DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS

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MIT AERONAUTICS AND ASTRONAUTICS

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AEROASTRO

MIT DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS

THE UNDERGRADUATE EXPERIENCE

MIT AeroAstro students, faculty, and staff share a passion for air and space vehicles, the technologies that enable them, and the missions they fulfill. AeroAstro is connected, busy, global, hectic, open, collegial, and fun!

GRAND CHALLENGES – GRAND
ORTUNITIES

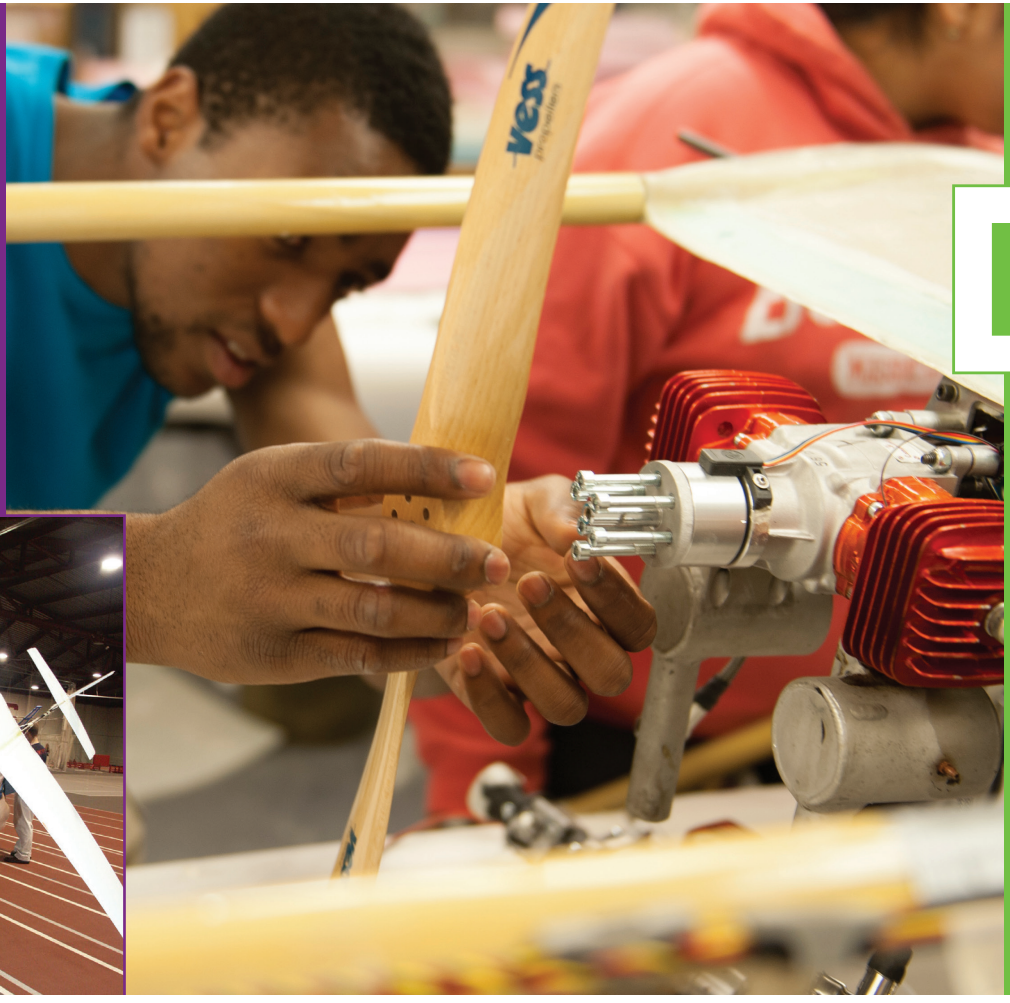
THE MIT DEPARTMENT OF AERONAUTICS AND ASTRONAUTICS

Aerospace is an intellectually challenging, economically important, and exciting field. MIT AeroAstro's mission is to prepare engineers for success and leadership.

Graduates with an AeroAstro engineering degree are ready for careers in such fields as commercial and military aircraft and spacecraft engineering, space exploration, air and space-based telecommunication, teaching, research, and military service.

AeroAstro also uniquely qualifies its graduates for a broad range of technology-intensive careers beyond aerospace engineering, like mechanical and environmental engineering, engineering and management consulting, and information technology. In addition, an MIT AeroAstro education is excellent preparation for business, law, medicine, and public service.

We have a tradition of strong scholarship and solving industrial-strength problems. Our department includes people whose careers included astronaut, pilot, government and military leaders, aerospace executives, and corporate founders.



