

# AEROSPACE ENGINEERING, MS

for the degree of Master of Science in Aerospace Engineering (on campus & non-thesis online)

The Department of Aerospace Engineering offers both MS with thesis (<https://aerospace.illinois.edu/academics/graduate/ms-degree-program/ms-degree-thesis/>) and MS non-thesis (<https://ae.illinois.edu/academics/graduate/ms-degree-program/ms-degree-non-thesis-campus/>) programs. Students in the MS with thesis program are required to have a research advisor and applicants are encouraged to contact department faculty (<https://aerospace.illinois.edu/directory/faculty/>) in their areas of interest to inquire about possible research and funding opportunities.

Interested students may specialize in computational science and engineering via the Computational Science & Engineering (<http://catalog.illinois.edu/graduate/engineering/concentration/computational-science-engineering/>) optional graduate concentration.

## Graduate Teaching Experience

MS students are not required to hold a teaching assistantship.

## Department Research

Research activities in the Department of Aerospace Engineering encompass a wide range of problem areas in aerospace engineering and related engineering disciplines as described on the department's research area website (<https://aerospace.illinois.edu/research/>).

There are several nationally-renowned interdisciplinary centers in The Grainger College of Engineering where Aerospace Engineering faculty members engage in research along with many other campus faculty members. A list of these, along with links to full descriptions, appears at the department's interdisciplinary centers website (<https://aerospace.illinois.edu/research/interdisciplinary-centers/>).

Members of the Aerospace Engineering Department have access to a wide range of excellent research facilities. These laboratories support a wide range of activity and are described at the department's research facilities website (<https://aerospace.illinois.edu/research/research-facilities/>).

for the degree of Master of Science in Aerospace Engineering (on campus & non-thesis online)

The MS in Aerospace Engineering is also offered online. The degree requirements are the same as for the on-campus MS non-thesis program and the degree awarded to online students is the same degree awarded to resident students. Online students have five years to complete the program.

Online students should develop a course program plan in consultation with their advisor. Suggested program tracks (<https://aerospace.illinois.edu/academics/graduate/suggested-program-tracks/>) are provided for each of the three main technical divisions in the department:

1. Aerodynamics, Fluid Mechanics, Combustion and Propulsion (AFMCP);
2. Astrodynamics, Controls and Dynamical Systems (ACDS); and
3. Structural Mechanics and Materials (SMM).

For additional details and requirements, refer to the department's website (<https://aerospace.illinois.edu/>) and the Graduate College Handbook (<https://grad.illinois.edu/gradhandbook/>).

## Thesis Option

Code	Title	Hours
AE 599	Thesis Research (min-max applied toward the degree)	8
AE 590	Seminar (registration of 0 hours every term while in residence )	0
Aerospace Engineering breadth requirement ( <a href="https://aerospace.illinois.edu/academics/graduate/breadth-and-mathematics-requirements/">https://aerospace.illinois.edu/academics/graduate/breadth-and-mathematics-requirements/</a> )		6-8
One mathematics course from an approved list ( <a href="https://aerospace.illinois.edu/academics/graduate/breadth-and-mathematics-requirements/">https://aerospace.illinois.edu/academics/graduate/breadth-and-mathematics-requirements/</a> )		3-4
Elective courses chosen in consultation with an advisor (subject to Other Requirements and Conditions below)		12-15
<b>Total Hours</b>		<b>32</b>

## Other Requirements and Conditions

Requirement	Description
Other Requirements and Conditions may overlap	
	A minimum of 16 hours of AE course work at the 400-level and above. (May include up to 8 hours of AE 599.)
	A minimum of 12 500-level credit hours overall applied toward the degree, with 8 hours being AE courses. (May include up to 4 hours of AE 599.)
	No hours of AE 597 (or other independent study) may be applied in this option.
	Attendance at all Aerospace Engineering AE 590 seminars each semester while on campus.
Minimum GPA:	3.0
	A departmental petition is required to change from the thesis to the non-thesis option.

## Non-Thesis Option

Code	Title	Hours
AE 590	Seminar (registration for 0 hours every term while in residence )	
Aerospace Engineering breadth requirement ( <a href="https://aerospace.illinois.edu/academics/graduate/breadth-and-mathematics-requirements/breadth-and-mathematics-requirements/">https://aerospace.illinois.edu/academics/graduate/breadth-and-mathematics-requirements/breadth-and-mathematics-requirements/</a> )		9-12

One mathematics course from an approved list (<https://aerospace.illinois.edu/academics/graduate/breadth-and-mathematics-requirements/>)

3-4

Elective courses chosen in consultation with an advisor (subject to Other Requirements and Conditions below)

16-20

**Total Hours**

32

### Other Requirements and Conditions

Requirement	Description
Other Requirements and Conditions may overlap	
	A minimum of 16 hours of AE course work at the 400-level and above.
	A minimum of 12 500-level credit hours overall applied toward the degree, with 8 hours being AE courses.
	A maximum of 4 hours of AE 597 (or other independent study) may be applied toward the elective course work requirement.
	Attendance at all Aerospace Engineering AE 590 seminars each semester while on campus.
Minimum GPA:	3.0
	Generally, students holding a research assistantship will not be allowed in the non-thesis option.
	A departmental petition is required to change from the thesis to the non-thesis option and vice-versa.

