the amount of their award if their funds are not ready to be disbursed by the date payment is due. This is called a payment extension. Any difference between the total charges and the amount of the extension granted must be paid according to the University's payment procedure. The earliest that financial assistance is credited to student accounts is the first day of classes.

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

Programs Available

The major categories of financial assistance programs include loans, grants, scholarships, and student employment. Loans

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

Loans

FEDERAL

- FSSL (Federal Stafford Student Loan)
- FUSSL (Federal Unsubsidized Stafford Student Loan)
- FPLUS Loan (Federal Parent Loans for Undergraduate Students)
- Federal Perkins Loan
- GATE - and other private educational loans

Grants

FEDERAL

- Federal Pell Grant
- Federal Supplemental Educational Opportunity Grant

STATE

- Florida Tuition Voucher Program
- Florida Resident Access Grant
- Florida Bright Futures Scholarship Program
- Grants from other states

Employment

FEDERAL

- Federal Work-Study Program

EMBRY-RIDDLE

- Embry-Riddle Student Employment
- Off-Campus Referral Program
- Resident Advisor Program

Scholarships

University scholarships are awarded to students according to their academic achievement and high probability of success in an aviation career. Students may submit a scholarship application after completing at least one semester with a cumulative grade point average of at least 3.00. Scholarships are very competitive. A limited number are awarded to entering freshmen and community college transfers who possess outstanding academic credentials. For more information about scholarships students should contact the Financial Aid office of the campus they plan to attend.

OTHER FINANCIAL ASSISTANCE PROGRAMS

Air Force ROTC

The USAF offers ROTC academic scholarships to students who meet specific requirements. These scholarships cover the cost of the University's tuition and books and provide qualified students a $150 tax-free subsistence allowance per month. For more information refer to the Special Academic Programs and Opportunities section of the catalog.

Army ROTC

Army ROTC offers tuition and room and board scholarships to qualified students. For more information refer to the Special Academic Programs and Opportunities section of the catalog.

Embry-Riddle ROTC Scholarships

Embry-Riddle offers room and board scholarships to four-year and three-year advanced designee Air Force and Army ROTC scholarship recipients. These scholarships may be limited depending on the availability of funding.

U.S. Marine Corps Platoon Leaders Class Program

The program offers a guaranteed aviation contract to young men and women who meet the physical and academic qualifications. The Marine Corps also offers contracts in various non-flying military fields. Financial assistance is available for qualified applicants.

A stipend of $150 a month for the nine months of the school year is available to all who meet the requirements and successfully complete summer training at Officer's Candidate School. While undergoing training at OCS an individual receives pay and allowances for a Sergeant. Additionally, the time spent in the PLC program is counted for pay purposes as time in service.

To be eligible for the U.S. Marine Corps Platoon Leaders Class Program, a student must be enrolled full-time. Openings are available for both men and women with any major.

For more information, contact Capt. Kornacki or SSgt. Froscher at 1-800-270-9874 or call collect at (904) 731-4747.

Student Government Association Leadership Program

The Student Government Association (SGA) at each residential campus offers partial tuition for elected officials of the organization. The amount of the waiver varies depending on the position held. The goal is to stimulate interest in holding elected office and to recognize the commitment student leaders make in such positions.

For information about the criteria students must meet to run in an SGA election, or for other information about the program, contact the Student Government Association office.

Athletic Grants

The University offers a limited number of Athletic Grants for qualified students. Awards are available for baseball, basketball, golf, soccer, tennis, wrestling, and women's volleyball. The maximum value permitted by the NAIA is the actual cost of tuition, room, board, books, and fees. However, most grants are awarded as partial tuition waivers. To qualify, students must meet both University and NAIA eligibility requirements. The grants are highly competitive and interested students should contact the Athletic Department for specific details.

