



JOHNS HOPKINS  
UNIVERSITY

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Department of  
Mechanical  
Engineering

# Undergraduate Advising Tutorial and Tips

*Updated October 18, 2021*

# Undergraduate Academic Advising – Tutorial and Tips

Created July 30, 2016

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## BACKGROUND

The University's Academic Council expects that faculty members will participate in not only research and teaching activities but also academic advising duties. Faculty members will advise both graduate and undergraduate students, and participate in a larger community of advisors that include both the Whiting School of Engineering (WSE) Academic Advising staff and the department's Academic Program Administration.

While academic advising includes helping a student plan to meet degree requirements, it also provides the potential to develop a meaningful mentorship relationship as you will help students navigate personal challenges and determine career paths.

The [Mechanical Engineering "Academic Advising for Faculty" page](#) offers extensive resources.

## UNDERGRADUATE ADVISING

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### 1. MAJORS

Our two majors, Mechanical Engineering and Engineering Mechanics, have a base of mechanical engineering instruction but are otherwise distinct. Both majors have similar credit requirements for science, math, humanities, and senior design courses.

- **Mechanical Engineering** has 50 "Required Engineering" credits with specific mechanical engineering courses, plus 9 "Mechanical Engineering" elective credits, plus 9 "technical elective" credits in "STEM" type courses (science, technology, engineering, and math).
- **Engineering Mechanics** has 27 "Required Engineering" credits with specific mechanical engineering courses, plus 15 "Engineering Mechanics and Engineering Science" elective credits, plus 18 "Technical Elective" credits in "STEM" type courses.

### 2. ADVISING MANUAL

Take about an hour to read the Academic Advising manuals located on the [MechE Undergraduate Academic Advising webpage](#). It has a wealth of important information on degree requirements, course electives, policies, and resources to help both students and advisors.

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### 3. ADVISING TIMELINE

The actions occur in roughly this order:

#### Summer

- Incoming freshmen work with the Whiting School Academic Advising office, in consultation with the department's Academic Program staff to select courses and answer policy questions.
- The Whiting School Academic Advising staff will assign Faculty Advisors from the department for incoming freshmen.
- Students transferring from other Universities will work with the Whiting School Academic Advising office and the department's Academic Program staff or Director of Undergraduate Studies to determine what courses will be accepted from the previous university. The department will determine which of those courses will be accepted in the degree program.
- Current students may occasionally ask for help via e-mail or a visit.

#### Early Fall

- Freshman Orientation occurs several days before the start of the Fall semester. Faculty Advisors will meet with freshmen for the first time. The Academic Program Manager will stand in for advisors who will not be on campus that day, as well as be available for questions from freshmen and advisors.
- Freshmen will work with the Academic Program Manager and possibly Faculty Advisors to create a four-year plan.
- Upperclassmen may ask the Academic Program Manager for a four-year plan checkup and otherwise ask academic policy questions.
- At any time, any student may contact his or her Faculty Advisors to ask policy and academic questions, as well as career and internship advice.

#### Fall Semester

- Some students will switch majors from or to Mechanical Engineering or Engineering Mechanics. They may switch Faculty Advisors for the new major. The Academic Program Manager will help those students create their four-year plans.
- Optional, but recommended check-in with students on their progress.
- Late-October or early-November - Advising Week – all undergraduate students will meet their Faculty Advisors.

#### Intersession

- Some students will switch majors from or to Mechanical Engineering or Engineering Mechanics. They may switch Faculty Advisors for the new major.
- Students may occasionally ask for help via e-mail or a visit.

#### Spring Semester

- The Academic Program Manager will certify degree eligibility for seniors intending to graduate.
- Late-March or early-April - Advising Week – all freshman, sophomore, and junior students will meet their academic advisors.

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- At any time, any student may contact his or her Faculty Advisor to ask policy and academic questions, as well as career and internship advice.

