AEROSPACE ENGINEERING, PH.D.

The Department of Aerospace and Mechanical Engineering at Saint Louis University offers a Ph.D. and an M.S. program in aerospace engineering (https://slu-curr.courseleaf.com/colleges-schools/science-engineering/aerospace-mechanical/aerospace-engineering-ms/)designed to prepare students to address emerging challenges in the field. The curriculum integrates foundational aerospace engineering principles with current industry trends and immersive, experiential learning opportunities.

Students develop a strong technical foundation while engaging in cross-disciplinary collaboration. This approach prepares graduates to be effective problem solvers, ethical innovators, and leaders who understand the broader environmental and societal impacts of engineering decisions.

Admission Requirements

Begin your application for this program at https://gradapply.slu.edu/apply/.

Most admitted students meet the following criteria:

- A four-year B.S. degree in Aerospace or Mechanical Engineering or closely related engineering and science disciplines
- Undergraduate cumulative GPA of at least 3.0.
  - A GPA below 2.75 will automatically disqualify the applicant from consideration, while a GPA of 2.75 - 3.00 will require a detailed review by the Aerospace & Mechanical Engineering Department and does not guarantee acceptance.

Application Requirements

• Application form

• Transcript(s) from all colleges and universities attended.

• Two letters of recommendation (preferably from recent instructors)

• Résumé or curriculum vitae

• Professional goal statement. The statement should clearly indicate students' interest in Aerospace Engineering, identify professional and research goals, and describe students' anticipated contributions to SLU.

Requirements for International Students

Along with the general admission requirements above, the following must be provided by prospective international students:

• Demonstration of English Language Proficiency (https://www.slu.edu/admission/international/english-proficiency.php)

• Proof of financial support that must include:

  • A letter of financial support from the person(s) or sponsoring agency funding the time at Saint Louis University.

  • A letter from the sponsor's bank verifying that the funds are available and will be so for the duration of study at the University.

• Academic records, in English translation, for postsecondary studies outside the United States. These must include the courses taken and/or lectures attended, practical laboratory work, the maximum and minimum grades attainable, the grades earned or the results of all end-of-term examinations, and any honors or degrees received. WES and ECE transcripts are accepted. Both semester-wise as well as consolidated transcripts should be submitted.

Review Process

All applicants are admitted based on their research interests and openings in the research group. In cases where students come from a non-Aerospace engineering background, the applications will be sent to the Aerospace & Mechanical Engineering department to review and determine fit and/or pre-requisite/concurrent classes that the applicant would need to take to qualify for the program. Such applicants may receive provisional admission.

Apply Now (https://gradapply.slu.edu/apply/)

Learning Outcomes

1. Apply advanced mathematical and scientific principles, and computational and modeling tools to solve aerospace engineering problems.
2. Communicate complex technical information effectively.
3. Demonstrate a deep and integrated understanding of foundational and advanced principles in a specialized subdiscipline of aerospace engineering.
4. Conduct original and significant research that generates new knowledge and advances the theory or practice of aerospace engineering, contributing to the body of scholarly literature in the field.

Requirements

All coursework must be completed with minimum grade of B.

Code	Title	Credits
Foundational Courses		
CVNG 5010	Scholarly Practices in Engineering	3
MENG 5840	Numerical Methods	3
Core Courses		**12**
Students select 12 credits from the following:		
AENG 5050	Space Mission Analysis and Design	
AENG 5230	Introduction to Computational Fluid Dynamics	
AENG 5250	Compressible Computational Fluid Dynamics	
AENG 5420	Design, Simulation & Experimental Evaluation of Flight Control	
AENG 5460	Modern Control Systems	
AENG 5800	Systems Engineering	
Elective Courses		**12**
Students should select 12 credits from AENG/MENG graduate courses or additional core courses. Students wishing to take non-AENG/MENG graduate courses must be approved by the dissertation advisor or the graduate program director. Suggested disciplines include mathematics, natural sciences, business, computer science, and engineering.		
Dissertation		**12**
Students will take a total of 12 credits of dissertation research over multiple semesters.		

AENG 6994	Doctoral Dissertation Research	
Total Credits		**42**

Non-Course Requirements

Graduate Seminar

The Aerospace & Mechanical Engineering Department offers a Graduate/Research seminar each fall and spring semester. Graduate students are required to attend two semesters of seminar. Students are permitted to miss at most three seminar sessions each semester.

Proposals and Examinations

- Completion of qualifying exam
- Completion of written research proposal
- Completion of oral defense of research proposal
- Completion of written dissertation
- A public oral presentation and a private oral examination

Additional Academic Requirements

Saint Louis University has graduation requirements for all degree-seeking students. Students are responsible for understanding these Graduation Requirements (https://catalog.slu.edu/academic-policies/academic-policies-procedures/graduation-requirements/).

Academic Standing

Saint Louis University has undergraduate and graduate standards regarding a student's Academic Standing. Students are responsible for understanding the Academic Standing policy (https://catalog.slu.edu/academic-policies/academic-policies-procedures/academic-standing-undergraduate/).

Roadmap

This roadmap is just one example of a semester-by-semester plan of study for this program. There are other plans students can and do take. The plan of study for each particular student is established in consultation with each student's academic advisor; *this roadmap does not replace academic advising appointments.*

Roadmap notes:

- This Roadmap assumes full-time enrollment unless otherwise noted.
- Courses/Milestones marked with an "!" are critical and must be completed in the semester listed in the Roadmap to ensure a timely graduation.
- Course availability and sequencing are subject to change.

Course	Title	Credits
Year One		
Fall		
CVNG 5010	Scholarly Practices in Engineering	3
Core Course		3
Seminar		0
	Credits	**6**
Spring		
MENG 5840	Numerical Methods	3
Core Course		3
AENG/MENG Elective		3
Seminar		0
	Credits	**9**
Year Two		
Fall		
Core Course		3
AENG/MENG Elective		3
AENG 6994	Doctoral Dissertation Research	3
Qualifying Exam		
	Credits	**9**
Spring		
Core Course		3
AENG/MENG Elective		3
AENG 6994	Doctoral Dissertation Research	3
	Credits	**9**
Year Three		
Fall		
AENG/MENG Elective		3
AENG 6994	Doctoral Dissertation Research	3
Proposal Defense		
	Credits	**6**
Spring		
AENG 6994	Doctoral Dissertation Research	1
	Credits	**1**
Year Four		
Fall		
AENG 6994	Doctoral Dissertation Research	1
	Credits	**1**
Spring		
AENG 6994	Doctoral Dissertation Research	1
	Credits	**1**
	Total Credits	**42**

Contact Us

For more information about any School of Science and Engineering graduate program, email ssegrad-admissions@slu.edu.