FRESHMAN YEAR

DISCOVERING

AEROSPACE ENGINEERING

While MIT students don't choose majors until the end of their first year, AeroAstro has some exciting opportunities for freshmen. Introduction to Aerospace Engineering and Design (Class 16.00) is a terrific way to get involved: you start learning aerospace basics as you work on hands-on team projects including designing, building, and competing radio-controlled lighter-than-air aircraft. In Modern Space Science and Engineering (16.68), aerospace professionals introduce you to a range of contemporary engineering challenges like extra vehicular activity injuries, study of exoplanets, and future space suit design. Both courses are taught by five-mission Shuttle astronaut Professor Jeff Hoffman, whose missions included repairing the Hubble Space Telescope.

SOPHOMORE YEAR

DESIGN, BUILD, FLY

Sophomore year is when you join us as a full-fledged AeroAstro major. In our Unified Engineering class you learn the fundamentals of aerospace: fluid mechanics, thermodynamics, propulsion, materials, structures, and signals and systems. But, we're not just a "chalk talk" department – we're a hands-on "let's build it" group. You'll use your new skills to design, build, fly, and compete with projects like high-altitude balloons, water-propelled rockets, and radio-controlled aircraft.

R

JUNIOR YEAR

EADY TO ENGINEER

By junior year, you're doing some serious engineering. And, here's where you have some real flexibility to customize your studies to your interests. You choose from 10 offerings in what we call Professional Area Subjects; they include classes like aerodynamics, structural mechanics, propulsion, autonomous systems, and modeling/simulation. And the hands-on experience ramps up. This is when you can take our Experimental Projects Lab. This is your project. You and your small team define a problem, develop a hypothesis, identify experimental goals, design and construct the research apparatus, conduct the testing, evaluate the results. Students in this class have researched projects as diverse as speed skates, rocket fuel tanks, racing ships' sails, and contra-rotating helicopter rotors. They've conducted their research in our wind tunnels, the Gas Turbine Laboratory, the MIT Age Lab, an ice rink, a towing tank, at Logan Airport, and atop tall buildings.

CA

SENIOR YEAR

PSTONE

It all comes together in one of the most exciting classes you'll take at MIT—the Capstone Course. You and your classmates team up to use all the engineering skills you've learned as you design and build a unique aircraft or space vehicle. Past examples include a walking planetary rover, CubeSat satellites, and drones for the US Air Force. In fact, one Capstone class designed and built a prototype for three microsatellites that are now aboard the International Space Station as research testbeds.

UNDERGRADUATE

RESEARCH OPPORTUNITIES

RESEARCH OPPORTUNITIES & INTERNSHIPS

You don't have to wait to be a graduate student to do aerospace research here – we have a range of real research opportunities in which you can work as early as your freshman year. In the Undergraduate Research Opportunities Program, you assist faculty as a junior colleague in every phase of their research: developing plans, writing proposals, conducting research, analyzing data, and presenting research results. You may find yourself working on a project for the FAA, NASA, or a private aerospace company. UROPs are a great way to learn more about aerospace research, prepare for graduate school and careers, connect with faculty, and apply your classroom learning to real-world research. AeroAstro summer internships offer you the chance to work in engineering, consulting, government, or public service, in companies ranging from small startups to Fortune 500 organizations, on projects ranging from planetary robotic exploration to flight simulation program design.

CAREERS

ENGINEERING CAREERS

Once you have your degree from MIT AeroAstro, a wide range of engineering career opportunities awaits in aerospace, and in many other engineering and professional fields. Our alums range from aircraft designers, to commercial spacecraft entrepreneurs, to government aerospace program managers, to test pilots and astronauts. Some have found their AeroAstro education a superb basis for fields as diverse as locomotive design, environmental impact mitigation, alternative fuel research, and land, sea, and autonomous vehicle development. And still others are following rewarding paths in finance, law, medical engineering, public service, information technology, management consulting, and non-profit organizational leadership. There are no limits to the ways in which our alums parlay the unique collection of professional skills they attain in AeroAstro into diverse and unique careers.

FACULTY

AEROASTRO FACULTY

The astronaut who wrestled the Hubble Telescope into the Shuttle to repair its faulty vision. Award-winning pilots. Two former secretaries of the Air Force and five Air Force chief scientists. The designer of record-setting human-powered aircraft. The team developing a commercial aircraft with the potential to achieve 70 percent better fuel economy than any current plane of its class.

These are just a few of the internationally renowned AeroAstro faculty who will be your teachers, your mentors, your research leaders, and your senior colleagues.

ACTIVITIES

UNDERGRADUATE, GRADUATE & FACULTY ACTIVITIES

AeroAstro teams, groups, clubs, and special initiatives offer excellent opportunities for activities with fellow undergraduates, graduate students, and faculty, who share your interests and enthusiasm. Just a few of these are:

- American Institute of Aeronautics and Astronautics MIT Chapter
- Design/Build/Fly Team
- Flying Club
- Intramural Sports AeroAstro teams
- Remote Controlled Flight Group
- Rocket Team
- Satellite Team
- Students for the Exploration and Development of Space