### 4. ROLE OF WSE ACADEMIC ADVISING

The Whiting School of Engineering's Academic Advising office oversees school-wide and university-wide activities and policy. Among their many duties, the Whiting School's academic advisors assist incoming freshmen with course selection, recording external credit, and approve requests to take courses at other universities. They also will work with departments to help students in academic or personal distress.

[Visit the Whiting School Academic Advising page](#) for additional information.

### 5. FRESHMAN ORIENTATION

New freshmen will gather just before the start of the Fall semester at our Mechanical Engineering Freshman Orientation, then meet with their advisors for the first time. Faculty Advisors will be asked to review their course selections to confirm that they meet their degree's first semester requirements. The Whiting School Academic Advising office will have already reviewed the proposed selections to confirm this, but will ask the advisors to reconfirm and address any unusual situations or course exception requests.

### 6. DEGREE PLANS / CHECKOUT SHEETS

Undergraduate students will complete a "degree plan," also known as a "four-year plan," or a "checkout sheet" that will track the student's progress in completing the degree. Students are strongly encouraged to work either with the Faculty Advisors or, in most cases, the Academic Program Manager to create a four-year plan, as students often wish to explore minors or a second major. The Academic Program Manager can assist with policy or requirement questions that arise about most majors and minors.

Checkout sheets for the two department majors are available on the Mechanical Engineering website's ["Academic Advising – Undergraduate" page](#).

### 7. ADVISING WEEK

While students are encouraged to visit their Faculty Advisors often, they are required to visit their advisors at least once during each of the Fall and Spring semesters during Advising Week. The University has set Advising Week to take place the week before course registration begins for the next semester. The academic staff will help schedule meetings, as needed. For Faculty Advisors who will be on sabbatical or otherwise unavailable during Advising Week, the Academic Program Manager will act as advisor on the Faculty Advisor's behalf.

#### CHECKOUT SHEET REVIEW

Your advisees should update their checkout sheets and email them to you prior to their Advising Week meeting. Do not meet with a student until you have received a copy of his/her updated checkout sheet.

Checkout sheets are available on the [Mechanical Engineering Undergraduate Advising page](#).

You should carefully review your advisees' checkout sheets during Advising Week to ensure each student is on track to graduate on time.

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Particular attention should be given to each student's choices of elective courses, as most problems related to not having enough credits to graduate on time are due to misunderstanding our requirements and policies for these courses.

### COMMON SOURCES OF CREDIT CONFUSION

Here are tips for course policies that are commonly referenced. Read these before each Advising Week to refresh your memory.

#### ADVANCED PLACEMENT

Many students arrive at Hopkins having already earned course credits through satisfactory completion of Advanced Placement (AP) or International Baccalaureate (IB) exams. Some AP credits can substitute for courses required for the B.S. degrees. Visit the [External Credits page of the JHU catalog](#) for information.

#### LETTER GRADES

All courses that will count toward the degree must receive letter grades. Most intersession courses receive only S/U grades. As a result, most intersession courses cannot be used to meet B.S. degree requirements.

During Intersession, there are course trips offered in the Office of Study Abroad that are letter graded and often assigned a course area of H or S. These courses may count toward Humanities and Social Sciences requirements, as long as they are 3 credits or more.

Visit the [MechE Undergraduate Academic Advising page](#) > Course Grading – Exceptions for Spring 2020, Fall 2020, and Spring 2021 for information on policy changes for grading affected by the COVID-19 pandemic.

#### WAIVED COURSES DON'T EARN CREDITS

Depending on the success of a student's Freshman Math Placement tests, which are taken the summer before matriculation, he or she may be waived from taking Calculus I and, possibly, other math courses. For example, a student may choose to waive Calculus I and begin the math sequence at Calculus II. **No academic credit is given for waived courses.** Students must still earn the total number of credits in the curriculum (19 credits in Mechanical Engineering; 23 credits in Engineering Mechanics), regardless of class level begun.

Note: A student may also be excused from taking a course because he or she has earned AP credits for it. This, however, is different from having the course waived, because the student is awarded the course credits.

