

# Graduate Advising Manual



Welcome To Materials  
Science & Engineering

2024/2025

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# Welcome Message

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On behalf of all the faculty and staff in the Department of Materials Science and Engineering at Johns Hopkins University, I am pleased to welcome you to our department! We are delighted to have you join our community of scholars and researchers. Pursuing a Ph.D. is a significant undertaking, and we are honored that you have chosen to do so with us.

I want to assure you that you have made a great choice to study at Johns Hopkins University. As America's first research university, we have a long history of excellence in cutting-edge scholarship, with faculty and staff dedicated to helping you excel. You have also made a great choice to pursue your Ph.D. in materials science and engineering. This department provides an intellectually stimulating and supportive environment where you can grow personally and professionally. From solar cells to microelectronics to advanced prosthetics, nearly all modern technologies are limited by the performance and properties of the materials they are made of.

Materials scientists and engineers play a vital role in developing and improving technologies essential to modern life and critical to solving some of the world's most pressing problems.

As a graduate student in our department, you will have the opportunity to work with leading experts in the field and contribute to groundbreaking research. You will also have access to state-of-the-art facilities and equipment, as well as a range of resources and support services to help you succeed.

We know that pursuing a Ph.D. can be both challenging and rewarding, and we are here to support you every step of the way. Please don't hesitate to contact us with any questions or concerns and know that we are committed to helping you achieve your goals. Once again, welcome to our department, and we look forward to getting to know you.

Sincerely,



Michael R. Kessler, Ph.D.



**Michael Kessler**

# Equal Opportunity Statement

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The Johns Hopkins University is committed to equal opportunity for its faculty, staff, and students. To that end, the university does not discriminate on the basis of sex, gender, marital status, pregnancy, race, color, ethnicity, national origin, age, disability, religion, sexual orientation, gender identity or expression, veteran status, military status, immigration status or other legally protected characteristic. The university is committed to providing qualified individuals access to all academic and employment programs, benefits and activities on the basis of demonstrated ability, performance and merit without regard to personal factors that are irrelevant to the program involved.



***Ronald J. Daniels***

The university's equal opportunity policy is essential to its mission of excellence in education and research and applies to all academic programs administered by the university, its educational policies, admission policies, scholarship and loan programs and athletic programs. It applies to all employment decisions, including those affecting hiring, promotion, demotion or transfer; recruitment; advertisement of vacancies; layoff and termination; compensation and benefits; and selection for training. Consistent with its obligations under law, it also extends to the maintenance of affirmative action programs for minorities, women, persons with disabilities and veterans.

The university assigns a high priority to the implementation of its equal opportunity policy, and significant university resources are devoted to assuring compliance with all laws prohibiting discrimination in employment and educational programs. Shanon Shumpert, the university's vice provost for Institutional Equity, is responsible for assisting me and other university officers in the implementation of equal opportunity and affirmative action programs. Members of the university community are encouraged to contact the Vice Provost for the Office of Institutional Equity in the Wyman Park Building, Suite 515, Homewood campus, 410.516.8075, or the central offices of Human Resources regarding any questions or concerns about these matters.

Sincerely,  
*Ronald J. Daniels*





# About Johns Hopkins

The university takes its name from 19th-century Maryland **philanthropist Johns Hopkins**, an entrepreneur with Quaker roots who believed in improving public health and education in Baltimore and beyond. Hopkins is the first research university in America, a place that has revolutionized higher education in the U.S. and continues to bring knowledge and discoveries to the world.

# **Responsible Conduct**

The University is committed to maintaining learning and working environments that are free from all forms of discrimination and harassment. Each member of the community is responsible for fostering civility, for being familiar with this policy, and for refraining from conduct that violates this policy.

## **How do I decide if I should file a complaint?:**

JHU will not tolerate harassment, sexual harassment (including sexual violence), discrimination or retaliation in the workplace or educational environment whether committed by managers, faculty, administrators, staff, or students, or by visitors to our institution of higher learning. If you are a victim of any such situation, you are strongly encouraged to file a complaint through official university channels.

The Office of Institutional Equity is responsible for the investigation and resolution of discrimination complaints received from faculty, staff, and students at Johns Hopkins University.

All information received in connection with the filing, investigation, and resolution of allegations will be shared only with those individuals with a need to know in order to assist in the review, investigation or resolution of the allegation. All individuals involved in conducting an investigation are expected to use discretion and exhibit respect for the reputations of everyone involved in the process. In certain circumstances, however, the university may in be compelled to release information by law.

## **Process of Filing Complaints:**

1. You decide whether or not you want to file a complaint with the university

- Submit a complaint form online, download the complaint form and mail or fax it, or otherwise clearly communicate your complaint to OIE. You also may call or visit OIE's office to discuss a complaint, although we strongly recommend that you schedule an appointment in advance, if possible.

2. The University reviews the complaint and assesses whether the allegations raise an issue or issues that falls under OIE's purview of investigating discrimination or harassment.

- The University reviews the allegations in the complaint and, if necessary, obtains preliminary available evidence to assess the nature of the allegations.
- If the allegations raise concerns of discrimination and/or harassment based on a protected class, OIE will consider the preferences of the Complainant and may conduct an investigation or otherwise address the concerns.
- If the allegations do not raise discrimination or harassment concerns, OIE may refer the complaint to another appropriate office or department, such as Human Resources, Student Life, or Safe at Hopkins. In this case, you will be notified of the referral by OIE.

3. OIE conducts a full investigation of the allegations of discrimination and/or harassment.

- The University may recommend interim measures during the pendency of the investigation to prevent additional issues or concerns from arising and/or to protect the integrity of the investigation.
- OIE gathers information and evidence about the case.
- In certain cases, if OIE and all involved parties agree that it is appropriate, OIE can facilitate informal resolution to resolve the complaint. This does not involve the parties directly interacting with one another.
- Unless informally resolved, OIE makes factual findings and analyzes whether the policies prohibiting discrimination and harassment have been violated. OIE conducts a full investigation of the allegations of discrimination and/or harassment.

4.If OIE finds that harassment and/or discrimination occurred, OIE makes recommendations to the relevant management or leadership for the parties, which would include Student Conduct for students. Possible recommendations are varied and dependent upon the specific circumstances

## Sexual Harassment

The term sexual misconduct includes sexual harassment, sexual assault, relationship violence, and stalking.

JHU will not tolerate harassment, sexual harassment (including sexual violence) or retaliation in the workplace or educational environment. Whether you are a victim of such conduct or the accused, you are strongly encouraged to review university policies regarding harassment and discrimination or sexual misconduct. In addition, students should be aware of the Student Conduct Code as outlined in the e-catalog.

If you have been sexually assaulted or are a victim of other sexual misconduct, we urge you to get medical care and reach out to a counselor for emotional support. We also stand ready to assist you with a complaint through JHU and/or local law enforcement and encourage you to submit one. In addition, the university has a range of resources to raise awareness on these issues.

Community members are encouraged to report sexual misconduct to the JHU Office of Institutional Equity (OIE). OIE assesses sexual misconduct complaints filed by students, staff and faculty, and is committed to handling reports of sexual misconduct with discretion and sensitivity.

Click [here](#) for further information.



# 24–25 Academic Calendar

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## Fall

First Day of Classes (Semester/8-Week)	Aug 26
Last Day of Classes (Semester)	Dec 6
Reading Days	Dec 9–10
Exam Days	Dec 11–19
8-week Fall Term 1	Aug 26–Oct 21
8-week Fall Term 2	Oct 23–Dec 20
Holiday	Sep 2
Fall Break	Oct 17–18
Fall Recess	Nov 25–29
End of Semester/End of 8-Week Fall Term 2	Dec 20
Degree Conferral	Dec 31

## Intercession

Classes	Jan 2–17
Holidays	Jan 1, Jan 20

## Spring

First Day of Classes (Semester/8-Week)	Jan 21
Last Day of Classes (Semester)	Apr 28
Reading Days	Apr 29–May 2
Exam Days	May 5–13
8-week Spring Term 1	Jan 21–Mar 17
8-week Spring Term 2	Mar 24–May 18
Spring Break	Mar 17–21
End of Semester/End of 8-Week Spring Term 2	May 18
Degree Conferral	May 22

## Summer

Classes	May 19 – Aug 13
Holidays	May 26, Jun 19, Jul 4
End of Summer Semester	Aug 22
Degree Conferral	Aug 22

# Introduction

## **Materials Science & Engineering**

Materials are essential to the construction of any engineering structure, from the smallest integrated circuit to the largest bridge. In almost every technology, the performance, reliability, or cost is determined by the materials used. As a result, the drive to develop new materials and processes (or to improve existing ones) makes materials science and engineering one of the most important and dynamic engineering disciplines.

