

M.S. in Aeronautics

Worldwide Program Requirements

Core Requirements	21
Specialization	9
Total Credits	30

Program Details

The Master of Science in Aeronautics requires successful completion of a minimum of 30 credit hours. Students enrolled in the Worldwide Graduate Online program may complete the degree in six terms, or approximately two years, assuming full-time enrollment and continuous progress. Students pursuing this graduate degree must earn a minimum cumulative grade point average (CGPA) of 3.00 for all work completed at the University. The courses required to earn this degree are listed below.

Students should be aware that many courses have prerequisites and/or corequisites. Students are responsible for ensuring that all prerequisite and degree requirements are satisfied prior to enrollment in advanced coursework. The suggested plan of study is provided as a guide. A student's actual plan of study may vary based on term of admission, course availability, transfer credit, and other academic considerations. Students should consult with their academic advisor to develop an individualized plan of study.

Students must complete the required core curriculum and at least one approved specialization. Students selecting the Small Uncrewed Aircraft Systems (sUAS) Operations specialization must be physically located in the United States while enrolled in UNSY 520 and UNSY 620 and should contact their academic advisor prior to enrolling in UNSY 515 regarding additional costs, potential travel requirements, and FAA testing. Students interested in the Research specialization should consult with their academic advisor regarding thesis requirements and sequencing.

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

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
Total Credits		9

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

Total Credits		9
----------------------	--	----------

* Course includes a mandatory weekend residency and personal sUAS required at students' expense.

Research

RSCH 670	Research Methods	3
RSCH 700A	Graduate Thesis I	3
RSCH 700B	Graduate Thesis II	3
Total Credits		9

Human Factors

HFCT 606	Human Cognition	3
HFCT 612	Human Performance, Limitation, and Error	3
HFCT 624	Ergonomics and Biomechanics	3
Total Credits		9

Aviation maintenance

AMNT 601	Leadership in Global Aviation Maintenance Organizations	3
AMNT 605	Global Maintenance Resource Management	3
AMNT 615	Strategic Management of Global Maintenance, Repair and Overhaul (MRO) Operations	3
Total Credits		9

Aviation Cybersecurity

CYAV 515	Foundations of Aviation Cybersecurity	3
CYAV 520	Aviation Cybersecurity Threats, Actors, Tools, and Techniques	3
CYAV 525	Aviation Cybersecurity Risk Management and Resilience	3
Total Credits		9

Aviation Safety

AVSF 611	Aviation/Aerospace System Safety	3
MSAV 608	Aviation/Aerospace Accident Investigation and Analysis	3
MSAV 621	Aviation/Aerospace Safety Program Management	3
Total Credits		9

Space Operations

SPAC 511	Geospatial Analytics	3
SPAC 512	Human Spaceflight Industry	3
SPAC 514	Commercial and Governmental Space Infrastructure	3
Total Credits		9

Uncrewed and Autonomous Systems

UNSY 503	Legal and Regulatory Issues in Uncrewed and Autonomous Systems	3
UNSY 504	Application of Uncrewed and Autonomous Systems	3

UNSY 603	Uncrewed and Autonomous Systems Operational Configuration	3
----------	--	---

Total Credits	9
---------------	---

Suggested Plans of Study

Specialization: Aviation and Aerospace Sustainability

Two Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
Semester Hours	3

Requirements	Credits
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	3

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
Semester Hours	3

Requirements	Credits
ASCI 645 - Airport Operations and Management	3
Semester Hours	3

Requirements	Credits
AASI 600 - Sustainable Aviation and Aerospace Perspectives	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

Requirements	Credits
AASI 625 - Sustainability Policy in Aviation and Aerospace	3
Semester Hours	3

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3
Semester Hours	3

Requirements	Credits
AASI 629 - Sustainable Air Vehicles; Design and Propulsion	3
Semester Hours	3

