

M.S. in Space Operations

The Master of Science in Space Operations addresses topics related to the space industry, including mission operations, research and the application of scientific and technical principles. The program is designed to support study of space systems and operations within commercial, governmental and research contexts.

At the **Daytona Beach Campus**, the Master of Science in Space Operations is housed in the College of Aviation. The curriculum includes topics such as program management, remote sensing, satellite communications, space technology, launch operations, space law and policy and cybersecurity. The program is designed for students with varying levels of experience, including space industry professionals, individuals transitioning from other fields and recent graduates. The program consists of 30 credit hours, including 10 courses and a capstone or thesis, and may be completed over multiple semesters.

Program-Level Student Learning Outcomes

Students will:

- Evaluate alternate investigation methods, determine when to use quantitative, qualitative or mixed methods, and create sample research questions that quantitative, qualitative and mixed methods can address.
- Apply STEM principles and theory necessary for conducting spaceflight operations.
- Correctly apply data statistical tests for between-subjects designs including t-tests, one-way analysis of variance, and factorial analysis of variance.
- Explain the purpose of empirical research and the role of statistics.
- Demonstrate the requisite professional skills desired by large multinational agencies.
- Apply different research designs with appropriate consideration of relative strengths and weaknesses, specific tools and techniques of data collection, assumptions of use, and acceptable analytic procedures.
- Evaluate key elements within the space domain and its operational ecosystem.
- Create strategies for developing space capability and executing spaceflight missions.

Daytona Beach Program Requirements

Core Requirements	18
Option	12
Total Credits	30

Core Requirements

MSAV 513	Space Habitation and Life Support Systems	3
MSAV 554	Project Management in Aviation/Aerospace	3
MSAV 662	Statistical Analysis for Aviation/Aerospace	3
MSAV 670	Research Methods in Aviation/Aerospace	3
SPAC 511	Geospatial Analytics	3
SPAC 512	Human Spaceflight Industry	3
Total Credits		18

Non-Thesis Option

MSAV 691	Capstone Research Project	3
Choose Three of the Following:		9
SPAC 500	Overview of the Space Ecosystem	

SPAC 505	The Launch Industry
SPAC 510	The Satellite Communications Industry
SPAC 515	Cybersecurity Applications in Space
SPAC 520	Principles of Space Systems
SPAC 525	Space Law and Policy

Total Credits 12

Thesis Option

MSAV 700	Graduate Thesis	6
Choose Two of the Following:		6
SPAC 500	Overview of the Space Ecosystem	
SPAC 505	The Launch Industry	
SPAC 510	The Satellite Communications Industry	
SPAC 515	Cybersecurity Applications in Space	
SPAC 520	Principles of Space Systems	
SPAC 525	Space Law and Policy	

Total Credits 12

Suggested Plan of Study

Non-Thesis Option

Year One

Requirements	Credits
SPAC 511 - Geospatial Analytics	3
MSAV 554 - Project Management in Aviation/Aerospace	3
SPAC XXX Elective	3
Semester Hours	9

Requirements	Credits
SPAC 512 - Human Spaceflight Industry	3
MSAV 662 - Statistical Analysis for Aviation/Aerospace	3
SPAC XXX Elective	3
Semester Hours	9

Total Credits

Total Hours for All Requirements: 18

Year Two

Requirements	Credits
MSAV 670 - Research Methods in Aviation/Aerospace	3
MSAV 513 - Space Habitation and Life Support Systems	3
Semester Hours	6

Requirements	Credits
MSAV 691 - Capstone Research Project	3
SPAC XXX Elective	3
Semester Hours	6

Total Credits

Total Hours for All Requirements: 12

Thesis Option

Year One

Requirements	Credits
SPAC 511 - Geospatial Analytics	3
MSAV 554 - Project Management in Aviation/Aerospace	3
MSAV 662 - Statistical Analysis for Aviation/Aerospace	3
Semester Hours	9

Requirements	Credits
SPAC 512 - Human Spaceflight Industry	3
MSAV 670 - Research Methods in Aviation/Aerospace	3
SPAC XXX Elective	3
Semester Hours	9

Total Credits

Total Hours for All Requirements: 18

Year Two

Requirements	Credits
MSAV 700 - Graduate Thesis	3
MSAV 513 - Space Habitation and Life Support Systems	3
Semester Hours	6

Requirements	Credits
MSAV 700 - Graduate Thesis	3
SPAC XXX Elective	3
Semester Hours	6

Total Credits

Total Hours for All Requirements: 12