The central theme of materials science and engineering is that the relationships among the structure, properties, processing, and performance of materials are crucial to their function in engineering structures. Materials scientists seek to understand these fundamental relationships, and use this understanding to develop new ways for making materials or to synthesize new materials. Materials engineers design or select materials for particular applications and develop improved processing techniques. Since materials scientists and engineers must understand the properties of materials as well as their applications, the field is inherently interdisciplinary, drawing on aspects of almost every other engineering discipline as well as physics, chemistry, and, most recently, biology. Because the field encompasses so many different areas, it is often categorized according to types of materials (metals, ceramics, polymers, semiconductors) or to their applications (biomaterials, electronic materials, magnetic materials, or structural materials).

The department prepares students for successful careers in materials science and engineering, for advanced study in science or engineering, and for professional education in other fields. The goal of the graduate program is to earn skills and qualifications he/she need to move their career forward and earnings upward.

Our low student-to-faculty ratio allows students close contact with faculty in both classroom and research environments, as well as with other students and researchers in the department.



**New Graduate Student Checklist – Ph.D.  
Homewood Schools Day/Fulltime Programs  
Whiting School of Engineering  
Department of Materials Science & Engineering  
<https://engineering.jhu.edu/materials/>**

**Before Arrival:**

- Complete Pre-Entrance Health Form Requirements:  
<https://studentaffairs.jhu.edu/student-health/incoming-students/health-requirements/>
  - Please make sure you complete all three steps of the pre-entrance health requirements.
  
- **Secure Off-Campus Housing:**  
<https://studentaffairs.jhu.edu/community-living/offcampus/>
  - JHU does not have an on-campus Graduate Housing Program, but we do have ample off-campus housing in the community. With over 20 commercial properties in the immediate Homewood Campus area and our residential housing database, you should be able to find suitable housing before the start of classes. Extensive housing information is posted on the Off-Campus Housing Office's website.
  
- **Submit Final Documents:**  
<https://engineering.jhu.edu/admissions/graduate-admissions/full-time-programs/newly-admitted-students/>
  
- **Payroll** – Information on payroll will be emailed to you prior to the start of the semester
  
- **Health Insurance Enrollment:**  
<https://studentaffairs.jhu.edu/registrar/students/student-health-benefits/>
  - It is University policy that all full-time students in the Schools of Arts & Sciences and Engineering maintain adequate health insurance coverage to provide protection against unexpected accidents and illnesses. As a full-time student, you will be automatically enrolled in the University's health insurance plan. For more detailed information, please visit the Registrar's website.



- **Activate your JHU Email:**

<https://studentaffairs.jhu.edu/registrar/students/getting-started/>

- All students are provided with a Johns Hopkins email account and are required to set up their mailbox. You will receive an e-mail from Web Registration, Office of the Registrar, about your JHED Login ID Name. Please follow the directions on that e-mail by going to <http://my.jhu.edu> and selecting "Login".

- **Obtain a J-Card:** <https://studentaffairs.jhu.edu/jcard/>

## Upon Arrival

- **Corona Virus Information for Students:**

<https://covidinfo.jhu.edu/information-for-graduate-students/>

- Please make sure that you follow the directions under the Frequently Asked Questions – "What do I need to know if I want to come to campus"

- **Graduate Student Orientation:**

<https://engineering.jhu.edu/admissions/graduate-admissions/full-time-programs/newly-admitted-students/graduate-student-orientation/>

- **Submit Appropriate Tax Forms:**

<https://studentaffairs.jhu.edu/studentemployment/student-information/handbook/tax-information/>

- Students must complete and submit all appropriate tax forms to Student Employment Services office.
- The department/Student Employment staff cannot answer any questions regarding tax withholdings, tax treaties, or tax eligibility. Students MUST contact the University's tax office if there are questions regarding tax withholdings, exemptions, or treaties.

- **Postal Mail and Department Mailboxes** – U.S. mail and campus mail are picked up and delivered to the department office. To ensure the receipt of departmental and university e-mails, it is vital that you make sure that you advise Jeanine Majewski of your new JHU e-mail address. Your departmental mailbox will be in Maryland Hall 205. Please check that room for mail.

- **Set-up Campus Parking** (if needed): <http://ts.jhu.edu/Parking/>
  - Parking is available for graduate students on campus at any available lot. Generally, this includes the San Martin, and South garages and the surface lots.
- **Register for Classes**  
<https://studentaffairs.jhu.edu/registrar/students/getting-started/>
  - Effective July 20, 2021 – New graduate students may register online for classes. However, first you will need to contact your advisor so that he/she can lift the advising hold. In addition to core courses, students must also register for the following three courses this fall semester: 510.801, Materials Research Seminar; 510.803, Materials Science Seminar and 510.807, Graduate Research in Materials Science.\* Please see the following website for graduate credit hours:  
<http://homewoodgrad.jhu.edu/academics/wse-graduate-credit-hours/>

The Ph.D. requirements can be found at:

<https://engineering.jhu.edu/materials/graduate-studies/phd-requirements/>

- **International Graduate Students –**  
<https://engineering.jhu.edu/admissions/graduate-admissions/full-time-programs/newly-admitted-students/new-international-students/>
- **Check in with the Office of International Services:** <http://ois.jhu.edu/>
  - After arriving in the U.S., complete your online check-in form and upload copies of your immigration documents as instructed on the form. The check in form is accessed via <http://ihopkins.jhu.edu>. You will have received specific information on this process in an email from the Office of International Services (OIS).
  - You can also find the “F1-J1 Student Pre-Arrival Guide” at the following webpage:  
[https://ois.jhu.edu/Immigration\\_and\\_Visas/For\\_New\\_Students\\_and\\_Scholars/For\\_Students/Pre-Arrival\\_Information/index.html](https://ois.jhu.edu/Immigration_and_Visas/For_New_Students_and_Scholars/For_Students/Pre-Arrival_Information/index.html)

- **Obtain a Social Security Number (SSN):**

<http://www.ssa.gov/ssnumber/>.

- SSNs are important to have not only for payroll, but also help in terms of signing up for a cell phone service, utilities (BGE – electric and gas), internet, etc.
- The original Social Security Card must be brought to Student Employment for verification.
- International graduate students not paid directly by JHU may not need to obtain an SSN; consult OIS in this case.

- **JHU Foreign National Information Form (FNIF):**

[https://ois.jhu.edu/Legal\\_Matters/Taxes/](https://ois.jhu.edu/Legal_Matters/Taxes/)

- Non-US Citizens who are being paid by JHU also need to complete the JHU Foreign National Information Form (FNIF).
- The original FNIF and copies of the supporting documentation must be furnished to the JHU Tax Office upon arrival. A copy of the form also needs to be supplied to the departmental administrator for the purposes of making sure payroll is entered properly into the JHU payroll system.

*\*You must be cleared by the following offices in order to register online: (1) the Student Health and Wellness Center – you must have completed their Health and Immunization Record; (2) the Student Health Insurance Office – you must have either signed up for the University-sponsored health insurance plan or have waived it; (3) the Office of International Services (OIS), if you hold an F-1 or J-1 visa and; (4) your advisor will need to lift your advising hold.*

**If there are any questions, please contact Lauren Rodgers at**  
[lmodical@jhu.edu](mailto:lmodical@jhu.edu)

**Useful Johns Hopkins University Websites:**

- Materials Science & Engineering – <http://engineering.jhu.edu/materials/>
- Student Health Benefits – <https://studentaffairs.jhu.edu/registrar/students/student-health-benefits>
- J Card Office – <https://studentaffairs.jhu.edu/jcard/>
- Office of International Services – <https://ois.jhu.edu/>
- Transportation Services – <http://ts.jhu.edu/>
- Registrar's Office – <https://studentaffairs.jhu.edu/registrar/>
- Student Accounts Office – <https://studentaffairs.jhu.edu/student-accounts/>
- Student Health & Wellness Center – <https://studentaffairs.jhu.edu/student-health/>

# **MSE Degree Program Requirements**

**The degree of Master of Science in Engineering with Essay is awarded subject to the recommendation of the student's adviser and departmental approval, based on the satisfactory completion of the following requirements:**

1. Three core courses in materials science and engineering

- 510.601: Structure of Materials
- 510.602: Thermodynamics of Materials
- 510.603: Phase Transformations in Materials

Or take two combined courses:

- 510.606: Structure and Properties of Materials
- 510.612: Thermodynamics and Kinetics of Materials

If students are earning a masters with the intent of pursuing a PhD in the future, they must take the core classes (510.601, 510.602 and 510.603/510.610) and not the combined classes.