Requirements	Credits
RSCH 665 - Statistical Analysis	3
Semester Hours	3

Requirements	Credits
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

One Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	6

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
ASCI 645 - Airport Operations and Management	3
Semester Hours	6

Requirements	Credits
AASI 600 - Sustainable Aviation and Aerospace Perspectives	3
AASI 625 - Sustainability Policy in Aviation and Aerospace	3
Semester Hours	6

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3
AASI 629 - Sustainable Air Vehicles; Design and Propulsion	3
Semester Hours	6

Requirements	Credits
RSCH 665 - Statistical Analysis	3
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	6

Total Credits

Total Hours for All Requirements: 30

Specialization: Small Uncrewed and Autonomous Systems (sUAS) Operations

Two Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
Semester Hours	3

Requirements	Credits
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	3

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
Semester Hours	3

Requirements	Credits
ASCI 645 - Airport Operations and Management	3
Semester Hours	3

Requirements	Credits
UNSY 515 - sUAS Operation Fundamentals	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

Requirements	Credits
UNSY 520 - sUAS Practical Application and Assessment	3
Semester Hours	3

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3
Semester Hours	3

Requirements	Credits
UNSY 620 - sUAS Operational Planning and Safety Management	3
Semester Hours	3

Requirements	Credits
RSCH 665 - Statistical Analysis	3
Semester Hours	3

Requirements	Credits
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

One Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	6

Requirements	Credits
ASCI 645 - Airport Operations and Management	3
UNSY 515 - sUAS Operation Fundamentals	3
Semester Hours	6

Requirements	Credits
UNSY 520 - sUAS Practical Application and Assessment	3
ASCI 516 - Applications in Crew Resource Management	3
Semester Hours	6

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3
UNSY 620 - sUAS Operational Planning and Safety Management	3
Semester Hours	6

Requirements	Credits
RSCH 665 - Statistical Analysis	3
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	6

Total Credits

Total Hours for All Requirements: 30

Specialization: Research

Two Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
Semester Hours	3

Requirements	Credits
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	3

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
Semester Hours	3

Requirements	Credits
ASCI 645 - Airport Operations and Management	3
Semester Hours	3

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

Requirements	Credits
RSCH 665 - Statistical Analysis	3
Semester Hours	3

Requirements	Credits
RSCH 670 - Research Methods	3
Semester Hours	3

Requirements	Credits
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	3

Requirements	Credits
RSCH 700A - Graduate Thesis I	3
Semester Hours	3

Requirements	Credits
RSCH 700B - Graduate Thesis II	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

One Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	6

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
RSCH 665 - Statistical Analysis	3
Semester Hours	6

Requirements	Credits
ASCI 645 - Airport Operations and Management	3
RSCH 670 - Research Methods	3
Semester Hours	6

Requirements	Credits
RSCH 700A - Graduate Thesis I	3
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	6

Requirements	Credits
RSCH 700B - Graduate Thesis II	3
ASCI 674 - Project Management in Aviation/Aerospace	3
Semester Hours	6

Total Credits

Total Hours for All Requirements: 30

Specialization: Human Factors

Two Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
Semester Hours	3

Requirements	Credits
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	3

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
Semester Hours	3

Requirements	Credits
ASCI 645 - Airport Operations and Management	3
Semester Hours	3

Requirements	Credits
HFCT 606 - Human Cognition	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

Requirements	Credits
HFCT 612 - Human Performance, Limitation, and Error	3
Semester Hours	3

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3
Semester Hours	3

Requirements	Credits
HFCT 624 - Ergonomics and Biomechanics	3
Semester Hours	3

Requirements	Credits
RSCH 665 - Statistical Analysis	3
Semester Hours	3

Requirements	Credits
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

One Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	6

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
ASCI 645 - Airport Operations and Management	3
Semester Hours	6

Requirements	Credits
HFCT 606 - Human Cognition	3
HFCT 612 - Human Performance, Limitation, and Error	3
Semester Hours	6

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3
HFCT 624 - Ergonomics and Biomechanics	3
Semester Hours	6

