

M.S. in Space Operations

The Master of Science in Space Operations (MSSO) will offer advanced courses in space mission operations, spacecraft systems, human space flight, system safety, human factors, statistical analysis, research methodology, and program management. This program provides students with the knowledge and skills to collect and analyze data, conduct applied research, and communicate their findings. The MSSO degree is also tailored to provide the student with the necessary research background and technical knowledge desired by national space agencies, commercial space companies and military organizations.

The MSSO program consists of 30 credits. Students must complete the MSSO core requirements consisting of 18 credits. Students must also complete the research requirement of 12 credits, Non-Thesis Option (3 credits) or Thesis Option (6 credits). The remaining credits are made up of graduate level space operations electives.

Students will:

- Evaluate key elements within the space domain and its operational ecosystem.
- Apply STEM principles and theory necessary for conducting spaceflight operations.
- Create strategies for developing space capability and executing spaceflight missions.
- Demonstrate the requisite professional skills desired by large multinational agencies.
- Explain the purpose of empirical research and the role of statistics.
- Correctly apply to data statistical tests for between-subjects designs including t-tests, one-way analysis of variance, and factorial analysis of variance.
- 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 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.

Degree Requirements

MSSO Core Requirements	18
MSA 554	Project Management in Aviation Aerospace
MSA 662	Statistical Analysis for Aviation/Aerospace
MSA 670	Research Methods in Aviation/Aerospace
MSA 511	Earth Observation and Remote Sensing or SPAC 511Earth Observation and Remote Sensing
MSA 512	Space Mission and Launch Operations or SPAC 512Human Spaceflight Industry
MSA 513	Space Habitation and Life Support Systems
Research Requirements	3-6
Select one of the following options:	
MSA 691	Graduate Capstone Research Project
MSA 700	Thesis
Electives	6-9
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	Space Technology and Systems