

Mechanical Engineering Freshmen Orientation

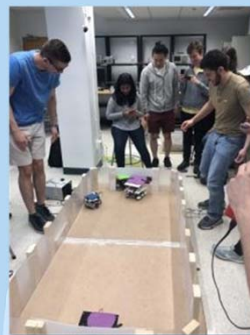
Prof. Steven Marra, Director of Undergraduate Studies
Mike Bernard, Academic Program Manager
Emily Hinton, Sr. Academic Advisor

August 25, 2023



Today's Orientation

- Welcome and Greetings**
- Icebreaker**
- Overview of Mechanical Engineering at Johns Hopkins**
- Senior Design**
- Undergraduate Research**
- MechE Student Groups**
- Freshman Fall Courses**
- Advising Manual Quiz Challenge**



The Department of Mechanical Engineering

Our people:

- 30 professors / lecturers
- 13 administrative, lab, and research staff
- 23 postdoctoral scholars
- 246 graduate students
- 238 undergraduate students



Our goal: To educate an exceptional group of engineers who, after graduation, will be successful and on track to become leaders among their peers in the best graduate programs and/or in industry, government laboratories, graduate school programs, and other organizations.



Faculty



Visit the Faculty page for info at
<https://me.jhu.edu/faculty/>



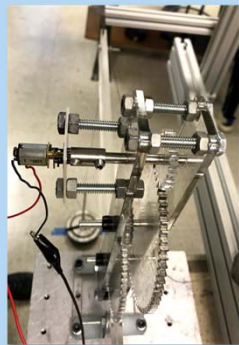
Undergraduate Degrees

Two Bachelor of Science degrees
 Mechanical Engineering
 Engineering Mechanics

Both programs are ABET-accredited
 (abet.org)



Compare the Majors



- **Mechanical Engineering (B.S. M.E.)**
 - Well-specified curriculum
 - “Traditional” mechanical engineering program
 - More than 200 programs in the United States
- **Engineering Mechanics (B.S. E.M.)**
 - More flexible curriculum
 - More math and basic science
 - 10 programs in North America



B.S. Mechanical Engineering

Subject	Credit Area	Credits
Basic Science	N	13
Mathematics	Q	19
Humanities/Social Sciences	H, S	18
Core Engineering	E	50
MechE Electives	E	9
Technical Electives	E, N, Q	9
Senior Design	E	8



Get help from...

Undergraduate Academic Advising Manual

Your Faculty Advisor

Sr. Academic Advisor, Emily Hinton or your

Whiting School Professional Academic Advisor



B.S. Engineering Mechanics

Subject	Credit Area	Credits
Basic Science	N	16
Mathematics	Q	23
Humanities/Social Sciences	H, S	18
Core Engineering	E	27
Engineering Science and Engineering Mechanics Electives	E	15
Technical Electives	E, N, Q	18
Senior Design	E	8



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Tracks

The Mechanical Engineering Department offers tracks in...

- **Aerospace**
- **Biomechanics**

...plus additional electives in robotics, mechanics of materials, design, thermo-fluids and thermo-fluids systems.



Get help from...

- *Undergraduate Academic Advising Manual*
- *Your Faculty Advisor*
- *Sr. Academic Advisor Emily Hinton or your Whiting School Professional Academic Advisor*



Minors and Double Majors

Some minors...

- Entrepreneurship and Management
- Robotics
- Computer Science
- More in Engineering / Arts and Sciences
- Physics
- Mathematics
- Economics

Double majoring possible, but...

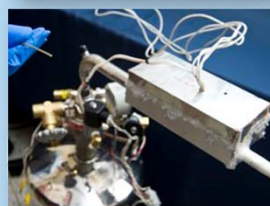
- Lots of extra work and time management
- Easier with many AP credits

- *Fields of Study page – engineering.jhu.edu*
- *Majors/Minors page – advising.jhu.edu*



Senior Design

- 8 credits, full year
- Industrial Sponsor provides project, a sponsoring engineer, and funding
- Design, build, and test prototypes and final products.
- Culmination of your engineering education!

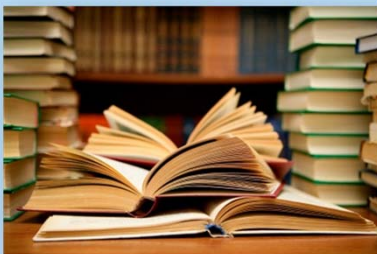


INFO...

- Prof. Steve Belkoff– sbelkoff@jhmi.edu
- <http://me.jhu.edu/undergraduate-studies/senior-design/>



Academic Advising



- You have a **faculty advisor** from the Department of Mechanical Engineering.
- You also have a **Whiting School professional academic advisor**.
- You will meet with your MechE faculty advisor today or sometime next week.



Access the QR Code now to find the Advisor Meeting Schedule



Academic Advising

Visit your MechE faculty advisor at least twice a semester...

- after three weeks, to update your status
- during Advising Week, to choose courses

See your MechE faculty advisor anytime...