Requirements	Credits
RSCH 665 - Statistical Analysis	3
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	6

Total Credits

Total Hours for All Requirements: 30

Specialization: Aviation Maintenance

Two Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3

Semester Hours	3
-----------------------	----------

Requirements	Credits
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3

Semester Hours	3
-----------------------	----------

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3

Semester Hours	3
-----------------------	----------

Requirements	Credits
ASCI 645 - Airport Operations and Management	3

Semester Hours	3
-----------------------	----------

Requirements	Credits
AMNT 601 - Leadership in Global Aviation Maintenance Organizations	3

Semester Hours	3
-----------------------	----------

Total Credits

Total Hours for All Requirements: 15

Requirements	Credits
AMNT 605 - Global Maintenance Resource Management	3

Semester Hours	3
-----------------------	----------

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3

Semester Hours	3
-----------------------	----------

Requirements	Credits
AMNT 615 - Strategic Management of Global Maintenance, Repair and Overhaul (MRO) Operations	3

Semester Hours	3
-----------------------	----------

Requirements	Credits
RSCH 665 - Statistical Analysis	3

Semester Hours	3
-----------------------	----------

Requirements	Credits
ASCI 693 - Current Research Problems in Aviation/Aerospace	3

Semester Hours	3
-----------------------	----------

Total Credits

Total Hours for All Requirements: 15

One Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3

ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
---	---

Semester Hours	6
-----------------------	----------

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3

ASCI 645 - Airport Operations and Management	3
--	---

Semester Hours	6
-----------------------	----------

Requirements	Credits
AMNT 601 - Leadership in Global Aviation Maintenance Organizations	3

AMNT 605 - Global Maintenance Resource Management	3
---	---

Semester Hours	6
-----------------------	----------

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3

AMNT 615 - Strategic Management of Global Maintenance, Repair and Overhaul (MRO) Operations	3
---	---

Semester Hours	6
-----------------------	----------

Requirements	Credits
RSCH 665 - Statistical Analysis	3

ASCI 693 - Current Research Problems in Aviation/Aerospace	3
--	---

Semester Hours	6
-----------------------	----------

Total Credits

Total Hours for All Requirements: 30

Specialization: Aviation Cybersecurity

Two Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3

Semester Hours	3
-----------------------	----------

Requirements	Credits
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3

Semester Hours	3
-----------------------	----------

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3

Semester Hours	3
-----------------------	----------

Requirements	Credits
ASCI 645 - Airport Operations and Management	3

Semester Hours	3
-----------------------	----------

Requirements	Credits
CYAV 515 - Foundations of Aviation Cybersecurity	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

Requirements	Credits
CYAV 520 - Aviation Cybersecurity Threats, Actors, Tools, and Techniques	3
Semester Hours	3

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3
Semester Hours	3

Requirements	Credits
CYAV 525 - Aviation Cybersecurity Risk Management and Resilience	3
Semester Hours	3

Requirements	Credits
RSCH 665 - Statistical Analysis	3
Semester Hours	3

Requirements	Credits
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

One Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	6

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
ASCI 645 - Airport Operations and Management	3
Semester Hours	6

Requirements	Credits
CYAV 515 - Foundations of Aviation Cybersecurity	3
CYAV 520 - Aviation Cybersecurity Threats, Actors, Tools, and Techniques	3
Semester Hours	6

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3

CYAV 525 - Aviation Cybersecurity Risk Management and Resilience	3
Semester Hours	6

Requirements	Credits
RSCH 665 - Statistical Analysis	3
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	6

Total Credits

Total Hours for All Requirements: 30

Specialization: Aviation Safety

Two Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
Semester Hours	3

Requirements	Credits
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	3

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
Semester Hours	3

Requirements	Credits
ASCI 645 - Airport Operations and Management	3
Semester Hours	3

Requirements	Credits
AVSF 611 - Aviation/Aerospace System Safety	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