2. Two 600-level or higher and three 400-level or higher electives in materials science and engineering or related fields subject to the following rules:

- Each elective must be worth at least three credits. Multiple course that add up to three credits may be used in place of one three-credit course with approval from the Master's Degree Committee.
- Up to two of the elective courses may be taken from the Engineering Programs for Professionals (EPP) part-time program.
- Up to two of the electives may be business courses.
- Any elective taken outside of the department (including all EPP courses) requires prior approval of the Master's Degree Committee. The Master's Degree Committee will determine the appropriate number of credits for any elective taken outside the Whiting School of Engineering.



- With the approval of the Master's Degree Committee, the student may transfer up to two graduate courses from another institution. Students desiring such credit must make the request in writing to the Master's Degree Committee by the end of the first semester after matriculation. This request must include a description of the course, a course syllabus, and documentation of the grade received. Please note that transfer coursework grades do not count towards calculation of the GPA.

3. Responsible Conduct of Research training (AS.360.624 or AS.360.625) in accordance with Whiting School of Engineering policy. Details about this requirement, including the criteria for determining whether the online or in-person course must be taken, are provided in the [description of the policy](#).

4. Training on academic ethics in accordance with Whiting School of Engineering [policy](#). This requirement can be satisfied by passing EN.500.603 (Academic Ethics).

5. A grade of C or better must be achieved in each course to obtain credit.

6. An overall grade point average of 3.0 must be maintained and a grade point average of 3.0 is required to earn the degree at the end of the program.

7. Attendance is required at the weekly Department of Materials Science and Engineering seminar (510.803/510.804).

8. A master's essay or journal publication is required. A master's essay must be approved by one faculty reader and conform to the requirements of the WSE Graduate Committee. For a journal publication, a student must submit to the Master's Degree Committee an article describing his or her original research that has been published (or accepted for publication) in an archival, peer-reviewed technical journal. The student must be the primary author of the article. Research for the master's essay or journal publication may be conducted with a corporate sponsor through the [INBT Co-Op program](#).

Admission to the MSE program is through the standard graduate admissions process. The typical duration of the program is 21 months. The student's transcript will reflect a Master of Science in Engineering with Essay.

### **Requirements for the MSE Degree without Essay (10 Courses)**

The degree of Master of Science in Engineering (MSE) is awarded subject to the recommendation of the student's adviser and departmental approval, based on satisfactory completion of the following requirements:

1. Three core courses in materials science and engineering

- 510.601: Structure of Materials
- 510.602: Thermodynamics of Materials
- 510.603: Phase Transformations in Materials

Or take two combined courses:

- 510.606: Structure and Properties of Materials
- 510.612: Thermodynamics and Kinetics of Materials

If students are earning a masters with the intent of pursuing a PhD in the future, they must take the core classes (510.601, 510.602 and 510.603/510.610) and not the combined classes.

2. Four 600-level or higher and three 400-level or higher electives in materials science and engineering or related fields subject to the following rules:

- Each elective must be worth at least three credits. Multiple course that add up to three credits may be used in place of one three-credit course with approval from the Master's Degree Committee.
- Up to two of the elective courses may be taken from the Engineering Programs for Professionals (EPP) part-time program
- Up to two of the electives may be business courses.
- Any elective taken outside of the department (including all EPP courses) requires prior approval of the Master's Degree Committee. The Master's Degree Committee will determine the appropriate number of credits for any elective taken outside the Whiting School of Engineering.

- With the approval of the Master's Degree Committee, the student may transfer up to two graduate courses from another institution. Students desiring such credit must make the request in writing to the Master's Degree Committee by the end of the first semester after matriculation. This request must include a description of the course, a course syllabus, and documentation of the grade received. Please note that transfer coursework grades do not count towards calculation of the GPA.

3. Responsible Conduct of Research training (AS.360.624 or AS.360.625) in accordance with Whiting School of Engineering policy. Details about this requirement, including the criteria for determining whether the online or in-person course must be taken, are provided in the [description of the policy](#).

4. Training on academic ethics in accordance with Whiting School of Engineering **policy**. This requirement can be satisfied by passing EN.500.603 (Academic Ethics).

5. A grade of C or better must be achieved in each course to obtain credit.

6. An overall grade point average of 3.0 must be maintained and a grade point average of 3.0 is required to earn the degree at the end of the program

7. Attendance is required at the weekly Department of Materials Science and Engineering seminar (510.803/510.804).

Admission to the MSE program is through the standard [graduate admissions](#) process. The typical duration of the program is 12 months. The student's transcript will reflect a Master of Science in Engineering.

# **Ph.D Degree Program Requirements**

## **1. Successful completion of four required courses in materials science and engineering:**

- 510.601: Structure of Materials
- 510.602: Thermodynamics of Materials
- Either 510.603: Phase Transformations in Materials or 510.610 Fundamentals of Biomaterials
- 510.615: Physical Properties of Materials (see waiver of required courses below)

Each of the four required courses must be passed with a letter grade of B- or higher. If a student receives a grade of C+ or lower in a required course, the student may re-take the course once to achieve a grade of B- or higher. Receipt of grades of C+ or lower in two or more required courses will ordinarily be cause for dismissal from the program without the opportunity to re-take those courses.

In addition, students must maintain an overall grade point average (GPA) of 3.0 or higher in the four required courses. Courses that have been waived (see below) do not count towards calculation of the GPA. If a student's GPA falls below 3.0, the student must re-take one or more of the required courses and earn higher grade(s). Upon doing so the prior grade(s) in those course(s) are replaced and not counted towards the GPA.

*Deadline for completion:* The four required courses must be successfully completed (meeting the grade and GPA requirements above) no later than the start of the student's third year after matriculation; failure to do so will result in dismissal from the program. Exception: A student who fails to meet the requirements above due to a low grade in a single required course, and who has not had an opportunity to re-take that course during the first two years, will be permitted to re-take that one course in the third year.



Waiver of required courses: Students may submit a petition to the Doctoral Program Committee to waive one of the required courses under either of the following conditions:

- Students who have an undergraduate degree in Materials Science and Engineering may waive 510.615.
- Students who have completed prior graduate-level coursework substantially similar to one of the other courses (510.601, 602, 603, or 610) may waive that course.

Students desiring a waiver of a required course must submit their petition no later than the end of the first semester after matriculation. If the petition requests a waiver on the basis of graduate-level coursework taken elsewhere, documentation of the course level, content (syllabus) and grade received must be included in the petition.

## **2. Successful completion of three advanced (600-level or higher) elective courses in materials science and engineering or a related field.**

Elective courses must be completed with a grade of C or higher, but there is no cumulative GPA requirement. Any 600-level or higher regular course in materials science and engineering may be used to fulfill this requirement. Courses from other departments may also be used, but must either appear on the list of approved electives (available from the Academic Program Administrator) or be approved by the Doctoral Program Committee. Students wishing to use a course not on the list of approved electives must submit their request to the Doctoral Program Committee no later than the end of the first week of the semester in which the course is taken.

The following courses may not be used to fulfill the PhD elective course:

- Undergraduate courses, unless cross-listed at 600-level or higher
- Graduate research (510.807-808)
- Courses in part-time graduate programs (Engineering for Professionals in WSE or Advanced Academic Programs in KSAS)
- Seminars (courses with fewer than three contact hours per week)

Independent study courses (510.805-806) may be PhD electives, with prior approval of the Doctoral Program Committee.

Waiver of elective courses: Students who have completed prior graduate-level coursework may petition the Graduate Program Committee to waive one of the elective courses. Students desiring such a waiver must submit a petition, no later than the end of the first semester after matriculation, describing the course they wish to use to fulfill this requirement. Documentation of the course level, content (syllabus), and grade received must be included in the petition.

In some cases an adviser may require a student to complete additional coursework, beyond the four required courses and three electives described above.

