Undergraduate Education
Actually, it IS rocket science!

.... and much more! Everything that involves the design, function and testing of vehicles and devices that operate in an atmosphere or in space. Welcome aboard a program that will take your aspirations far beyond the horizon to a higher level of accomplishment.

Aerodynamics and Propulsion

» Subsonic, transonic, supersonic and hypersonic aerodynamics
» Jet and rocket engine analysis and design
» Computational simulation and experimental testing

Aircraft and Spacecraft Structures

» Materials properties and selection
» Design of aircraft and spacecraft structures
» Composite materials and aeroelasticity
» Materials testing and non-destructive evaluation

Flight Dynamics and Control

» Aircraft flight dynamics
» Spacecraft flight dynamics
» Control systems and software
» Spacecraft systems

Aerospace Design and Complex Systems

» Aircraft or spacecraft design options
» Systems and optimization
» An extension of technology to hypersonic flow studies

Software and Programming

» Programming and numerical methods

Learn from those who’ve “been there”

Former NASA astronaut Clayton Anderson (left) and former NASA flight director Tomas Gonzalez-Torres are department alums who have brought a real-world background to courses. The “right stuff” for your aerospace journey!

Continuing an ISU tradition

Just a few notable alums include Joel Montalbano (left), NASA’s International Space Station Program Manager; Kim Pastega (center) is Vice President and General Manager of Boeing Fabrication; Vera Martinovich (right) is an Engineering Manager with The Boeing Company and has worked with developing Boeing’s all-new flight deck for commercial aircraft.

Empowering opportunity!

Hanna Stec (right), is one of 51 students worldwide selected for a coveted Brooke Owens Fellowship, recognizing exceptional undergraduate women. She was nominated by Black and Veatch Building a World of Difference Faculty Fellow in Engineering and 14-year NASA veteran Dr. Kristin-Yvonne Rozier (left). Stec is just one example of how female students can achieve greatness in aerospace engineering with the help of leadership at ISU.
Fly high with student organizations and activities
Step beyond the classroom with groups that bring challenge, growth and unbeatable hands-on experience. Below are just a few of many available.

Make To Innovate
Choose from dynamic team projects that open a new world of hands-on opportunity:
- Commercial aircraft engineering
- Unpiloted Aerial Vehicles
- Cube satellites
- Lunar and Mars vehicles
- High-altitude balloons
- Rocketry
- Liquid propulsion for spacecraft

The Boeing Company and Collins Aerospace are significant contributors to the M:2:I program.

Cyclone Rocketry
“CyRoc” designs, builds, tests and launches operating rockets. One of the most visible student organizations at Iowa State, this group competes annually in the prestigious Spaceport America Cup event in New Mexico.

American Institute of Aeronautics and Astronautics
The American Institute of Aeronautics and Astronautics is the world’s largest aerospace technical society with student chapters at universities throughout the nation. Iowa State’s chapter is an active and diverse group of dedicated students who plan events, coordinate projects and utilize the association’s industry connections.

Degree options to enhance your future:
- Concurrent Bachelor’s and Master’s Degree
- Minor in Non-Destructive Evaluation
- Minor in Cyberphysical Systems

Faculty member spotlight, undergraduate studies

Paul Durbin
Ph.D. Univ. of Cambridge; Fellow, American Physical Society
Research in transition and turbulence. Teaches aerodynamics.

Travis Grager
Former designer and production manager for InstantEye Drone at Physical Sciences, Inc. Teaches aircraft performance and aircraft design.

Stephen Holland
Ph.D. Cornell University; Fellow, American Society of Non-Destructive Testing
Research in non-destructive evaluation (NDE). Teaches NDE and cyberphysical systems.

Hui Hu
Ph.D. Univ. of Tokyo
Fellow ASME; Associate Fellow, AIAA.
Research in experimental aerodynamics, propulsion and aircraft icing. Teaches aerodynamics and propulsion lab.

Anupam Sharma
Ph.D. Penn State Univ.
Associate Fellow, AIAA
Former senior engineer, General Electric Global Research Center.
Research in computational fluid dynamics and acoustics. Teaches aerodynamics, jet engine design and acoustics.

Dwight DeJong
Retired USMC pilot and flight instructor.
Teaches flight experience.

Matthew Nelson
Director, Make To Innovate (M:2:I); President, Stratospheric Ballooning Assn.
The sky is NOT the limit! Opportunities abound for undergraduates to gain valuable laboratory experience using what they learn in the classroom.

Freshman Lab
Spaceflight Simulation Lab
Aerodynamics & Propulsion Lab
M:2:1 - Make to Innovate
Composites Lab
Flight Simulation Lab
Structures Lab
Aircraft Design Lab
3D Printing Lab
Computer Lab
Student Innovation Center

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