IOWA STATE UNIVERSITY
Department of Aerospace Engineering

UNDERGRADUATE EDUCATION

ACTUALLY, IT IS ROCKET SCIENCE.

…and much more! Aerospace engineering advances aircraft, spacecraft, and all technology and materials in the sky and space – and even underwater. Welcome aboard.

DEGREE OPTIONS TO ENHANCE YOUR FUTURE:

- Concurrent Bachelor's and Master's Degree
- Minor in Non-Destructive Evaluation
- Minor in Cyberphysical Systems

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

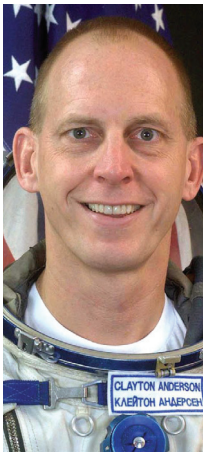
- Aircraft or spacecraft design options
- Systems and optimization
- An extension of technology to hypersonic flow studies

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 department alums include Joel Montalbano (top left), Deputy Associate Administrator of NASA Space Operations Missions Directorate; Kim Pastega (top right), Vice President of Manufacturing and Safety for Boeing Commercial Airplanes; U.S. Air Force Major General (retired) Clint Crosier (bottom left) who served as Director of the Department of Defense Space Force Planning Task Force; and Phil Jasper (bottom right), President of Raytheon.

OPPORTUNITY AND SUPPORT

Hanna Stec was one of just 51 students worldwide selected for a prestigious Brooke Owens Fellowship, a national fellowship that offers paid internships and executive mentorship. Stec was nominated by her aerospace professor Kristin Yvonne Rozier, who worked at NASA for 14 years before joining Iowa State.

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

ROCKETRY CLUB

Rocketry Club designs, builds, tests and launches high-powered 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.

AIAA
SHAPING THE FUTURE OF AEROSPACE

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.

FACULTY MEMBER SPOTLIGHT, UNDERGRADUATE STUDIES

NATALIYA ALTUKHOVA
Ph.D. Texas Tech University
Teaches numerical, graphical and laboratory techniques and "Math You Need To Know" seminar.

DWIGHT DEJONG
Retired USMC pilot and flight instructor.
Teaches flight experience.

PAUL DURBIN
Ph.D. University 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. University of Tokyo
Fellow, ASME; Associate Fellow, AIAA.
Research in experimental aerodynamics, propulsion and aircraft icing. Teaches aerodynamics and propulsion lab.

JENNY JOHANNSEN
NVH test engineer, Eaton Supercharger; product development/test engineer, Delphi Automotive
Teaches Mechanics of Materials and Flight Structures Analysis.

MATTHEW NELSON
Director, Make To Innovate (M:2:I); Iowa State Engineering Entrepreneurial Fellow; President, Stratospheric Ballooning Association.

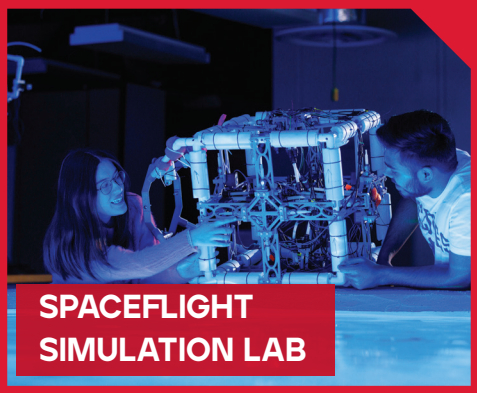
CAROLYN RIEDEL
Teaches Aerospace Engineering Problems With Computer Applications Laboratory, Composite Flight Structures.

ANUPAM SHARMA
Ph.D. Penn State University; 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.

AZADEH SHEIDAEI
Ph.D. Michigan State University
Teaches Advanced Flight Structures.

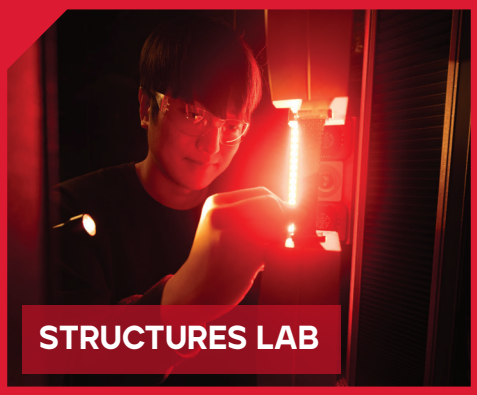
UNDERGRADUATE LABS AND FACILITIES

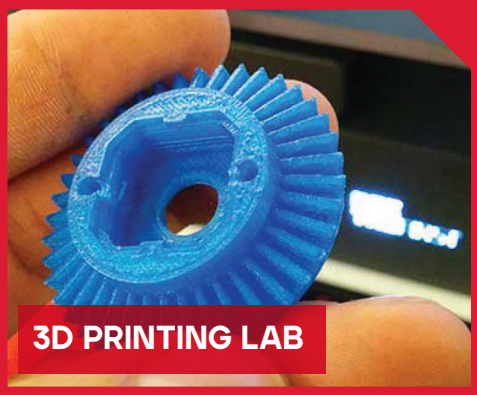
Opportunities abound for undergraduates to gain valuable laboratory experience using what they learn in the classroom.


SPACEFLIGHT SIMULATION LAB


FRESHMAN LAB


COMPOSITES LAB

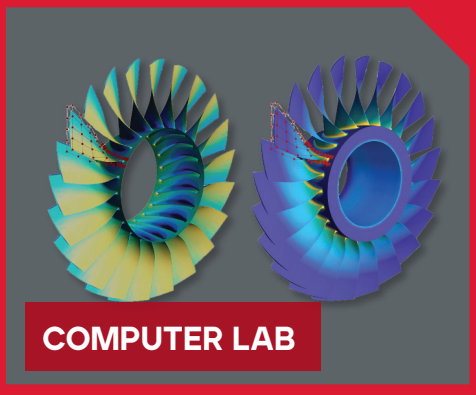

STRUCTURES LAB


3D PRINTING LAB


FLIGHT SIMULATION LAB


AIRCRAFT DESIGN LAB


M:2:I
MAKE TO INNOVATE


COMPUTER LAB


AERODYNAMICS & PROPULSION LAB


STUDENT INNOVATION CENTER

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DEPARTMENT OF
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