### **3. Coursework required by Whiting School of Engineering policy. These include the following:**

a.) Responsible Conduct of Research training (AS.360.624 or AS.360.625) in accordance with Whiting School of Engineering policy. Details about this requirement, including the criteria for determining whether the online or in-person course must be taken, are provided in the [description of the policy](#) at

b.) Training on academic ethics in accordance with Whiting School of Engineering [policy](#). This requirement can be satisfied by passing EN.500.603 (Academic Ethics).

**4. Teaching Assistant Requirement: Students in their second year in the department will be required to act as teaching assistant for two courses.** You will be e-mailed your Teaching Assistant Assignment at least two weeks before the semester begins.

**5. Successful completion of a comprehensive oral examination. The exam is offered semiannually, usually the week before the beginning of fall semester and spring semester.**

The exam covers three areas of materials science and engineering:

- Structure of Materials
- Thermodynamics of Materials, and
- Either Kinetics and Phase Transformations in Materials OR Biomaterials (at the student's choice)

Although these subject areas correspond to the four core courses, the topics covered in the exam are not strictly limited to material covered in those courses. Furthermore, each section may include questions related to the properties of materials at a level similar to that covered in EN.510.615 (Physical Properties of Materials).

Additional information about the oral exam is provided in the document *Information for doctoral students regarding the oral comprehensive examination*, available from the Academic Program Administrator.

**6. A proposal for a research project to form the basis of the candidate's dissertation.**

Each student must write a dissertation proposal and present it orally at a public seminar no later than the end of the sixth semester following matriculation. The written dissertation proposal must be submitted to the department no later than two weeks prior to the scheduled date of the oral presentation. The public seminar will be followed by a closed session with a committee consisting of the research advisor and two other faculty members (to be selected in consultation with the advisor).

During the closed session, the committee members will ask questions about and provide comments on the proposed plan of research. The thesis proposal is also an examination, with the committee testing the candidate's depth of knowledge in his/her area of specialization (and not only on the proposed research). Students who do not successfully complete the dissertation proposal requirement by the end of the sixth semester following matriculation will be placed on probation, with a specified time limit (ordinarily no more than six months) within which to complete this requirement and be removed from probation. Students on probation who do not complete the dissertation within the specified time limit will be dismissed from the program.

**7. Completion of an original research project, documented in a dissertation that is defended by the candidate in a public presentation.**

Candidates must write a dissertation conforming to university requirements that describes their work and results in detail. A public defense of the dissertation is required, and will be followed by a closed examination session. The committee for the closed examination shall consist of five faculty members, chosen by the Graduate Program Committee, with at least two members being from outside the department. The outcome of the closed examination will be decided by majority vote of the committee. Because the closed examination session fulfills the university Graduate Board Oral (GBO) examination requirement, all procedures pertaining to GBOs as established by the University Graduate Board must be followed.

The committee may impose certain conditions (e.g. changes to the dissertation) for the candidate to meet prior to final certification that he or she has passed the exam. For this reason, the thesis defense must be scheduled for a date at least two months prior to any personal or university deadline for graduation. A complete draft of the dissertation must be submitted to all committee members no later than two weeks prior to the defense.

The dissertation in its final form must be read and approved in writing by two members of the committee (the adviser and one other member to be chosen by the committee as a whole).

## **Oral Thesis Proposal**

The second part of the thesis proposal is an oral presentation to your thesis proposal committee and other members of the department. There are no specific requirements for the format of the oral presentation, but generally speaking you will want to convey the same ideas that are contained in your written proposal. Plan your talk to be approximately 30–35 minutes long, and no longer than 45 minutes – rehearse it ahead of time and revise as necessary, anticipating that you may be interrupted for questions by the audience. As a very rough guide to pacing you should figure on something less than one slide per minute, so you will probably want about 25 slides total (more or less depending on your style). Be sure that your slides are legible, even from the back of the room.

After the public oral thesis presentation there will be a closed examination (of approximately thirty minutes) with the members of the thesis proposal committee, in which they will probe your understanding of the context of your work and your proposed project in depth. For this reason, it is important that you understand and be able to defend your proposal at a greater level of detail than provided in either your written document or your oral presentation.

Here are a few resources with suggestions on how to put together a good presentation:

Randy Olson, *Houston, We Have a Narrative: Why Science Needs Story*. University of Chicago Press, 2015. ISBN ISBN: 9780226270845

**High-level stuff about how to organize your presentation (and your written proposal, for that matter) in a way that tells a compelling story.**

Marilynn Larkin, *How to Give a Dynamic Scientific Presentation*  
<https://www.elsevier.com/connect/how-to-give-a-dynamic-scientific-presentation>

**Practical advice on the presentation itself.**



Susan K. McConnell, *Designing Effective Scientific Presentations*  
[http://media.hhmi.org/ibio/mcconnell/mcconnell\\_powerpoint\\_pt1.pdf](http://media.hhmi.org/ibio/mcconnell/mcconnell_powerpoint_pt1.pdf)  
**Lots of good tips on how to use PowerPoint (or Keynote) effectively.**



# ***Guidelines for Preparing Your Doctoral Thesis Proposal***

One of the requirements for the PhD in Materials Science and Engineering is the preparation and defense of a thesis proposal. Your thesis proposal outlines a research problem and general approach which, if carried through to completion, will provide a satisfactory basis for writing your PhD dissertation. Preparing a thesis proposal at an early stage teaches you to identify and articulate promising lines of inquiry and to place your research in the broader context of the state knowledge in your field. It gives you experience in writing a persuasive proposal and defending the ideas it contains, and it ensures that the thesis committee is in broad agreement with you about the general course of research to be pursued and what is required for you to successfully complete your thesis and receive your Ph.D. degree.

## **Timeline**

The proposal is of little use if you put it off too long, so you are encouraged to do it as early as possible, but in any event before the end of your third year (as stated in the official requirements for the Ph.D. degree). Note that it is not necessary for you to have a large amount of preliminary data for your proposal. The proposal is designed to show that you understand the context for your research, are familiar with the techniques that you will use, and have a sound rationale for your approach. Preliminary data can be helpful, but are not required.

Scheduling three faculty in the same room at the same time can be tricky, so get started early. You must submit the written proposal no later than two weeks before the scheduled date of your oral presentation.

## **Thesis proposal committee**

The thesis proposal committee consists of three faculty members, including your research advisor. Ordinarily, it is expected that the members of your thesis proposal committee will also become members of your thesis committee. You should choose the members of your committee in consultation your advisor, to ensure that all important topical areas related to your research are covered.

## **Written thesis proposal**

You must submit your written thesis proposal to the Academic Program Administrator (Lauren Rodgers) as a single PDF file no later than two weeks prior to the date of your oral presentation. She will check your thesis proposal to ensure that it adheres to the format described below and distribute it to the members of your committee.

Your written proposal should present a clear outline of your proposed research. You should describe the significance of your research, its novelty or innovation, and your general experimental (or computational, or theoretical) approach. It should provide sufficient detail to allow assessment of the overall goals of your project and the experimental design. Review criteria for evaluation of NIH and NSF proposals provide valuable guidance in the content of research proposals and are provided as an appendix below.

## **Sections, length, and formatting**

Your thesis proposal must include the following sections, each strictly limited to the number of pages specified:

- Title page (1 page)
- Specific Aims (1 page)
- Research Context and Strategy (6 pages, including figures and tables)
- References

You should observe the following formatting requirements:

- All pages must be formatted for U.S. letter size paper (8.5" by 11")
- Margins no smaller than one-half inch on all sides
- Number each page, except the title page, at the bottom center
- Type must be 11 point or larger, using a standard font (e.g. Times New Roman, Cambria, or Arial).

Note well: If your thesis proposal does not meet these formatting requirements, it will be returned to you for correction and re-submission.

### **Title page (1 page)**

The Title Page should include the title of your project; your name; your matriculation date; the date, time, and location of the presentation; and the names and email addresses of your thesis advisor(s) and the other members of your thesis proposal committee.

### **Specific Aims (1 page)**

The Specific Aims section should provide a concise overview of your project, a numbered list of your specific aims or objectives, and a statement of the expected outcome(s) and impact of your project. Since this is the first section that will be read, it should be clear and concise. Here are guidelines for this section:

First paragraph — Include sentences that describe: (1) the topic of the research – what is your project about, (2) the current state of knowledge in your field or the state-of-the-art, providing only the details necessary to understand the context of the project, (3) the gap in knowledge or technology that you will address, and (4) the critical need, i.e. new knowledge, model, technique, material, or process that you will develop or design.

