AEROSPACE ENGINEERING (PHD)

Graduate School

Program Website (https://www.mae.cornell.edu/mae/programs/graduate-programs/phd-degree/)

CIP: 14.0201 | **HEGIS:** 0902.00 | **NYSED:** 13640

Graduate Field

Aerospace Engineering (https://catalog.cornell.edu/graduate-school/aerospace-engineering/)

Program Description

The program emphasizes balance in aerospace science and technology, both basic and applied, to prepare students for the diverse opportunities at the frontiers of research, in contemporary industrial development, and in government agencies. The faculty is particularly strong and active in aerospace vehicle dynamics and feedback control, wind energy, celestial mechanics, the Global Positioning System, and spacecraft systems engineering, as well as in basic aerosciences including transonic flows, turbulence, nonequilibrium gas dynamics, unsteady and vortical flows, combustion processes, transport processes in microgravity and chemical kinetics.

The Ph.D. program provide advanced levels of training suitable for students pursuing careers in research and development, education, or government service. The field does not admit students into an M.S.-only degree program; applicants may apply for the Ph.D. program with a bachelor's degree. Ph.D. students must take a qualifying examination in addition to the examinations required by the Graduate School. Typically the qualifying exam is taken at the end of the first semester for students entering with a Master's degree and at the end of the first two semesters for those entering with a Bachelor's degree. Teaching experience for two semesters is required of Ph.D. students.

Concentrations

- Aerospace systems
- Biomedical mechanics
- Dynamics and control
- Materials and structures
- Propulsion
- Thermal sciences
- Aerodynamics

Program Information

- Instruction Mode: In Person
- Location: Ithaca, NY
- Minimum Credits for Degree: 72

Program Requirements

- Minimum of 6 semesters of GRAD 9010 Graduate-Level Research (12 credits per semester)
- Minimum semesters to degree: 6

Graduate School Milestones

- Responsible Conduct of Research Training: Required
- Open Researcher and Contributor ID (ORCID): Required
- Student Progress Reviews (SPR) begin: First Year
- Examination for admission to candidacy (A Exam): By the end of the third year, before seventh semester begins
- Defense of Dissertation (B Exam): By the end of the fourteenth semester

Field Specific Milestones

- Qualifying Exams (Q Exams): Spring of first year; if the student has a MS degree and the topic is offered the student may take the Q exam in January of the first year.
- Two semesters of teaching assistantship are required

Course Requirements

Additional course requirements may be set by the student's Special Committee. Program specific requirements that apply to all students are included below.

- MAE 6949 Seminar for M.S. and First-Year MAE Ph.D. Students (One enrollment, 1 credit)
- MAE 7999 Mechanical and Aerospace Engineering Colloquium (Two enrollments, 2 credits)

University Graduation Requirements Requirements for All Students

In order to receive a Cornell degree, a student must satisfy academic and non-academic requirements.

Academic Requirements

A student's college determines degree requirements such as residency, number of credits, distribution of credits, and grade averages. It is the student's responsibility to be aware of the specific major, degree, distribution, college, and graduation requirements for completing their chosen program of study. See the individual requirements listed by each college or school or contact the college registrar's office (https://registrar.cornell.edu/service-resources/college-registrar-directory/) for more information.

Non-academic Requirements

Conduct Matters. Students must satisfy any outstanding sanctions, penalties or remedies imposed or agreed to under the Student Code of Conduct (Code) or Policy 6.4. Where a formal complaint under the Code or Policy 6.4 is pending, the University will withhold awarding a degree otherwise earned until the adjudication process set forth in those procedures is complete, including the satisfaction of any sanctions, penalties or remedies imposed.

Financial Obligations. Outstanding financial obligations will not impact the awarding of a degree otherwise earned or a student's ability to access their official transcript. However, the University may withhold issuing a diploma until any outstanding financial obligations owing to the University are satisfied.

Learning Outcomes

- Make an original and substantial contribution to the discipline:
  - Think originally and independently to develop concepts and methodologies
  - Identify new research opportunities within one's field
- Demonstrate advanced research skills:
  - Synthesize existing knowledge, identifying and accessing appropriate resources and other sources of relevant information and critically analyzing and evaluating one's own findings and those of others
  - Master application of existing research methodologies, techniques, and technical skills
- Demonstrate commitment to advancing the values of scholarship:
  - Keep abreast of current advances within one's field and related areas
  - Commit to professional development through engagement in professional societies, publication, and other knowledge transfer modes
  - Create an environment that supports learning—through teaching, collaborative inquiry, mentoring, or demonstration
- Demonstrate professional skills:
  - Advance ethical standards in the discipline
  - Communicate in a style appropriate to the discipline
  - Listen, give, and receive feedback effectively