B.S. in Space Operations

The Bachelor of Science degree in Space Operations (BSSO) is a unique program focused on the operations, policy, business, safety, training, human factors, and mission planning elements of space operations. The degree program consists of a core curriculum, a minor requirement, and electives for a total of 120 credits.

Students will:

- Create space mission design, planning, or execution relevant to current industry practices.
- Evaluate spacecraft systems, applications, sustainability, and safety practices within the space operations industry.
- Analyze human spaceflight history, life support implications, and training regimens from historical and contemporary programs.
- Analyze space policy development and application to space activity.
- Identify space mission history, program development, and evolution to current trends.

General Education Requirements

For a full description of Embry-Riddle General Education guidelines, please see the General Education section of this catalog. These minimum requirements are applicable to all degree programs.

The general education component of the Space Operations degree follows the general guidelines for ERAU undergraduate programs for a total of 38 credits.

Communications Theory and Skills (COM 122, COM 219, COM 221)	9
Lower-Level Humanities	3
Lower-Level Social Sciences (PSY 101)	3
Lower or Upper-Level Humanities or Social Sciences	3
Upper-Level Humanities or Social Sciences	3
Computer Science	3
Mathematics (MA 111, MA 112 or equivalent)	6
Physical and Life Sciences (PS 113, PS 113L)	4
PS/BIO/CHM 100-400 Level Lecture and Laboratory	4
Total Credits	**38**

Space Operations Core Requirements

UNIV 101	College Success	1
Space Operations Required Courses		**24**
SP 110	Introduction to Space Flight	
SP 230	Space Policy and Law - History	
SP 300	Satellite and Spacecraft Systems	
SP 351	Fundamentals of Space Policy and Regulation	
SP 400	Introduction to Space Navigation	
SP 410	Space Operations Planning and Analysis	
SP 460	Applied Spaceflight Policy and Regulation	
SP 490	Senior Space Operations Project	
Choose two courses:		**6**
SP 200	Planetary and Space Exploration	
SP 210	Space Transportation System	
SP 215	Space Station Systems and Operations	
SP 220	Life Support Systems	
Choose one course:		**3**
SP 330	Spaceflight and Operations Training	
SP 340	Russian Space Operations and Technology	
SP 390	Payloads and Integration	
CEC/CS/MA/SE/SYS 300-400 Level Course		
Total Credits		**34**

Program Support

BA 201	Principles of Management	3
BA 424	Project Management in Aviation Operations	3
BA 452	Lean Six-Sigma in Aviation and Aerospace	3
CS 118	Fundamentals of Computer Programming	3
EGR 115	Introduction to Computing for Engineers	3
HF 300	Human Factors I: Principles and Fundamentals	3
MA 222	Business Statistics	3
or MA 412	Probability and Statistics	
SF 210	Introduction to Aerospace Safety	3
Total Credits		**24**

Approved Minor

Approved Minor	15-20

Students must declare and complete one approved minor. Total credits in the minor vary, depending on the minor chosen. In cases where individual minor courses are also required by the major, additional open elective credits will become available. Approved minors include:

Minors	Required Credits
Applied Mathematics	20
Aviation Law	15
Computer Science	16
Human Factors	15
Project Management	15
Systems Engineering	15

Open Electives

Open elective hours may vary depending on declared minor.	
Open Electives	4-9
Total Degree Credits	**120**

Year One

Fall		**Credits**
COM 122	English Composition	3
BA 125	Foundations in Business Data Analytics	3
MA 111	Pre-Calculus for Aviation	3
or MA 143	Precalculus Essentials	
SF 210	Introduction to Aerospace Safety	3
SP 110	Introduction to Space Flight	3
UNIV 101	College Success	1
	Credits Subtotal	**16.0**
Spring		
MA 112	Applied Calculus for Aviation	3
or MA 241	Calculus and Analytical Geometry I	
PS 113	Introductory Physics I	3
or PS 150	Physics for Engineers I	
or PS 226	Physics I	
PS 113L	Introductory Physics I Laboratory	1
or PS 226L	Physics I Laboratory	
PSY 101	Introduction to Psychology	3
	HU 14X Elective	3
	SP 2XX Elective	3
	Credits Subtotal	**16.0**

Year Two

Fall		
COM 221	Technical Report Writing	3
HF 300	Human Factors I: Principles and Fundamentals	3
	PS/BIO/CHM 100-400 Level Lecture	3
	PS/BIO/CHM 100-400 Level Laboratory	1
	SP 2XX Elective	3
	Minor/Open Elective	3
	Credits Subtotal	**16.0**
Spring		
SP 230	Space Policy and Law - History	3
COM 219	Speech	3
EGR 115	Introduction to Computing for Engineers	3
MA 222	Business Statistics	3
or MA 412	Probability and Statistics	
	Minor/Open Elective	3
	Credits Subtotal	**15.0**
Year Three		
Fall		
BA 201	Principles of Management	3
SP 300	Satellite and Spacecraft Systems	3
	HU/SS Lower or Upper Level Elective	3
	SP 3XX Elective (or CEC/CS/MA/SE/SYS 300-400 Level Course)	3
	Minor/Open Elective	3
	Credits Subtotal	**15.0**
Spring		
SP 351	Fundamentals of Space Policy and Regulation	3
SP 400	Introduction to Space Navigation	3
CS 118	Fundamentals of Computer Programming	3
BA 452	Lean Six-Sigma in Aviation and Aerospace	3
	Minor/Open Elective	3
	Credits Subtotal	**15.0**
Year Four		
Fall		
SP 410	Space Operations Planning and Analysis	3
SP 460	Applied Spaceflight Policy and Regulation	3
BA 424	Project Management in Aviation Operations	3
	Minor/Open Elective	3
	Minor/Open Elective	3
	Credits Subtotal	**15.0**
Spring		
SP 490	Senior Space Operations Project	3
	HU/SS Upper Level Elective	3
	Minor/Open Elective	3
	Minor/Open Elective	3
	Credits Subtotal	**12.0**
	Credits Total:	**120.0**