

AEROSPACE ENGINEERING

A. James Clark School of Engineering

3179 Glenn L. Martin Hall
301-405-2376

aero_undergrad@umd.edu

www.aero.umd.edu (<http://www.aero.umd.edu>)

Aerospace engineering is concerned with the design, construction, and science of aircraft and spacecraft. It is divided into two major and overlapping branches: aeronautical engineering and astronautical engineering. The former deals with craft that stay within Earth's atmosphere, and the latter with craft that operate outside it.

Aerospace engineers design, develop, and test aircraft, spacecraft, and missiles, and supervise their manufacture. Those who work with aircraft are called aeronautical engineers, and those working specifically with spacecraft are called astronautical engineers. Aerospace engineers develop new technologies for use in aviation, defense systems, and space exploration, often specializing in areas such as structures, propulsion systems, vehicle movement and control, communications, and overall vehicle design.

Programs

Major

- Aerospace Engineering Major (<https://academiccatalog.umd.edu/undergraduate/colleges-schools/engineering/aerospace-engineering/aerospace-engineering-major/>)

Advising

Advising is mandatory each semester. First year students and first semester transfer students are primarily advised by the Student Services staff members. After the first year, students are assigned to a faculty advisor whose permission is required for course registration each semester. The list of advisor assignments is available on the department's website.

Opportunities

Undergraduate Research Experiences

Students can be employed and perform research in any of the department's research labs, centers, or facilities. Participation in an on or off campus internship, co-op, or other experiential learning opportunity is strongly encouraged. See the aerospace engineering undergraduate studies staff for information on performing research in a department lab and contact the Engineering Career Services office for assistance in obtaining off campus positions or experiences.

Honors Program

The Aerospace Engineering Honors Program at the University of Maryland provides a rigorous and comprehensive education for a career in technical leadership and scientific or engineering research. Honors coursework encompasses the required curriculum for all University of Maryland Aerospace Engineering students at an advanced level.

At the end of their first academic year, each aerospace student is evaluated and students are invited to join the program based on their University of Maryland cumulative grade point average and progress toward their degree in Aerospace Engineering. Honors sections of

ENAE283, ENAE311, and ENAE423 (designated by an 'H' following the course number) are offered as part of this program, in addition to an honors research project, ENAE398H, which culminates in a scholarly paper and presentation at a professional conference. Students who complete the honors curriculum graduate with Aerospace Honors at the time of commencement.

Student Societies and Professional Organizations

The department is home to student chapters of the American Institute of Aeronautics and Astronautics, Society for Advancement of Materials and Process Engineering, Sigma Gamma Tau aerospace engineering honors society, and Vertical Flight Society.

Scholarships and Financial Assistance

The department offers academic scholarships, and recipients are chosen based on merit. All admitted and current students in the department are automatically considered for these awards. No separate application is required. The Office of Student Financial Aid (OSFA) administers all types of federal, state and institutional financial assistance programs and, in cooperation with other university offices, participates in the awarding of scholarships to deserving students. For information, visit: www.financialaid.umd.edu (<http://www.financialaid.umd.edu>).

Awards and Recognition

The department offers the following awards: Alfred Gessow Academic Achievement Awards for the seniors with the highest overall academic average at graduation; R.M. Ravello Scholarship Award and the Joseph Guthrie Memorial Award for highest overall academic average through the junior year; Chair Award for leadership and service to the department; Sigma Gamma Tau Outstanding Achievement Award for scholarship and service to the student chapter and the department; American Institute of Aeronautics and Astronautics Outstanding Achievement Award for scholarship and service to the student chapter and the department; Women in Aeronautics and Astronautics Outstanding Achievement Award for scholarship and service to the student organization and the department; John D. Anderson Scholarship in Aerospace Engineering to enable a rising senior to engage in summer research under the mentorship of a faculty member.

Academic Programs and Departmental Facilities

The Aerospace Engineering Department has a number of facilities to support education and research across a range of special areas. The department has subsonic wind tunnels with test sections ranging from a few inches up to 7.75 feet by 11.00 feet as well as a supersonic tunnel with a 6 inch by 6 inch test section. There are a number of structural test machines with capabilities up to 220,000 pounds for static loads and 50,000 pounds for dynamic loads. The department also has experimental facilities to test helicopter rotors in hover, in forward flight, and in vacuum to isolate inertial loads from aerodynamic loads. There is an anechoic chamber for the investigation of noise generated by helicopters, and an autoclave and other facilities for manufacturing and inspecting composite structures. The neutral buoyancy facility, which investigates the assembly of space structures in a simulated zero gravity environment, is supported by robots and associated controllers. There are also many computers and workstations that provide local computing

capability and extensive network access to campus mainframes, supercomputing centers, and all the resources of the Internet.