#### PHYSICS

Students earning AP Physics C credits are exempt from taking the equivalent physics courses.

- AP Physics C (mechanics) exempts students from EN.530.123 Intro to Mechanics I or AS.171.101 Physics I.
- AP Physics C (electricity and magnetism) exempts students from AS.171.102 Physics II.

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- EN.530.124 Intro to Mechanics II is not exempted by any AP credit. All students must take this course. Note the one potential exception in the box below.

### **LABS MUST BE TAKEN EVEN WITH AP CREDIT**

While the University does not require Physics labs, departments can require them, which Mechanical Engineering does. The students' ISIS records and transcripts will show a waiver of the labs, which is confusing. Impress upon your AP Physics C-accredited advisees that they must take the labs.

Students starting as Mechanical Engineering or Engineering Mechanics majors...

- ...in the freshman fall semester must take EN.530.124 Intro to Mechanics II in the freshman spring semester.
- ...after the freshman fall semester should consult with their faculty advisor as to which course to take, either EN.530.124 Intro to Mechanics II or AS.173.111 General Physics Laboratory I.

### LINEAR ALGEBRA and DIFFERENTIAL EQUATIONS

Students may take either of these options but must do so by the sophomore spring semester:

- AS.553.291 Linear Algebra / Differential Equations – 4 credits
- AS.110.201 Linear Algebra (4 credits) and AS.110.302 Differential Equations (4 credits) if they can work the additional four credits into their schedules. Note that AS.110.302 Differential Equations can be counted as a Technical Elective.

Students who receive waivers from the pre-admission Mathematics exam will still have to earn 19 or 23 credits as appropriate for their degrees. Taking Linear Algebra and Differential Equations separately can help meet those requirements.

### STATISTICS

The 3-credit course EN.560.348 will no longer be offered after the Spring 2020 semester. The 4-credit course EN.553.310 or EN.5530.311 Probability and Statistics courses offered by the Applied Mathematics and Statistics department are automatically accepted for the degree. Other statistics courses must be approved by the faculty advisor.

### HUMANITIES and SOCIAL SCIENCE ELECTIVES (H&S)

- Students must take six courses, at least three credits each from the Krieger School of Arts and Sciences. Exceptions can be requested from the Whiting School Academic Advising office for a block of 18 credits taken in less than six courses.
  - Note that some "Practical Ethics" courses are grouped into pairs (2 credits + 1 credit) that are accepted as "one" three-credit course. See the course catalog for information.

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- Up to one H&S course can be taken from the Whiting School of Engineering (course number starting with EN.) without requesting an exception approval, where the other five must be taken from the Krieger School of Arts and Sciences (course number starting with AS.).
- Requests to take a second Whiting School of Engineering H&S course must be approved by the faculty advisor and recorded on a Course Exception Waiver form.
- Courses **must** have an “H” and/or an “S” credit area designation. This is a Whiting School requirement and cannot be waived by a student’s faculty advisor.
- One course must be either AS.060.100 Intro to Expository Writing, AS.060.113 or AS.060.114 Expository Writing or AS.220.105 Intro to Fiction and Poetry.
- At least six (6) H/S credits must be at the 300-level or higher.
- Credits for foreign language courses have additional requirements – see our Undergraduate Advising Manual for details.
- All requests for exceptions must be pre-approved by the Director of Undergraduate Studies and the Whiting School Academic Advising office ([wseadvising@jhu.edu](mailto:wseadvising@jhu.edu)).

### WRITING INTENSIVE COURSES

Section 5.3 of the advising manual describes the Writing requirement, as well as Distribution and Depth requirements for the Humanities and Social Science requirements.

- AS.060.100 Intro to Expository Writing, AS.060.113 or AS.060.114 Expository Writing, and AS.220.105 Introduction to Fiction and Poetry are the approved courses for our majors.
- Students need take only one H/S writing intensive course, as EN.530.403 Senior Design counts as the other writing course.