*Second paragraph* — Describe how your project will meet the critical need identified in the first paragraph. Having defined the critical need, this paragraph should make the case for your proposed solution. The components of this paragraph may vary depending on your project, but it should include: (1) a description of how the critical need will be met, (2) a statement of the overarching goal of your project, (3) the hypothesis (if your project is hypothesis-driven), (4) the overall objective of your project, and (5) the rationale for your project — how the solution was selected (often based on previous work in the literature or preliminary data).

*List of specific aims* — List the aims of your project by which you will test the hypothesis or develop the new technique, material, model or process. Typically there will be two to four aims, and they should be provided in a numerical list to make it easier for the reviewers to clearly identify and understand each aim. In general, each aim should have an active title that clearly states the objective in relationship to the hypothesis and/or overall objective. Ideally, your aims should be related to, but not dependent upon, each other to avoid the failure of one aim preventing the completion of the other aims. For each aim, write a few sentences that describe the experimental approach, the anticipated outcomes, and how each aim will help answer your larger hypothesis. In some cases it may be helpful to divide the aims into sub-aims.

*Final paragraph* — Should include a brief statement of the expected outcomes and potential impact of your project as a whole.

### **Research Context and Strategy (6 pages)**

This section should include the following sub-sections. Suggested lengths for each are given; these are only guidelines, but the entire Research Context and Strategy section is strictly limited to six pages.



*Significance* (~ 1 page) — The *Significance* section should make a compelling case for your project and explain why it is an important problem in the context of current literature and/or the state-of-the-art. Use citations to support specific statements and show familiarity with relevant literature and prevailing concepts. This section should explain: (1) how your project will address an important problem or a critical barrier to progress in the field, and (2) how your project will advance or improve scientific knowledge, technical capability, and/or clinical practice be improved. This section will usually include: (1) a summary of the current literature, (2) your rationale for pursuing the proposed project, and (3) a description of the expected significance of your project — its expected contribution to science, technology, and/or human health.

*Innovation* (~1/2 page) — The *Innovation* section should address: (1) how your project challenges/seek to shift current research, (2) any novel concepts, approaches, methodologies, instrumentation, and any advantage over existing ones, and (3) any refinements or improvements to existing approaches.

*Approach* (~ 4 1/2 pages) — The *Approach* section should include any preliminary data, an overview of the experimental design, a description of methodologies and analyses to be used, a discussion of potential difficulties and limitations and strategies to overcome them, expected results, and alternative approaches if unexpected results are found. Number each subsection to correspond with the numbers of the specific aims.

In describing how each aim will be addressed, it is useful to provide an introductory paragraph that describes the motivation, rationale, and/or objectives for each aim. Within the description of the methodologies for each aim, describe how you will collect, analyze, and interpret your data. Include benchmarks if appropriate. Explain why one approach or method was selected instead of others. At the end of the description of each aim, describe potential problems or high risk experiments, and possible alternative strategies.

Preliminary results can be summarized at the beginning of the *Approach* section, or distributed in the individual aims.

At the end of the *Approach* section, include a timeline for the proposed project, indicating the projected start and endpoints for each aim and/or sub-aim.

## **References**

Cite sources using either numbers or an author-date format. Collect the references in a separate section at the end of the proposal, using any standard format of your choice. References do not count against the page limit.

## **Figures**

Figures should be used as necessary to provide preliminary data or illustrate important points of the proposal. Number the figures sequentially, and put them in the text (not collected separately at the end). Place each figure at the top or bottom of a page (or on a separate page, if necessary) as close as possible to the first place it is mentioned in the text. Each figure should have a brief explanatory caption.

Figures should be legible — take special care if they are reproduced from some other source. Do not be tempted to shrink your figures too much to save space. If color is used, be sure that the important information in the figure can be understood even if the proposal is printed in black and white. Provide appropriate credit or a reference for any figure you do not make yourself or which you adapt from another source.

## **Thesis Defense**

Completion of an original research project, documented in a dissertation that is defended by the candidate in a public presentation.

Candidates must write a dissertation conforming to university requirements that describes their work and results in detail. A public defense of the dissertation is required and will be followed by a closed examination session. The committee for the closed examination shall consist of five faculty members, chosen by the Graduate Program Committee, with at least two members being from outside the department. The outcome of the closed examination will be decided by majority vote of the committee. Because the closed examination session fulfills the university Graduate Board Oral (GBO) examination requirement, all procedures pertaining to GBOs as established by the University Graduate Board must be followed.

The committee may impose certain conditions (e.g. changes to the dissertation) for the candidate to meet prior to final certification that he or she has passed the exam. For this reason, the thesis defense must be scheduled for a date at least two months prior to any personal or university deadline for graduation. A complete draft of the dissertation must be submitted to all committee members no later than two weeks prior to the defense.

The dissertation in its final form must be read and approved in writing by two members of the committee (the adviser and one other member to be chosen by the committee as a whole).

# **WSE Ph.D. Deadlines (change per semester) and Important Instructions for PhDs Completion:**

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The next steps after passing your GBO exam to ensure that you receive a conferral.

1. Deadlines: <https://homewoodgrad.jhu.edu/academics/graduate-board/deadlines/>
2. The library's website is: <https://www.library.jhu.edu/library-services/electronic-theses-dissertations/> and the formatting page is <https://www.library.jhu.edu/library-services/electronic-theses-dissertations/formatting-requirements/>
3. Go into [sis.jhu.edu](https://sis.jhu.edu) and complete and submit the application for graduation.
4. Your Ph.D. advisor will write a "Reader's Letter" with two signatures (your advisor and then someone with whom the advisor and the student have agreed to read the thesis).
5. Once the dissertation is submitted and then approved by the library, please forward Lauren Rodgers- [Imodical@jhu.edu](mailto:Imodical@jhu.edu)- that library e-mail and copy Dean Christine Kavanagh in the WSE Dean's Office.

**Below please see an example of the e-mail that you will receive from the library once your dissertation is approved:**

Congratulations, your ETD has been approved by the library. Depending on your department, you may have additional steps to complete before degree conferral.

Title of dissertation:

Please note the following important instructions (one missed step may result in your degree not being conferred on time):

Whiting School of Engineering Students: Master's Essay/Thesis/Project or PhD Dissertation:

\* Please forward this email to your department academic administrator and include your exact degree, department, and expected conferral semester in the body of the email. (Example: MSE, Civil Engineering, Fall 2023). Please be sure to cc: ckav@jhu.edu on the email.

\* You must include the title of your dissertation/essay/project typed in the body of the email in title case format with correct spelling and punctuation -- Please do not use all upper case or all lower case letters.

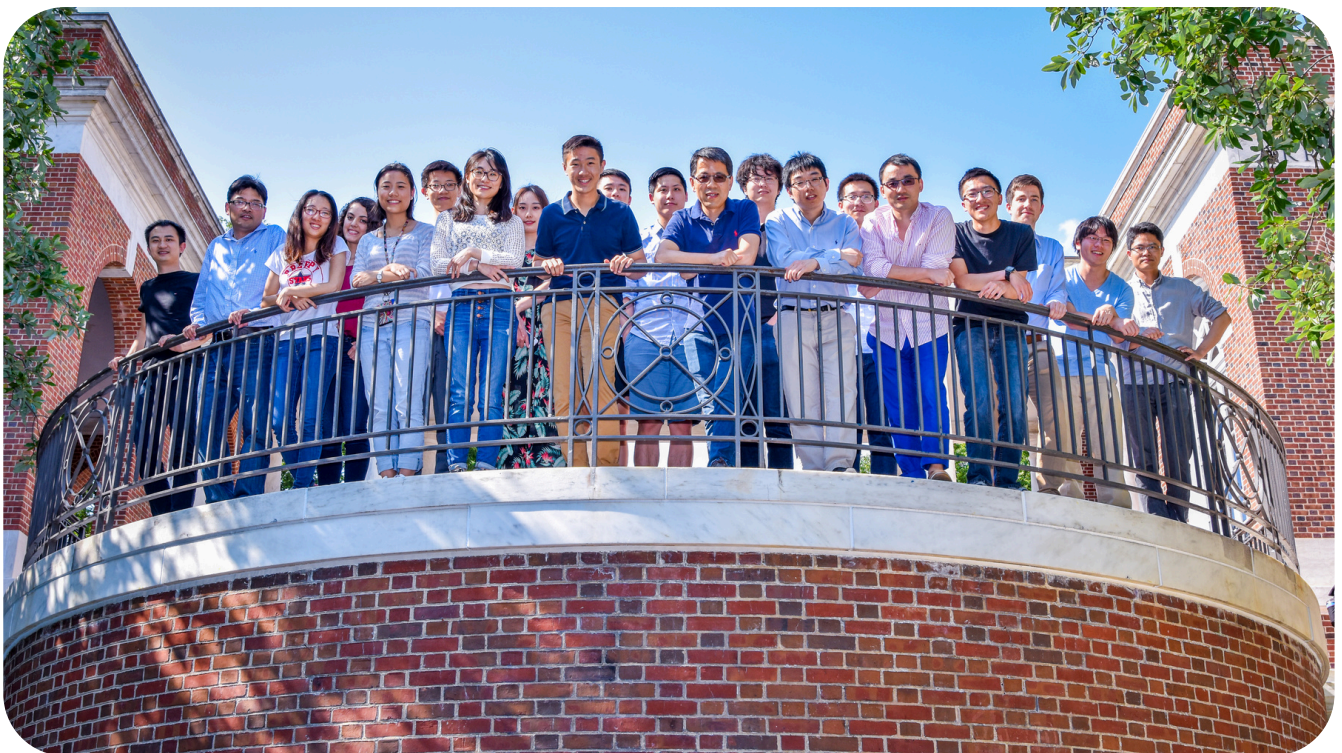
\* PhD Candidates need to complete the Survey of Earned Doctorates: <https://sed-ncses.org>

