Master of Science in Engineering - Mechanical Engineering

Research Opportunities and Master's Essay

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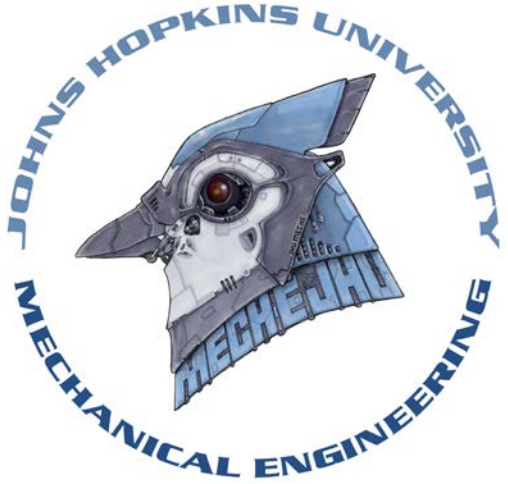


JOHNS HOPKINS UNIVERSITY

MSE Degree Requirements

Section A - 8 advisor-approved courses

- 2 must be applied math, numerical analysis, or computational
- Half must be EN.530.xxx or EN.535.xxx Mechanical Engineering
- No more than 2 from Engineering for Professionals
- No more than 4 from upper-undergrad xxx.4xx level
- No independent research, graduate research, or special studies.

Section B – choose one

- 2 more courses (EN.530.600 MSE Graduate Research can be one)
- Master's Essay (EN. 530.602 MSE Thesis Research and Writing)

Master's Essay (EN.530.602 MSE Essay Research and Writing)

- **Identify a research advisor**
- **Conduct research**
  - 6 total credits of EN.530.602 (equivalent to 2 courses);
  - Prepare and submit a master's essay that summarizes your research (signed off by advisor + one other faculty "reader")
  - There is no thesis defense!
- **Advantages of a Master's Essay**
  - Become part of a research team
  - Learn from a topic-area expert
  - Conduct research that might lead to papers and/or conference presentations
  - Improve your writing/presentation skills
  - Impress potential employers with your expertise
  - Improve chances of entering a PhD program (JHU or others)

Frequently Asked Questions about Master's Essay

- How do I find an advisor?
  - Either contact professors in your area of interest (see list on Slide 6) and inquire about master's research opportunities…
  - …or contact the Director of Graduate Studies, Prof. Rajat Mittal and he will connect you with potential advisors
- What kinds of research projects do MSE students do?
  - There is significant flexibility on what constitutes an master's research project, which is determined by you and your advisor
  - Examples:
    - fundamental scientific investigation involving theory, experiments, and/or computational modeling
    - experimental design and/or device testing.
- How long is the Master's Essay?
  - There is no recommended length. The essay is a summary of your project and is approved by your advisor and one other reader.
  - Your advisor will usually guide you in the writing of your essay.

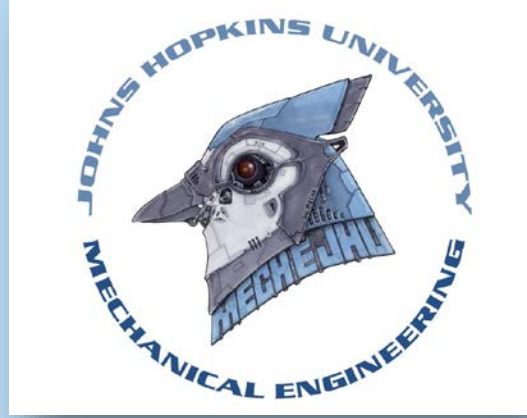
Frequently Asked Questions about Master's Essay

- Research can sometimes be open-ended. What if I cannot achieve my research objectives even after 6 credits of research? Will that delay my graduation?
  - Not at all! The master's essay is written, submitted and approved at the end of 6 credits of MSE research. As long as your advisor is satisfied that your research effort was appropriate and you prepare an essay that is approved, you are done. Advisors will usually propose a project that can reasonably be completed in the allotted time.
- I am a 5th Year MSE student. There is no way I can include an essay and still finish up in 1 year, right?
  - Actually, you can! In your senior year, talk to potential advisors early so that you can start on your essay research as soon as you begin your MSE program.
- Is there funding available for MSE students who conduct research?
  - Most master's research is unfunded, but some advisors might have funding available.

Professors interested in taking Master's Students for Essay Research in 2019-2020

Professor	Energy and Environment	Fluid Mechanics Thermal Sci.	ME in Biology and Medicine	Mechanics and Materials	Micro/Nano Scale Science	Robotics, Systems, Control
Mehran Armand			X			X
Jeremy Brown			X			X
Jaafar El-Awady				X		
Ryan Hurley				X		
Claire Hur		X	X		X	
Iulian Iordachita			X			X
Sung Hoon Kang			X	X	X	
Chen Li			X			X
Rajat Mittal	X	X	X			
Vicky Nguyen			X	X		
Rui Ni	X	X	X			
KT Ramesh			X	X		
Jung Hee Seo		X	X			
Sean Sun			X			
Gretar Tryggvason	X	X				

Best of luck to you!



Questions? Contact:

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