



**USC Viterbi**  
School of Engineering

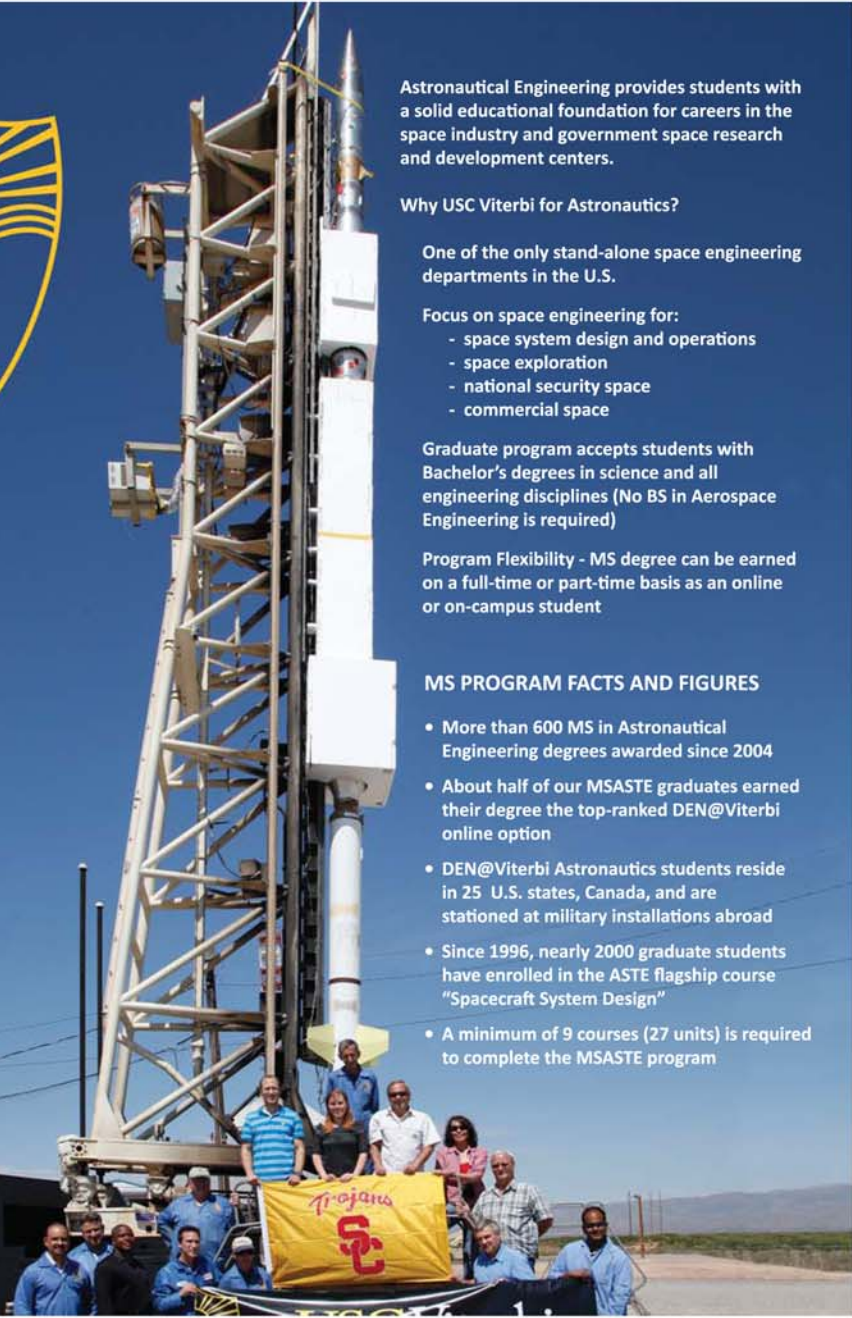
## On-Campus & Online Graduate Programs in Astronautical Engineering



Astronautics Video



USC University of  
Southern California



Astronautical Engineering provides students with a solid educational foundation for careers in the space industry and government space research and development centers.

### Why USC Viterbi for Astronautics?

One of the only stand-alone space engineering departments in the U.S.