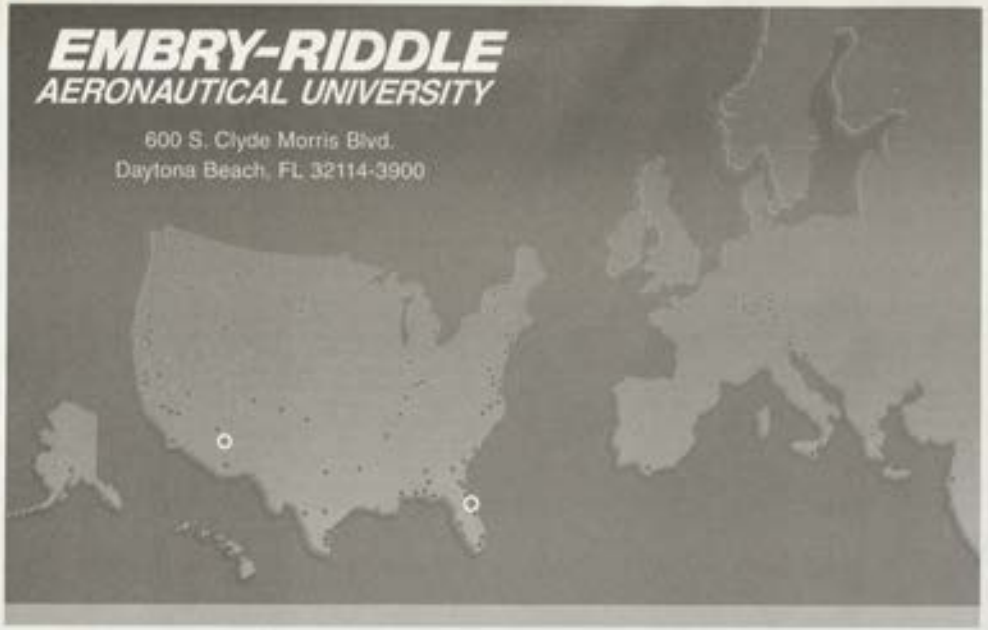
Veterans' Education Benefits

Embry-Riddle degree programs are approved by the appropriate State Department of Veterans' Affairs (State Approving Agency) for enrollment of persons eligible to receive education benefits from the U.S. Department of Veterans' Affairs (DVA).

Eligible persons planning to receive DVA education benefits while attending Embry-Riddle should contact the certifying official at the CCE Resident Center or the University Veterans' Affairs Office for further information and applications for benefits. Students must be pursuing a degree in a specific program to be eligible to receive benefits. Admission procedures for veterans and other eligible persons are the same as those for other students. Students who do not satisfy all requirements for full admission may be certified for two terms; however, they may be required to repay the DVA for some or all benefits received if they do not achieve full admission status during that time.

Title 38, United States Code, sections 3474 and 3524, requires that education assistance to veterans and other eligible persons be discontinued when the student ceases to make satisfactory progress toward completion of the training objective. Accordingly, benefits will be interrupted for Daytona Beach students who remain on academic probation beyond two semesters and for College of Career Education students who remain on academic probation beyond two consecutive periods of 12 credit hours. The DVA will be appropriately notified of the unsatisfactory progress. A specific request must be submitted by the student to reinstate benefits. The DVA will determine eligibility for reinstatement of benefits.

Veterans' progress will be measured according to University standards as published in this catalog and the rules and regulations of the DVA apply. The criteria used to evaluate progress are subject to change. Application and interpretation of the criteria are solely at the discretion of Embry-Riddle. Students are responsible for notifying the certifying official of any change in their enrollment or change in personal information affecting their eligibility. Students also must remain in compliance with University and Department of Veterans' Affairs requirements. Students may receive education benefits only for courses that are required for their designated degree program. Students who receive DVA benefits are subject to strict academic regulations and should be aware of how auditing courses, repeating a course, changing degree programs or enrollment status, and other actions may affect their eligibility to receive benefits.



Two Residential Campuses
and more than One Hundred Extended Campus
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