

# AEROSPACE ENGINEERING (ENAE)

Graduate Degree Program  
College: Engineering

## Abstract

The Aerospace Engineering Department offers a broad program in graduate studies leading to the degrees of Master of Science (thesis and non-thesis) and Doctor of Philosophy. Graduate students can choose from the following areas of specialization: aerodynamics and propulsion; structural mechanics and composites; rotorcraft; space systems; and flight dynamics, stability and control. Within these disciplines, the student can tailor programs in areas such as computational fluid dynamics, aeroelasticity, hypersonics, composites, smart structures, finite elements, space propulsion, robotics, and human factors.

## Financial Assistance

A number of graduate assistantships and fellowships are available for financial assistance. Graduate teaching and research assistantships are available beginning at \$20,000 per year plus tuition and health benefits. In addition, a number of fellowships are available, such as Minta Martin Fellowships, Rotorcraft Fellowships, the Hokenson Fellowship, ARCS Fellowships, and various departmental fellowships and scholarships. These fellowships cover tuition in addition to a stipend. All full-time applicants are automatically considered for these fellowships.

## Contact

### Department of Aerospace Engineering

3179 Glenn L. Martin Hall Building  
4298 Campus Drive  
University of Maryland  
College Park, MD 20742  
**Telephone:** 301.405.2376  
**Fax:** 301.314.9001

**Website:** <http://www.aero.umd.edu>

**Courses:** ENAE (<https://academiccatalog.umd.edu/graduate/courses/enae/>)

## Admissions

### General Requirements

- Statement of Purpose
- Transcript(s)
- TOEFL/IELTS/PTE (international graduate students (<https://gradschool.umd.edu/admissions/english-language-proficiency-requirements/>))

### Program-Specific Requirements

- GRE General (Optional, strongly encouraged for applicants seeking financial support)
- 3 Letters of Recommendation
- CV/Resume
- GPA: 3.2 for M.S. and 3.5 for Ph.D.

Applicants should have a B.S. degree in Aerospace Engineering (or in a closely related field) with a recommended minimum GPA of 3.2/4.0 from an accredited institution. Applicants with a marginal academic record may be conditionally approved for admission to the M.S. program if other evidence of accomplishment is provided (i.e. publications or exceptional letters of recommendation). Admission to the Ph.D. program requires an academic record indicating promise of the high level of accomplishment required for the degree. The Graduate Record Examination (GRE) is strongly recommended for admission, but only *required* for international applicants.

For more admissions information or to apply to the program, please visit our Graduate School website (<https://gradschool.umd.edu/admissions/application-process/step-step-guide-applying/>).

## Application Deadlines

Type of Applicant	Fall Deadline	Spring Deadline
<b>Domestic Applicants:</b>		
US Citizens and Permanent Residents	Preferred 15 Jan / Final 1 Apr	Preferred 18 Dec / Final 12 Dec
<b>International Applicants:</b>		
F (student) or J (exchange visitor) visas; A,E,G,H,I and L visas and immigrants.	12 Mar	30 Sep

**Other Deadlines:** Please visit the program website at <http://www.aero.umd.edu>

## Requirements

- Aerospace Engineering, Doctor of Philosophy (Ph.D.) (<https://academiccatalog.umd.edu/graduate/programs/aerospace-engineering-enaе/aerospace-engineering-phd/>)
- Aerospace Engineering, Master of Science (M.S.) (<https://academiccatalog.umd.edu/graduate/programs/aerospace-engineering-enaе/aerospace-engineering-ms/>)

## Facilities and Special Resources

The departmental facilities for experimental research include the Glenn L. Martin Wind Tunnel, the Composites Research Laboratory, the Space Systems Laboratory, and the facilities of the Center for Rotorcraft Education and Research. The Glenn L. Martin Wind Tunnel, with its 8-foot high by 11-foot wide test section, has a maximum operating speed of 330 feet per second. It is used extensively for development testing by industry as well as for research. There are also two smaller subsonic tunnels and a supersonic tunnel that are used in support of departmental research programs.

The Composites Research Laboratory is located in the Manufacturing Building. Its facilities include a microprocessor-controlled autoclave, a vacuum hot press, a two-axis filament winding machine, an MTS 220 Kip uniaxial testing machine, an x-ray machine and an environmental conditioning chamber. The laboratory provides for a full spectrum of specimen and component manufacture, preparation and instrumentation, inspection, and testing. The Space Systems Laboratory performs world-class research on space operations, with particular emphasis on neutral buoyancy simulation of space robotics and human factors. The Neutral Buoyancy Research Facility is a multi-million dollar laboratory built around a 50-foot diameter by 25-foot deep water tank for simulating the

microgravity environment of space. Six different telerobotic systems are currently under test in this facility, which is one of only two operating in the United States and the only neutral buoyancy facility in the world to be located at a university. The facilities of the Alfred Gessow Rotorcraft Center include two experimental rotor rigs to test articulated and bearingless rotors in hovering and in forward flight. The hover test facility can accommodate up to a 6-foot diameter rotor. In addition, the facilities include a 10-foot diameter vacuum chamber to study the structural dynamic characteristics of spinning rotors in the absence of aerodynamic loads and a three-component laser Doppler anemometer for flowfield measurements. A new 20-foot by 20-foot by 30-foot anechoic acoustic test chamber is used to carry out impulsive noise studies of rotorcraft in hover. Dynamic scaled rotor blades are built using composite facility