### PEABODY STUDENTS and H&S

Please ask if your advisees are working toward a minor or major at the Peabody School of Music. Be sure that those students are aware of all requirements for both programs. Be particularly aware of Peabody courses that have H and S course areas and those that do not. The Whiting School will not allow students to count Peabody courses for H and S requirements that do not have either the H or S course area.

### INTRODUCTION TO ENGINEERING / PROGRAMMING SUBSTITUTES

When a student transfers majors to Mechanical Engineering or Engineering Mechanics after the freshman fall semester, there are various options available to complete the introduction to engineering and introduction to programming course requirements. Visit the [Intro to Computing / Intro to Engineering options sheet](#) in the Mechanical Engineering [“Declare or Transfer to Our Majors” page](#) to view options.

### COMPUTING

For the Class of 2022 and later, the introduction to computing requirement will usually be met with the new course EN.500.114 Gateway Computing - MATLAB, which will be taken in the freshman spring semester.

Some students may take EN.500.112 Gateway Computing – JAVA to complete pre-requisites for the Computer Science or Robotics minors. This can be taken instead of EN.530.114, but it is

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recommended that students then take the appropriate 1-credit “Bootcamp” computing course, EN.500.134 to receive instruction in the other language that they did not take in the 3-credit Gateway course.

### AP COMPUTER SCIENCE

Students with no AP Computer Science credit or score lower than a “5” on the AP Computer Science exam must take one version of the 3-credit Gateway Computing course.

EN.530.114 Gateway Computing – MATLAB is preferred, but EN.530.112 Gateway Computing – JAVA and EN.530.113 Gateway Computing – Python are also acceptable.

Effective the Spring 2020 semester and later, students who scored a “5” on the AP Computer Science exam have the option to take either...

- One of the Gateway Computing courses, in which case their AP CS credits will be forfeited, or...
- EN.601.220 Intermediate Programming, EN.601.226 Data Structures, or another programming course of at least three credits approved by the student’s faculty advisor, in which case the AP Computer Science credits will count toward the student’s core computing requirement (replacing Gateway Computing). EN.601.220 or EN.601.226 could count as a Technical Elective.

### MECHANICAL ENGINEERING ELECTIVES and TECHNICAL ELECTIVES

There are two types of electives in the Mechanical Engineering programs:

**Mechanical Engineering electives** are the following courses:

- Courses with course number prefixes “EN.530” and are at the .300-level or higher.
- EN.500.308 and/or EN.500.309 Multidisciplinary Engineering Design
- EN.520.495 Microfabrication Laboratory
- EN.580.451 Cell and Tissue Engineering
- EN.580.452 Cell and Tissue Engineering II (no longer offered since Fall 2018)

**Technical Electives** are any courses that carry a course area of E (engineering), Q (quantitative/math), or N (natural science) and are at the .300-level or higher. These could include Mechanical Engineering courses EN.530.xxx at the .300-level or higher, as well. The department will accept up to one computing course as a technical elective. See Sections 6.4 and 7.4 for details.

## **8. COURSE EXCEPTION WAIVERS**

Students will occasionally request an exception to various degree requirements. Requests that are granted are recorded on a Course Exception Waiver form, which is available on the [Mechanical Engineering “Undergraduate Academic Advising” page](#).

Anytime that you approve a deviation of any sort from the standard degree requirements (including counting Independent Research or Independent Study as an elective), you must complete this form. The form must explain the exception and the academic rationale behind the exception. In other words, there



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has to be a “good reason” for the exception.

Note that exceptions to the Humanities and Social Science courses must be pre-approved by our department and the Whiting School Academic Advising office, except when approving a second Whiting School H&S course. Please read the Course Catalog carefully to ensure that the proposed exception is possible.

You and the student will sign the form and deliver it to the academic program manager, who will obtain necessary signatures from the Department Chair and the Whiting School Academic Advising office. If this form is not completed, the student will not be allowed to graduate until the item is resolved.

