M.S. in Aeronautics

The MSA degree is designed to provide the student with a broad aviation/aerospace background and technical knowledge in the 7 course core curriculum and the opportunity to select from nine different 3 course specializations to pursue their chosen career path in the aviation field.

The MSA program consists of 30 credits. Students must complete the MSA core requirements consisting of 21 credits, and complete the 9 credits that make up the selected specialization in one of the following: Aviation Safety, Human Factors, Space Operations, Uncrewed Systems, or Small Uncrewed Aircraft Systems, Sustainability, Maintenance, Aviation Cybersecurity, and Research.

View information for B.S. in Aeronautics (BSA) students who wish to continue on to the M.S. in Aeronautics (MSA) degree by enrolling in the BSA-MSA 4+1 program.

Estimated Cost of Attendance

Students will:

- Apply mathematics, science, and applied sciences at a level appropriate to aviation-related disciplines at the master's level, including an adequate foundation in statistics.
- Analyze and interpret data at the master's level.
- Work effectively on multi-disciplinary and diverse teams.
- Make professional and ethical decisions.
- Communicate effectively, using both written and oral communication skills.
- Engage in and recognize the need for life-long learning.
- Assess contemporary issues.
- Use the techniques, skills, and modern technology necessary for professional practice.
- Assess the national and international aviation environment.
- Apply pertinent knowledge in identifying and solving problems.
- Apply knowledge of business sustainability to aviation issues.
- Apply advanced qualitative and quantitative problem-solving skills.

DEGREE REQUIREMENTS

Core/Major

MSA Core Requirements		
ASCI 602	The Air Transportation System	3
ASCI 604	Human Factors in the Aviation/Aerospace Industry	3
ASCI 674	Project Management in Aviation/Aerospace	3
ASCI 516	Applications in Crew Resource Management	3
ASCI 645	Airport Operations and Management	3
ASCI 693	Current Research Problems in Aviation/Aerospace	3
RSCH 665	Statistical Analysis	3
Total Credits		**21**

Specialization

Specialization	**9**

Choose at least one of the Specializations listed.

Total Degree Requirements	**30**

Specializations:

Aviation and Aerospace Sustainability

AASI 600	Sustainable Aviation and Aerospace Perspectives	3
AASI 625	Sustainability Policy in Aviation and Aerospace	3
AASI 629	Sustainable Air Vehicles; Design and Propulsion	3

Small Uncrewed Aircraft Systems (sUAS) Operations

Students declaring the sUAS Operations Specialization or registering for courses within it must be physically located within the U.S. when registering for and while participating in the UNSY 520 and UNSY 620 courses. Students must contact their Academic Advisor regarding additional cost, possible travel, and FAA Testing, prior to enrolling in the first course of this specialization, UNSY 515.

UNSY 515	sUAS Operation Fundamentals	3
UNSY 520	sUAS Practical Application and Assessment	3
UNSY 620	sUAS Operational Planning and Safety Management	3

Uncrewed and Autonomous Systems

UNSY 501	Application of Uncrewed and Autonomous Systems	3
UNSY 603	Uncrewed and Autonomous Systems Operational Configuration	3
UNSY 503	Legal and Regulatory Issues in Uncrewed and Autonomous Systems	3

Space Operations

SPAC 511	Earth Observation and Remote Sensing	3
SPAC 512	Human Spaceflight Industry	3
SPAC 514	Commercial and Governmental Space Infrastructure	3

Aviation Safety

MSAS 611	Aviation/Aerospace System Safety	3
MSAS 615	Aviation/Aerospace Accident Investigation and Analysis	3
MSAS 621	Aviation/Aerospace Safety Program Management	3

Human Factors

MSHF 606	Human Cognition	3
MSHF 612	Human Performance, Limitation, and Error	3
MSHF 624	Ergonomics and Biomechanics	3

Aviation Maintenance

MAVM 601	Leadership in Global Aviation Maintenance Organizations	3
MAVM 605	Global Maintenance Resource Management	3
MAVM 615	Strategic Management of Global Maintenance, Repair and Overhaul (MRO) Operations	3

Aviation Cybersecurity

MACY 515	Foundations of Aviation Cybersecurity	3
MACY 520	Aviation Cybersecurity Threats, Actors, Tools, and Techniques	3

MACY 525	Aviation Cybersecurity Risk Management and Resilience	3

Research

RSCH 670	Research Methods	3
RSCH 700A	Thesis I	3
RSCH 700B	Thesis II	3