*for the degree of Master of Science in Aerospace Engineering (on campus & non-thesis online)*

By the end of the program, students will be able to:

1. Identify, formulate and solve advanced problems in aerospace engineering using advanced mathematical, computational, design and/or experimental skills.
2. Effectively communicate technical ideas through written reports, oral presentations with visual media, or through other media.
3. Understand ethical standards of conducting research, analyzing data and disseminating information within the engineering profession.
4. Understand deep contemporary and historical knowledge in one or more sub-disciplines associated with aerospace engineering in their research area. (M.S. Thesis students)
5. Conduct research, analyze results, report findings, and draw conclusions that result in original contributions to knowledge in aerospace engineering and/or related fields. (M.S. Thesis students)

*for the degree of Master of Science in Aerospace Engineering (on campus & non-thesis online)*

## Admission Requirements

The Department of Aerospace Engineering accepts applications for admission to the MS with thesis and MS non-thesis graduate programs per the following deadlines:

### Fall Admission

For MS with thesis admission and full consideration for funding opportunities: December 1

For MS non-thesis admission: July 1

### Spring Admission

For MS with thesis admission and full consideration for funding opportunities: October 1

For MS non-thesis admission: December 1

Typically, the prerequisite for graduate study is the equivalent of the BS in Aerospace Engineering (<https://aerospace.illinois.edu/academics/undergraduate/>); however, graduates of curricula leading to degrees in other fields of engineering, the physical sciences, or mathematics may also be admitted to advanced study. A minimum grade point average of 3.00 (A = 4.00) for the last two years of undergraduate study is required. However, having a GPA higher than the minimum is no guarantee of admission. Scores on the Graduate Record Examination (GRE) (<http://ets.org/>) general test are accepted, but not required, unless noted on the graduate programs website (<https://aerospace.illinois.edu/admissions/graduate/admissions-requirements-and-process/>). There are no minimum GRE score requirements.

Applicants to the Aerospace Engineering graduate program are asked to complete a supplemental form that will capture additional information about their specific interests. Applicants receive an email after submitting the online application which contains the link to the supplemental form. Applicants may select up to three areas of interest.

All applicants whose native language is not English are required to submit the results of the TOEFL (<http://www.toefl.org/>) or International English Language Testing System (IELTS) (<http://www.ielts.org/>) as evidence of meeting the English proficiency requirements for full admission status (<http://grad.illinois.edu/admissions/instructions/04c/>). Under certain circumstances applicants may be exempt (<https://grad.illinois.edu/admissions/instructions/04c/>) from the TOEFL/IELTS requirement.

Applicants who are non-native speakers of English and who wish to be considered for teaching assistantships must provide evidence (<https://grad.illinois.edu/admissions/taengprof.htm>) of spoken English language proficiency. Specifically, they must score 24 or higher on the SPEAK portion of the TOEFL exam and 8 or higher on the speaking sub-section of the IELTS.

For full information on admission requirements and how to apply, see the department's graduate programs website (<https://aerospace.illinois.edu/academics/graduate/>).

## Financial Aid

Students in the MS non-thesis program are not eligible for funding from the department. Financial aid for graduate students in thesis graduate programs is available in the form of fellowships (<https://grad.illinois.edu/fellowships/about/>), as well as teaching and research assistantships (<https://grad.illinois.edu/assistantships/>). Exceptionally qualified MS with thesis candidates will be considered for support upon application.

All applicants, regardless of US citizenship, whose native language is not English and who wish to be considered for teaching assistantships must demonstrate spoken English language proficiency (<http://www.grad.illinois.edu/admissions/taengprof.htm>) by achieving a minimum score of 24 on the speaking subsection of the TOEFL iBT or 8 on the speaking subsection of the IELTS. For students who are unable to take the TOEFL or IELTS, a minimum score of 4CP is required on the EPI test ([http://cte.illinois.edu/testing/oral\\_eng/epi\\_overview.html](http://cte.illinois.edu/testing/oral_eng/epi_overview.html)), offered on campus. All new teaching assistants are required to participate in the Graduate Academy for College Teaching (<https://citl.illinois.edu/citl-101/teaching-learning/grad-academy-for-college-teaching/>) conducted prior to the start of the semester.

*for the degree of Master of Science in Aerospace Engineering (on campus & non-thesis online)*

---

## Department of Aerospace Engineering

Department Head: Jonathan Freund ([jbfreund@illinois.edu](mailto:jbfreund@illinois.edu))

Director of Graduate Studies: Ioannis Chasiotis (<https://aerospace.illinois.edu/directory/profile/chasioti/>)

Contact: Dung Quach-Wisdom

Aerospace Department website (<https://aerospace.illinois.edu/>)

Aerospace MS program website (<https://aerospace.illinois.edu/academics/graduate/ms-degree-program/>)

Aerospace Department faculty (<https://ae.illinois.edu/directory/faculty/>)

311 Talbot Laboratory, 104 S. Wright St, Urbana, IL 61801

(217) 300-9774

Aerospace Engineering email: [ae-grad@illinois.edu](mailto:ae-grad@illinois.edu)

## Grainger College of Engineering

Grainger College of Engineering website (<https://grainger.illinois.edu/>)

## Admissions

Aerospace Engineering, Graduate Admissions & Requirements

Graduate College Admissions & Requirements (<https://grad.illinois.edu/admissions/apply/>)