### 9. RELEASING ADVISOR HOLDS

There is a wealth of important information on the Advisor Screen of SIS. You will use this to release a student’s Advisor Hold and access other information:

1. Go to <https://sis.jhu.edu>
2. Enter your JHED ID and password.
3. Click on Advisor at the top of the screen.
4. Click on Advisees → Advisee List to view your current advisees.
  - To release a hold on the advising page, click Release Hold.
  - To put the hold back on, click Apply Hold.
5. You can click on the following links for additional student information:
  - Enrollments (add/drop activity)
  - Grades
  - Schedule
  - Alerts/Holds

### 10. INDEPENDENT RESEARCH and INDEPENDENT STUDY

Students may wish to explore topics partially or not covered in coursework or expand their learning on a course topic. Independent Research is a course under the direct supervision of a faculty member in which a student identifies and proposes research work that creates new knowledge. Independent Study is the result of creating a course of study on an already established topic.

Up to three credits can be earned in any one semester, summer, or intersession.

**NEW as of Fall 2021:** Students can now count up to six credits of letter-graded independent work toward the B.S. Mechanical Engineering and Engineering Mechanics degrees as an elective in this manner:

- Up to three credits of undergraduate research (EN.530.501, EN.530.511, or EN.530.597)
- Up to three of independent study (EN.530.526, EN.530.527, or EN.530.599)

Students cannot count six credits of undergraduate research nor six credits of independent study.

*(Please see next page...)*

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### ADDITIONAL INFORMATION

- Each credit should reflect 40 hours of work, which is unpaid.
- Students taking three or more credits of undergraduate research are encouraged to present a research poster at the Johns Hopkins University's Undergraduate Research Day, which is presented at the annual School Open House and Overnight Program (SOHOP) for admitted freshmen. Announcements will be sent in advance to arrange to submit the poster.
- No distribution credits are attached to independent work, though your advisor can designate a distribution through a [Course Exception Waiver form](#).

The Mechanical Engineering department recommends that a student have a cumulative GPA of at least 3.0 to request approval to conduct independent research or independent study.

Before embarking on a project, students must obtain pre-approval from their academic advisors by presenting a completed "Independent Academic Work" form in SIS.

- The student will sign in to SIS at [sis.jhu.edu](http://sis.jhu.edu).
- Go to the Registration menu and select "Online Forms."
- Select "Independent Academic Work."
- Complete and submit the form.
- The form will be sent to the student's faculty advisor via e-mail for approval.
- Once approved, the student will be enrolled for the appropriate course.

Any research work performed without this preapproval will not be recognized and accredited.

### 11. MCAT

In rare instances, a student will also follow a pre-med track and will take the MCAT for medical school applications. The [JHU Office of Pre-Professional Studies](#) will advise the pre-med portion. There is a focus on psychology and sociology, as well as living systems, critical analysis and reasoning skills. Keep this in mind as students select H/S courses. Academic Program Manager Mike Bernard can assist with degree planning with pre-med.

### 12. CAREER ADVISING

Students often ask for advice about jobs, internships, graduate school, and connecting with industry contacts. Some students will want to pursue a mechanical engineering career and others will diversify their career choices in other engineering fields, consulting, finance, law, and medical professions. Currently, we depend on alumni, industry partners, and the Whiting School of Engineering to provide and distribute information about internship and job opportunities.

Advisors are encouraged to share their personal experiences of working as a professional, and otherwise can offer a variety of resources.

- The [Mechanical Engineering Careers and Life page](#)
- The [Johns Hopkins Life Design Lab](#), formerly the Career Center. Matthew Golden is our Life Design Educator – [matthew.golden@jhu.edu](mailto:matthew.golden@jhu.edu).
- Fellow Mechanical Engineering faculty

- Academic Program Manager Mike Bernard – [me-academic@jhu.edu](mailto:me-academic@jhu.edu) or 410-516-7154

### 13. WHEN A STUDENT IS IN TROUBLE ACADEMICALLY OR PERSONALLY

If a student is having trouble in a class, the instructor is strongly encouraged to note this trouble in the Johns Hopkins “Starfish” system, which is included in the Blackboard system, the course assistance tool.