- to plan or change your course schedule
- to discuss requirements for your major
- when you have academic or performance concerns

Contact Emily Hinton...

- to create or update your 4-year plan
- for policy and administrative help.



Academic Advising

- The responsibility for meeting with your MechE faculty advisor is **yours**.
- Schedule meetings with your advisor in advance – do not wait until the last moment; he or she might not be available.



Get help from...

- *Undergraduate Academic Advising Manual*
- *Your Faculty Advisor*
- *Sr. Academic Advisor, Emily Hinton or your Whiting School Professional Academic Advisor*



Research in Mechanical Engineering

- Micro/Nanoscale Science and Engineering
- Fluid Mechanics and Thermal Processes
- Mechanical Engineering in Biology and Medicine
- Mechanics and Materials
- Energy and the Environment
- Robotics
- Systems, Modeling, and Control



Independent Research Opportunities

- Enrich your education with research.
- Can open more doors to career opportunities.
- Earn credits while doing research.
- Begin as early as freshman year.
- Primary qualification is *enthusiasm*.
- Talk to the faculty!
- Research helps you...
 - Get a hands-on, real-world feel for engineering
 - Build a working relationship with the leading scholars in the field



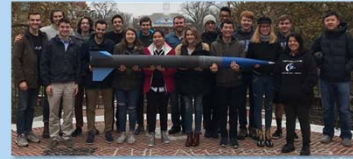
Get help from...

- Info for Undergrads page - <https://me.jhu.edu/education/undergraduate-studies/current-undergraduate-students/>
- Undergraduate Advising Manual – Section 2.9



Student Groups

- Hopkins Baja
- Design Build Fly
- AstroJays
- ASME
- VME
- Wind Energy
- WoMEN
- Mars Rover
- Themed Entertainment Assoc.
- Blacksmithing
- ...and many more!



MechE Undergrad Ice Cream Social



References and Contacts

PEOPLE

- Your MechE Faculty Advisor
- Prof. Steven Marra marra@jhu.edu
- Sr. Advisor Emily Hinton ehinton8@jhu.edu
- Academic Program Manager Mike Bernard me-academic@jhu.edu



Schedule a Meeting with Emily!

RESOURCES

- JHU Catalog <http://e-catalog.jhu.edu/>
- MechE Website <http://www.me.jhu.edu>
- Info for Undergrads <https://me.jhu.edu/education/undergraduate-studies/current-undergraduate-students/>
- Engineering 101
- Undergraduate Academic Advising Manual



Freshman MechE Courses

- 530.107 / 108 *MechE Undergraduate Seminar I / II*
- 530.111 *Intro to MechE Design and CAD (Fall)*
- 500.114 *Gateway Computing - MATLAB (Spring*)*
- 530.115 / 116 *MechE Freshman Lab I / II*
- 530.123 / **124** *Intro to Mechanics I / **II***



Note: 530.124 is required for all ME and EM majors (regardless of AP credits)

Get help from...

*Undergraduate Academic Advising Manual
Your Faculty Advisor
Academic Program Manager, Mike Bernard*

*Other Gateway Computing options are available



Freshman MechE Courses and AP Credits

- If you scored a 4 or 5 on the AP Physics C (Mechanics) exam, then you do not have to take *Intro to Mechanics I*.
- If you scored a 5 on the AP Computer Science exam, then you must either....
 1. Take one of the *Gateway Computing* courses and forfeit the AP credits, or
 2. Take a more advanced programming course (e.g. *Intermediate Programming, Data Structures*), which you may count as a technical elective.
- ☛ You will still be expected to know MATLAB regardless.



MechE Fall Freshman Courses

Most of you should already be registered for these courses:

- AS.030.101 *Introductory Chemistry I* (unless you have AP Chem credits)
- EN.530.107 *MechE Undergraduate Seminar I*
- EN.530.111 *Intro to MechE Design and CAD*
- EN.530.115 *MechE Freshman Lab I*
- EN.530.123 *Introduction to Mechanics I* (unless you have AP Physics C [Mechanics] credits)
- Any writing intensive course with an "H" (humanities) or "S" (social sciences) course area.
- A math course (likely *Calculus I, II, or III*)



MechE Advising Manual and Checkout Sheets

me.jhu.edu

↳ Education

↳ Undergraduate Studies

↳ In This Section



↳ Advising - Undergraduate

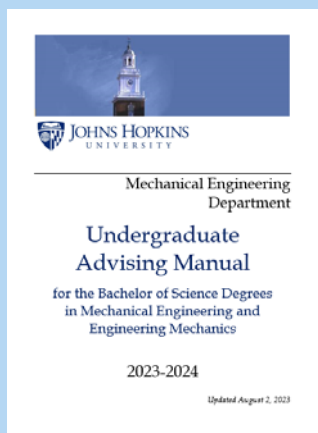
↳ Advising Manuals

↳ Checkout Sheets

↳ Course Dependency Maps



Advising Manual Quiz Challenge



***Our
winners!***



**Best of luck to you
this freshman year!**

Questions?