Requirements	Credits
MSAV 608 - Aviation/Aerospace Accident Investigation and Analysis	3
Semester Hours	3

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3
Semester Hours	3

Requirements	Credits
MSAV 621 - Aviation/Aerospace Safety Program Management	3
Semester Hours	3

Requirements	Credits
RSCH 665 - Statistical Analysis	3
Semester Hours	3

Requirements	Credits
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

One Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	6

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
ASCI 645 - Airport Operations and Management	3
Semester Hours	6

Requirements	Credits
AVSF 611 - Aviation/Aerospace System Safety	3
MSAV 608 - Aviation/Aerospace Accident Investigation and Analysis	3
Semester Hours	6

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3
MSAV 621 - Aviation/Aerospace Safety Program Management	3
Semester Hours	6

Requirements	Credits
RSCH 665 - Statistical Analysis	3
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	6

Total Credits

Total Hours for All Requirements: 30

Specialization: Space Operations

Two Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
Semester Hours	3

Requirements	Credits
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	3

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
Semester Hours	3

Requirements	Credits
ASCI 645 - Airport Operations and Management	3
Semester Hours	3

Requirements	Credits
SPAC 511 - Geospatial Analytics	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

Requirements	Credits
SPAC 512 - Human Spaceflight Industry	3
Semester Hours	3

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3
Semester Hours	3

Requirements	Credits
SPAC 514 - Commercial and Governmental Space Infrastructure	3
Semester Hours	3

Requirements	Credits
RSCH 665 - Statistical Analysis	3
Semester Hours	3

Requirements	Credits
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

One Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	6

Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
ASCI 645 - Airport Operations and Management	3
Semester Hours	6

Requirements	Credits
SPAC 511 - Geospatial Analytics	3
SPAC 512 - Human Spaceflight Industry	3
Semester Hours	6

Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3

SPAC 514 - Commercial and Governmental Space Infrastructure	3
Semester Hours	6
Requirements	Credits
RSCH 665 - Statistical Analysis	3
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	6

Total Credits

Total Hours for All Requirements: 30

Specialization: Uncrewed and Autonomous Systems

Two Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
Semester Hours	3
Requirements	Credits
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	3
Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
Semester Hours	3
Requirements	Credits
ASCI 645 - Airport Operations and Management	3
Semester Hours	3
Requirements	Credits
UNSY 504 - Application of Uncrewed and Autonomous Systems	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

Requirements	Credits
UNSY 603 - Uncrewed and Autonomous Systems Operational Configuration	3
Semester Hours	3
Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3
Semester Hours	3
Requirements	Credits
UNSY 503 - Legal and Regulatory Issues in Uncrewed and Autonomous Systems	3
Semester Hours	3

Requirements	Credits
RSCH 665 - Statistical Analysis	3
Semester Hours	3
Requirements	Credits
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	3

Total Credits

Total Hours for All Requirements: 15

One Year Plan

Requirements	Credits
ASCI 602 - The Air Transportation System	3
ASCI 604 - Human Factors in the Aviation/Aerospace Industry	3
Semester Hours	6
Requirements	Credits
ASCI 516 - Applications in Crew Resource Management	3
UNSY 504 - Application of Uncrewed and Autonomous Systems	3
Semester Hours	6
Requirements	Credits
UNSY 603 - Uncrewed and Autonomous Systems Operational Configuration	3
ASCI 645 - Airport Operations and Management	3
Semester Hours	6
Requirements	Credits
ASCI 674 - Project Management in Aviation/Aerospace	3
UNSY 503 - Legal and Regulatory Issues in Uncrewed and Autonomous Systems	3
Semester Hours	6
Requirements	Credits
RSCH 665 - Statistical Analysis	3
ASCI 693 - Current Research Problems in Aviation/Aerospace	3
Semester Hours	6

Total Credits

Total Hours for All Requirements: 30

Estimated Cost of Attendance

Estimated Cost of Attendance: California Student Information (<https://catalog.erau.edu/student-life/student-affairs/california-student/>)