\*Your name will not be placed on the degree candidate's listing for approval by the Graduate Board (PhDs) or the WSE Graduate Committee (Master's) and President of the University until the email has been received by the appropriate deadline. NOTE: the date of your ETD APPROVAL is considered your completion date, NOT the date you submitted your dissertation to the ETD system.



Unless you chose an embargo option, your ETD will be available for public viewing some time after the end of the semester. If you did choose an embargo, the ETD will not be made available until the end of the embargo period. Information such as title and abstract, however, will be made available during the embargo period.

If you have any other questions, let [Imodical@jhu.edu](mailto:Imodical@jhu.edu) know the day before you electronically submit the dissertation to the library. It takes at least two days for the library to approve it.



# DMSE General PhD Information

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## ***DMSE PhD Student Conflict Resolution***

The Department of Material Science and Engineering tries to provide a supportive environment for its graduate students, but occasionally disagreements and problems occur, and students may need help in resolving an issue. The department recommends several options to help in finding resolution to such issues:

- The student could talk to their advisor.
- The student could attempt to resolve the conflict by having an in-person conversation with the involved parties. If the student is uncomfortable with this or needs assistance with these discussions, there are faculty members (in addition to the Departmental Head, (Howard Katz) who are prepared to help and can be contacted for their assistance:
  - Doctoral Program Chairman – Todd Hufnagel
  - Graduate Admissions Chair – Kalina Hristova

Students can also reach out for assistance beyond the department—there are several offices on the campus that can assist in helping students resolve issues:

- Whiting School of Engineering Office of Academic Affairs
- GRO (Graduate Representatives Organization)
- JHU Counseling Center
- JHU Office of Institutional Equity
- Office of the Dean of Student Life
- Homewood Graduate Affairs and Admissions Office
- Office of Student Disability Services

If the situation is serious and cannot be reasonably resolved through any of these options, the Whiting School has a grievance policy, and we will stand with the student to help if a formal complaint is appropriate.

## **Research Integrity Policy Statement**

As an institution committed to the creation of new knowledge through research, The Johns Hopkins University (“University” or “JHU”) seeks to ensure integrity in the design, conduct and reporting of research results. Misconduct in research endangers public trust and the pursuit of scientific truth, and the University has an obligation to deal promptly with allegations or evidence of research misconduct. These procedures provide a fair and orderly means of handling allegations or suspicions of research misconduct, in compliance with applicable federal regulations for research institutions. The University Research Integrity Policy (“Policy”) applies to all University faculty, trainees, students and staff engaged in the proposing, performing, reviewing or reporting of research, regardless of funding source.

This Policy does not apply to allegations or complaints that do not fall within the definition of research misconduct set forth below or to matters that fall exclusively under other policies, including violations of conflict of interest policies, violations of Institutional Review Board or Institutional Animal Care and Use Committee policies, or violations of fiscal or other University policies, which shall be directed to the offices responsible for such matters. Where an allegation includes matters that may be partly within the scope of this Policy and also within the scope of another policy, the Research Integrity Officer shall coordinate as necessary with other offices.

It is not intended that proceedings under this Policy be adversarial. Rather, all phases of the procedure should be conducted in the spirit of peer review. As a peer review activity, committees of the faculty should be free to meet directly with a member of the academic community regarding matters raised under this Policy, without legal counsel present. No Complainant, Respondent or witness may appear before these internal review committees with legal counsel.

## **Academic Integrity**

Responsible academic conduct is a central component of graduate and post-doctoral training and is essential to the core values of Johns Hopkins University. Students at The Johns Hopkins University are expected to meet the highest standards of academic excellence and ethical conduct.

The Whiting School of Engineering divisions of the University maintains an academic integrity policy, and students, faculty, and staff are required to promptly report known or suspected violations of the policy.

Read the fully policy [here](#).

### **WSE Academic Research & Misconduct**

Procedures for handling allegations of misconduct by full-time and part-time graduate students: Graduate Student Misconduct Policy (PDF)

All WSE Graduate students enrolled in a full-time, Homewood-based program must complete EN.500.603 (Academic Ethics) with a grade of 'P' in their first semester of graduate status. The course is an online Canvas module, and students will be notified of their access and timeline for satisfactory completion within the first month of the fall and spring semesters.

WSE Procedures for Dealing with Issues of Research Misconduct (applies to all Whiting School graduate students, both full-time and part-time).

### **Working Effectively With Your Advisor**

The Johns Hopkins University has a commitment to quality mentoring of PhD students, in support of the mission of excellence in PhD education at Johns Hopkins. As such, the University requires every PhD-granting school to annually distribute the JHU Mentorship Commitments of Faculty Advisors and PhD Students to their students and faculty, and also engage in additional activities to support a climate of excellence in mentoring.

Mentoring is a central component of graduate and post-doctoral training, and trainees and faculty at Johns Hopkins work together to contribute to a positive mentoring relationship and a culture of support University-wide. There are PhD resources available on the PhD Mentoring Policies and Resources website.



## **Annual Review Policy**

This policy applies to all full-time WSE doctoral students and master's students conducting thesis research. Every graduate program is required to publish their own policies and standards with respect to academic standing. At the end of each semester, all full-time Homewood graduate programs are expected to review the academic records of their graduate students to evaluate academic progress.

Once per academic year, all full-time Homewood graduate programs are required to provide a written review to: (a) all doctoral students, and (b) all master's students conducting thesis research.

Departments are encouraged to include mention of funding continuation, as appropriate. This review must include the opportunity for the student to offer self-evaluation. Students who fail to attain a program's minimum level of performance may be placed on academic probation or dismissed, using the procedures outlined in the Homewood Schools Policy for Graduate Student Probation, Dismissal, and Funding Withdrawal. In making these decisions, and particularly related to dismissal, the program will take into consideration extenuating circumstances beyond the student's control.

## **WSE Guide to Effective Annual Reviews**

WSE doctorate students will use the Academic Annual Review form that is to be submitted to the Academic Program Administrator (Lauren Rodgers).

## **Student Self-Evaluation**

Students should document what they accomplished over the past year and any specific accomplishment(s) of which their department may not be aware. Examples include: papers in review/published, posters presented, presentations or guest lectures given, and/or grant proposals in progress, submitted or funded. Students should note if they had any teaching assistant duties.



Students should also list their research/academic goals for the next year and share an assessment of their progress and expected timeline for meeting program goals and degree completion.

Students should share specific feedback on ways they feel their academic program and/or advisor can support them in developing and meeting their professional development goals; both in the next year and beyond (as appropriate). Self-reflective feedback on goal progress over the past year (when relevant) is also encouraged.

### **Faculty Advisor/Department/Committee Evaluation**

The faculty advisor\* should document goals for the student for the next year and share an assessment of the student's progress over the past year. There should be mention of a timeline for meeting program goals and degree completion; and any concerns regarding performance. Funding, research changes, TA expectations should be confirmed and clarified as well.

If a student has not been performing well, this can be an opportunity to place them on a TA, academic, and/or research probation. Any probation should be outlined in a separate letter with clear terms and deadlines. The Office of Academic Affairs (Christine Kavanagh, associate dean) can assist with the policy, probation templates, and best practices.