#### ACADEMIC TROUBLES

Starfish should be used to record concerns and note patterns to alert the Whiting School Academic Advising office, where they can intervene and assist with resources to help the student. Academic advisors will be notified when this occurs. They may meet with students to discuss the situation and offer resources to address academic or personal problems.

#### Blackboard

- [Website](#)
- [Help and Instructions](#) - Cheryl Wagner at 410-516-7181 or [cwagner@jhu.edu](mailto:cwagner@jhu.edu).

#### Starfish

- Access Starfish on the Blackboard page for courses that you instruct.
- [Help and Instructions](#) - Emily Calderone at 410-516-9912 or [starfish@jhu.edu](mailto:starfish@jhu.edu).

#### OPTIONAL, BUT RECOMMENDED CHECK-IN WITH ADVISEES

As time allows, you are encouraged to check in with your advisees during the semester to see how they are doing, usually sometime between the first few weeks of the semester. An example note that Prof. Louis Whitcomb uses is shown here. You can use this as a base to create your own check in note. This can be sent individually or as a group to your advisees.

Dear Advisees,

As we begin the third week of class I want to check in with each of you. If you have not done so already, please let me know how your semester is progressing, and if there are any issues that I can help with.

The deadline to add courses has passed. The deadlines for dropping courses is October 10 for both undergrads and grads. The full schedule of course-registration-related deadlines is here...

- Undergraduate students: <https://studentaffairs.jhu.edu/registrar/students/registration/>
- Graduate students: <https://studentaffairs.jhu.edu/registrar/students/graduate-registration/>

Please always include the word ADVISING in the subject lines of all email to me - this helps me find your email in my email queue!

Best Regards,

#### PERSONAL TROUBLES

Occasionally, students may feel overwhelmed by the rigors of education, especially if coupled with outside stresses like health and family concerns. Johns Hopkins offers a host of resources where they can ask for and receive help.

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If students need someone to listen, they are encouraged to talk to their academic advisors or the academic administrative staff. Sometimes, venting to someone may be all that is needed.

Sometimes, though, they may want or need to talk to someone who is trained to help people in distress. View these pages for information and hours:

- [Recognizing and Helping Distressed Students](#)
- [Office of Student Life](#) – for information on services, offices, events, and student groups
- [Office of Student Disability Services](#) – to get help with a physical or mental incapacitation, no matter how minor.
- [Counseling Center](#) – to get help with any emotional concerns, when feeling overwhelmed, and when needing mental health support in a caring environment.
- [Sexual Assault Response and Prevention](#)
- Emergencies – call the Security office at 410-516-7777 or the Baltimore City Emergency Line at 911.

### 14. FERPA

The University expects everyone to follow its policy based on the [Family Educational Rights and Privacy Act of 1974](#). This federal law restricts what information – particularly student grades – that can be released without a student’s written consent.

All new advisors must take a ten-minute tutorial before being assigned advisees.  
Visit My.JH.edu → “Education” icon → “myLearning” icon. Search for “FERPA Basics.”

### 15. OTHER RESOURCES

- The [Mechanical Engineering “Academic Advising for Faculty” page](#).
- The [Undergraduate Academic Advising page](#), with advising manuals and checkout sheets
- [Advising Week page](#) – updated every semester
- [Mechanical Engineering Academic Advising “Box” File](#)
- The [Mechanical Engineering “Top 12 – Faculty” page](#) – has info on advising and other items.
- The [Johns Hopkins Catalog](#) and [Mechanical Engineering’s section](#) of the catalog.
- Director of Undergraduate Studies Steven Marra – [marra@jhu.edu](mailto:marra@jhu.edu)
- Senior faculty colleagues who have performed academic advising.
- Academic Program Manager Mike Bernard – [me-academic@jhu.edu](mailto:me-academic@jhu.edu)