AEROSPACE ENGINEERING, PHD

for the degree of Doctor of Philosophy in Aerospace Engineering

The Department of Aerospace Engineering offers a traditional doctoral program and a direct doctoral program (https://aerospace.illinois.edu/academics/graduate/phd-program/direct-phd/). Students in either 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.

Opportunity exists for specializing in computational science and engineering via the Computational Science & Engineering (http://catalog.illinois.edu/graduate/engineering/concentration/computational-science-engineering/) optional graduate concentration.

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/).

Graduate Teaching Experience

PhD students are required to hold a 25% or higher teaching assistantship for at least one semester in order to meet the requirements for the Department of Aerospace Engineering doctoral program. Information about teaching assistantships can be found on the department's teaching assistantships website (https://aerospace.illinois.edu/academics/graduate/funding/teaching-assistantships/).

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

Entering with an approved M.S. Degree

Code	Title	Hours
AE 599	Thesis Research (min-max applied toward degree)	40
AE 590	Seminar (continuous registration through the 4th semester after the qualifying exam for 0 hours)	0
One advanced 500-level mathematics course from an approved list .		3-4
Elective courses -- chosen in consultation with advisor (subject to Other Requirements and Conditions below).		20-21
Total Hours		**64**

Other Requirements and Conditions

Requirement	Description
Minimum GPA:	3.0
A minimum of 8 hours of AE course credit overall at the 500-level, byond the master's degree.	
A minimum of 16 credit hours overall at the 500 level, byond the master's degree, including the 8 hours of 500-level AE courses.	
A maximum of 4 hours of AE 597 (or other independent study) may be applied toward the elective coursework requirement.	
A 25% or more teaching assistantship for at least one semester.	
Qualifying exam	Yes
Preliminary exam	Yes
Final exam or dissertation defense	Yes
Dissertation deposit	Yes

Entering with an approved B.S. degree

Code	Title	Hours
AE 599	Thesis Research (min-max applied toward degree)	48
Coursework:		48
24 Hours of 500-level coursework, including 12 hours of 500-level AE coursework		
7-8 hours of Math (4 of the 7-8 taken must be at the 500-level and count toward the 24 hour requirement)		
20-21 hours of 400/500 elective AE coursework per advisor approval		
AE 590	Seminar (continuous registration through the 4th semester after the qualifying exam for 0 hours)	0
Total Hours		**96**

Other Requirements and Conditions

Requirement	Description
Minimum GPA:	3.0
A maximum of 4 hours of AE 597 (or other independent study) may be applied toward the elective course work requirement.	
A 25% or more teaching assistantship for at least one semester.	
Qualifying exam	Yes
Preliminary exam	Yes
Final exam or dissertation defense	Yes
Dissertation deposit	Yes

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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.
5. Conduct research, analyze results, report findings, and draw conclusions that result in original contributions to knowledge in aerospace engineering and/or related fields.
6. Effectively train and/or teach others in a classroom, laboratory, seminar, or other setting, to disseminate knowledge in the aerospace engineering discipline.

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Admission Requirements

The Department of Aerospace Engineering accepts applications for admission to both the traditional doctoral program and the direct doctoral program per the following deadlines:

Fall Admission

For admission and full consideration for funding opportunities: December 1

Spring Admission

For admission and full consideration for funding opportunities: October 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 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 GRE minimum 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

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/). Starting in Fall 2020, Grainger Engineering PhD students in their first five years of enrollment who meet the minimum eligibility requirements (https://grainger.illinois.edu/academics/graduate/phd-funding-guarantee/) are guaranteed a funded appointment for fall and spring that includes a full tuition waiver, a partial fee waiver, and a stipend. Exceptionally qualified candidates are considered for fellowship financial 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), 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.

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Department of Aerospace Engineering

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Director of Graduate Studies: Huck Beng Chew (https://aerospace.illinois.edu/directory/profile/hbchew/)
Contact: Siggi Schroth
Aerospace Department website (https://aerospace.illinois.edu/)
Aerospace PhD program website (https://aerospace.illinois.edu/academics/graduate/phd-program/)
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Grainger College of Engineering

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

Admissions

Aerospace Engineering, Graduate Admissions & Requirements (https://aerospace.illinois.edu/admissions/graduate/)
Graduate College Admissions & Requirements (https://grad.illinois.edu/admissions/apply/)