There should be an effort to note the student's professional development progress (as based on previous conversations and discussed goals), and for the advisor/department/committee to strategize on how to best support the student's professional development goals over the next year.

### **Discussion**

The student and their faculty advisor\* should meet (preferably in-person, but alternatively by Zoom, phone, FaceTime, etc.) to discuss both the student's self-evaluation and the advisor/department/committee's evaluation.

Concerns, questions, and needed clarifications should be addressed in this meeting

If there are irreconcilable concerns, the DGS and/or chair should be consulted.

## **Departmental Responsibilities**

Programs are responsible for initiating the process and ensuring its completion.

Programs are responsible for uploading a fully completed and signed annual review packet for each doctoral student into the PhD SIS Module promptly, following the discussion of the annual review, and no later than before the first day of classes each academic year.

Programs are responsible for completing its evaluation of the student even if a student doesn't comply/engage in the process.

If a student doesn't respond to requests to participate in the annual review process, a note should be placed with the department's evaluation upload citing that the student did not comply.

\*Faculty advisors should be the primary department representative. If there is no faculty advisor or the advisor and student are unable to work on the evaluation together, the DGS and/or chair may stand in for the advisor in exceptional circumstances to complete both the evaluation and discussion of progress with the student. If there is a committee, it must be engaged in the evaluative process.

If the student's primary research advisor resides in a different department or division of the university, it is still the department's responsibility to ensure that the annual review has been completed by all parties.

There should be no mention of a student's mental or physical health or of any other students in any documentation created by the department/advisor/committee.

## **Non-resident/Part Time Status**

There are three categories of Nonresident Status for WSE graduate students:

### Nonresident PhD or Master's: Dissertation/Essay/Project Completion

To qualify for this status: (a) There can be no outstanding coursework and/or exams (such as departmental qualifying exams and non-final Graduate Board Oral exams [where applicable]) must be completed. This includes research courses required for a master's degree. (b) The graduate student must be very close to their dissertation defense/submitting their essay/project and may need to leave campus to start employment elsewhere. (c) There must be a scheduled defense for PhD students applying for this status. (d) Please note that this status is for one semester only; two semesters may be allowed, but only with special extension approval. (e) For this status, the student is responsible for NR tuition and health insurance costs and there is no mandated stipend. (f) For this status, the NR PhD/Master's: Dissertation/Essay Completion student typically cannot be employed on campus.

### Nonresident PhD or Master's: Study Away

To qualify for this status: (a) There can be no outstanding coursework and any exams (such as departmental qualifying exams and non-final Graduate Board Oral exams (where applicable)) must have been completed. (b) The PhD/master's student (with or without their advisor) has the opportunity to be actively engaged in PhD/master's work, but at a non-JHU facility (the student is not on campus). (c) For this status, the student remains fully supported by PI/department/host facility (NR tuition, stipend and health insurance premium payment are provided for the student) if already being supported.

### Nonresident PhD or Master's: Internship/Co-Op

To qualify for this status: (a) There can be either no outstanding coursework in that semester of nonresidency or unfinished exams (such as departmental qualifying exams and non-final Graduate Board Oral exams [where applicable]), or it must be part of an approved program. (b) The student is voluntarily requesting to take time to pursue opportunities that may only be tangentially relevant to their degree. The expectation is that they will return to campus in a residential capacity to complete their degree. (c) Please note that this status is only for one academic year; two years may be allowed only by extension approval. (d) In this status, the student is responsible for the NR tuition and health insurance costs and receives no stipend.



# ***General laboratory Safety***

To help achieve a high standard of safe laboratory practice, appropriate safety training is required for everyone working in DMSE laboratories. Completion of this safety training regimen, including the annual review, is required for all researchers who use the DMSE laboratories.

More information and the instructions to complete this mandatory safety training are available for download on <https://engineering.jhu.edu/materials/about/lab-safety/>. Please complete the canvas quizzes and attend a lab walk through with Alden Murphy (amurph57@jhu.edu).

Once the required forms are completed and signed bring them to Alden Murphy to receive access to the laboratories or to schedule additional equipment training.

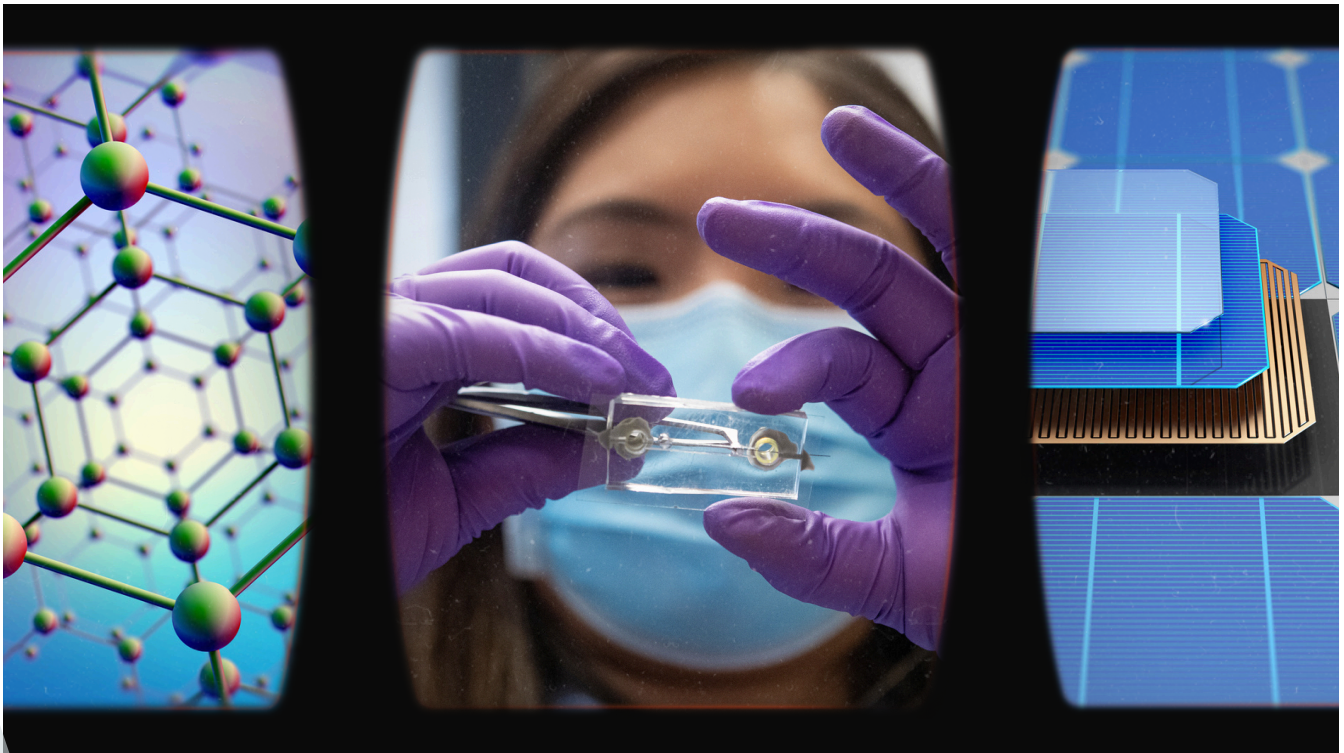
Failure to complete required training in a timely manner, or a failure to adhere to established safety policies and procedures, will result in revocation of laboratory privileges.



## **Lab Note Keeping, Intellectual Property**

The Johns Hopkins University strives to support its faculty and employees in securing commercial development of intellectual and other property resulting from their research so that the benefits of that research may reach society at the earliest opportunity. This is consistent with the University's mission of developing new knowledge and facilitating the practical application of such knowledge to the benefit of the public. The University has developed policies and guidelines that provide incentives for its researchers while protecting the integrity of research emanating from this institution. Moreover, the University provides an array of administrative services to its Inventors to assist them in protecting rights to University Intellectual Property and fostering commercial development.