Focus on space engineering for:

- space system design and operations
- space exploration
- national security space
- commercial space

Graduate program accepts students with Bachelor's degrees in science and all engineering disciplines (No BS in Aerospace Engineering is required)

Program Flexibility - MS degree can be earned on a full-time or part-time basis as an online or on-campus student

### MS PROGRAM FACTS AND FIGURES

- More than 600 MS in Astronautical Engineering degrees awarded since 2004
- About half of our MASTE graduates earned their degree the top-ranked DEN@Viterbi online option
- DEN@Viterbi Astronautics students reside in 25 U.S. states, Canada, and are stationed at military installations abroad
- Since 1996, nearly 2000 graduate students have enrolled in the ASTE flagship course "Spacecraft System Design"
- A minimum of 9 courses (27 units) is required to complete the MASTE program

## MASTER OF SCIENCE ADMISSION REQUIREMENTS

- An undergraduate degree in any engineering discipline or hard science from a regionally-accredited university
- Official transcripts of all college level work
- GRE scores (less than 5 years old)
- Two Letters of Recommendation
- CV/Résumé
- Personal Statement
- TOEFL/IELTS scores (International applicants only)
- Completed online application

MS in Astronautical Engineering – Video Overview  
([bit.ly/msastronautics](http://bit.ly/msastronautics))

## DOCTORAL (PhD) ADMISSION REQUIREMENTS

- An undergraduate degree in any engineering discipline or hard science from a regionally-accredited university
- Official transcripts of all college level work, GRE scores (less than 5 years old), 3 Letters of Recommendation, CV/Résumé, and Personal Statement
- Documented research experience
- TOEFL/IELTS scores (International applicants only)
- Completed online application

## COURSE OFFERINGS

### Required Courses

- Spacecraft System Design
- Spacecraft Environments and Spacecraft Interactions
- Spacecraft Propulsion
- Orbital Mechanics I

### Core & Technical Electives

- Orbital Mechanics II
- Space Navigation
- Solar System Navigation
- Spacecraft Attitude Dynamics
- Spacecraft Attitude Control
- Liquid Rocket Propulsion
- Solid Rocket Propulsion

### Core & Technical Electives (cont'd)

- Advanced Spacecraft Propulsion
- Space Launch Vehicle Design
- Physical Gas Dynamics I, II
- Plasma Dynamics
- Spacecraft Structural Dynamics
- Spacecraft Structural Strength and Materials
- Design of Low Cost Space Missions
- Space Studio Architecting
- Entry and Landing Systems for Planetary Exploration
- Ground Communications Satellite Operations

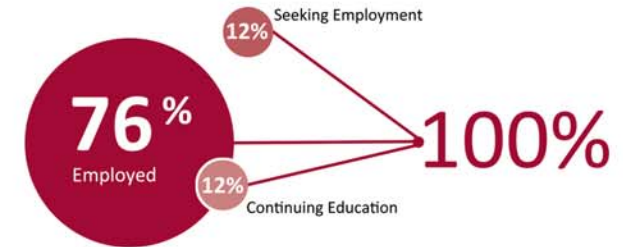
### Core & Technical Electives (cont'd)

- Spacecraft Thermal Control
- Spacecraft Power Systems
- Systems for Remote Sensing from Space
- Spacecraft Sensors
- Spacecraft Cryogenic Systems
- Safety of Space Systems and Missions
- Reliability of Space Systems
- Human Spaceflight
- Spacecraft Life Support Systems
- Human Factors in Spacecraft Operations



USC Liquid Propulsion Lab - World's first test fire of a student-built 3D printed rocket engine made entirely on campus ([bit.ly/LPL\\_Engine](http://bit.ly/LPL_Engine))

## CAREER SURVEY\*



## ANNUAL STARTING SALARY



## WHERE ASTRONAUTICS TROJANS ARE WORKING

### Top Companies

- The Boeing Company
- Lockheed Martin
- Northrop Grumman
- Raytheon
- NASA Centers (JPL, Marshall, Johnson, etc.)
- SpaceX
- U.S. Air Force
- U.S. Government
- Aerojet-Rocketdyne
- Blue Origin
- United Technologies

## APPLICATION DEADLINES

MS (Fall) – January 15 (or December 15 for scholarship consideration)  
MS (Spring) – September 15 (or August 31 for scholarship consideration)  
PhD (Fall) – December 15

## MORE INFORMATION

Department of Astronautical Engineering: [astronautics.usc.edu](http://astronautics.usc.edu)  
Graduate Application: [usc.edu/admission/graduate/apply](http://usc.edu/admission/graduate/apply)  
MS in Astronautical Engineering: [bit.ly/msastro](http://bit.ly/msastro)  
PhD in Astronautical Engineering: [bit.ly/phdastro](http://bit.ly/phdastro)  
Online Option: [viterbigradadmission.usc.edu/denviterbi/experience](http://viterbigradadmission.usc.edu/denviterbi/experience)

## CONTACTS

### Graduate Programs

[viterbi.gradprograms@usc.edu](mailto:viterbi.gradprograms@usc.edu)  
213-740-4488

### Astronautical Engineering

Nicole Valdez  
[nicoleva@usc.edu](mailto:nicoleva@usc.edu)  
213-821-4234