[Click here for the full Intellectual Property Policy.](#)



## Equipment

Fischione Model 110 Electrochemical Polisher  
Gatan PIPS II  
Sample Polisher  
Spin Coater  
Sputter & Plasma Coaters  
Bruker Advance D8 Powder X-Ray Diffractometer  
JEOL Grand ARM2 TEM  
JEOL F200 TEM  
JEOL JSM IT700 SEM  
Transmission Electron Microscopes  
Focused Ion Beam

1100°C Box Furnaces  
1100°C Tube Furnace  
1700°C Atmosphere Furnace  
Diamond Sectioning Saw  
High Speed Saw  
iNano Nanoindenter  
Incubator Shaker  
Inverted Optical Microscope  
Microhardness Tester  
Mounting Press  
Plasma Cleaner  
Rheometers  
Spin Coater  
Tensile Tester 50kN  
Ultracentrifuge  
UV-VIS-NIR Spectrophotometer  
Vacuum Mounting System

## Location

Olin Hall 106  
G61 Stieff  
Maryland Hall 45  
Maryland Hall 45  
G61 Stieff  
G78A Stieff  
G73B Stieff  
G71A Stieff  
G71B Stieff  
Olin Hall  
G73A Stieff  
  
Maryland Hall 5  
Maryland Hall 5  
Maryland Hall 5  
Maryland Hall 45  
Maryland Hall 45  
Maryland Hall 15  
Maryland Hall 45  
Maryland Hall 3  
Maryland Hall 3  
Maryland Hall 45  
Maryland Hall 45  
Maryland Hall 43B  
Maryland Hall 45  
Maryland Hall 5  
Maryland Hall 45  
Maryland Hall 5  
Maryland Hall 45

## **Equipment Reservations**

All equipment requires training. You must contact Alden Murphy to schedule a training session before having access to any of the equipment of calendars. For more information, please visit <https://labs.jhu.edu/dmse-lab-safety-training/>

iLab reservations are needed to reserve the following equipment:

**SEM w/ EDS**

**XRD**

**Sample Polishers**

**TEM**

**PIPS**

**FIBSEM**

**RX  $\mu$ CT**

To reserve one of these machines please do the following:

How Do I Create An Account

How do I schedule time on calendars

Google Calendar Reservations are needed for the following:

1700c Atmosphere Furnace

Leica Inverted Microscope

MTS Tensile Tester

TGA/DSC

Tube Furnace

Rheometer

Ultracentrifuge

UV-Vis

To reserve one of these machine email [dmse@jhu.edu](mailto:dmse@jhu.edu) to be added to the Google Calendar page.

# ***Other Relevant Contact Information for Safety Issues***

## **Homewood laboratory safety advocate:**

Daniel Kuespert, 410-516-5525, [dkuespert@jhu.edu](mailto:dkuespert@jhu.edu)  
<https://labsafety.jhu.edu/author/dkuespe1/>

## **Emergency resources**

<https://labsafety.jhu.edu/emergency-resources/>

## **JHU University Health, Safety & Environment**

[https://www.hopkinsmedicine.org/hse/offices\\_and\\_programs.html](https://www.hopkinsmedicine.org/hse/offices_and_programs.html)  
<https://www.hopkinsmedicine.org/hse/>  
<https://www.hopkinsmedicine.org/hse/policies/index.html>

## **JHU Security**

Emergency: (410) 516-7777 (24/7)  
Non-emergency: (410) 516-4600 (24/7)

## **Other important numbers**

Health, Safety, and Environment: (410) 516-8798 (business hours)  
Maryland Poison Center: (800) 222-1222 (24/7)  
JHU Radiation Safety: (410) 516-7278  
JHU Biosafety: (410) 955-5918  
JHMI Needlestick Hotline: (410) 955-STIX (5pm-8am)  
Blue Jay Shuttle: (410) 516-5121 (24/7)  
Plant Operations: (410) 516-8063  
Occupational Health Services: (410) 516-0450  
Student Health Services: (410) 516-8270



## **Chemical Waste Management**

Anyone generating chemical waste must take the on-line Chemical Waste Management class on myLearning. Chemical waste may be taken to the Macaulay Hall waste collection room (basement of Macaulay—use the ramp opposite New Chemistry Building) on Thursdays, from 9-12. Use the Chemical Waste Disposal Form to register your waste first.

If your building is not connected by tunnel to Macaulay, use the online form to arrange an in-lab pickup during the Thursday hours that the room in Macaulay is not manned.

All labs that generate chemical waste are required to have trained individuals to maintain the Satellite Accumulation Area. That training is provided by the Chemical Waste Management class.

Chemical waste disposal is free to labs at Homewood unless your chemical is “unknown.” There is a \$450 charge for disposal of unknown chemicals—in that instance, technicians must use an expensive test kit to characterize your waste. Yet another reason to always label your chemicals!

Contact HSE at 6-8798 if you have any questions.

[AH1]This info comes from <https://labsafety.jhu.edu/2015/04/27/jhu-chemical-waste-disposal/>

# ***Homewood Policies***

**Link to Johns Hopkins Whiting School Graduate Policy Information**  
<https://engineering.jhu.edu/graduate-studies/>

## **Homewood Policies for Academic Policies and Procedures**

The Academic Policies & Procedures for All Whiting School of Engineering Full time Graduate students is available online and can be accessed using the following link:

<https://engineering.jhu.edu/graduate-studies/academic-policies-procedures-graduate>

## **Registration**

Students are required to register for every semester of study. Registration deadlines are published by the Registrar well in advance.

**<https://studentaffairs.jhu.edu/registrar/>**

It is the student's responsibility to check their account and make sure there are no holds in place to bar registration. For advisor holds, the student should speak to their advisor to plan their schedule and so that the advisor can release the hold. For financial holds, the student should contact the Department Administrator. If a student misses the registration deadline, he or she will be responsible for a late fee of \$150-\$300.

Students must register over the summer in order to avoid paying extra FICA taxes. You can contact the GAC about the procedure and deadlines. Students who miss the deadline will incur a late fee of \$50.





## **Graduate Credit Hours**

All courses through the Whiting School of Engineering carry credit hours. Graduate Research carries a flexible credit hour assignment, and students should meet with their advisor to discuss the appropriate number of credit hours in which to enroll for Graduate Research, based on effort and time in the lab. Typically, fulltime PhD students must register for 20 credit hours per semester. For more information about graduate credit hours, please read the Q&A on credits at:

<https://homewoodgrad.jhu.edu/academics/wse-graduate-%20%20credit-hours/>

## **Transferring Graduate Credit/Waivers**

For students who earned an undergraduate degree outside of the Whiting School of Engineering or the Krieger School of Arts and Sciences, two courses completed before their undergraduate degree was conferred can be applied to a Whiting School of Engineering master's degree only if evidence is provided by the undergraduate degree-granting institution that the course was not applied to the undergraduate degree, and with JHU advisor/department approval. Students are encouraged to secure permission to transfer a course as early as possible in their time at JHU to avoid issues.



WSE graduate students may transfer in up to three graduate-level courses from another institution which were completed after the undergraduate degree was conferred, if evidence is provided that the course was not applied to any previous degree, and with JHU advisor/department approval. Students are encouraged to secure permission from their WSE master's/PhD program faculty advisor to transfer a course as early as possible in their time at JHU to avoid issues, and a transcript from the relevant academic institution must be included with conferral completion paperwork submitted to the academic affairs office. EXCEPTION: WSE master's students in a department-approved study abroad program can transfer in additional coursework (i.e., beyond two courses), but in total, at least half of the courses/credits applied to the WSE master's degree must be taken/earned at Johns Hopkins. Individual graduate programs reserve the right to enforce stricter policies.

Waiver of required courses: Students may submit a petition to the Doctoral Program Program Committee to waive one of the required courses under either of the following conditions:

- Students who have an undergraduate degree in Materials Science and Engineering may waive 510.615.
- Students who have completed prior graduate-level coursework substantially similar to one of the other courses (510.601, 602, 603, or 610) may waive that course.

- 

Students desiring a waiver of a required course must submit their petition no later than the end of the first semester after matriculation. If the petition requests a waiver on the basis of graduate-level coursework taken elsewhere, documentation of the course level, content (syllabus) and grade received must be included in the petition.

Waiver of elective courses: Students who have completed prior graduate-level coursework may petition the Graduate Program Committee to waive one of the elective courses. Students desiring such a waiver must submit a petition, no later than the end of the first semester after matriculation, describing the course they wish to use to fulfill this requirement. Documentation of the course level, content (syllabus), and grade received must be included in the petition.

## **List of Approved Elective Courses**

### **MECHANICAL ENGINEERING**

530.601	Continuum mechanics
530.604	Mechanical Properties
530.605/606	Mechanics of Solids & Materials I & II
530.612	Computational solid mechanics
530.631	Conduction and Radiation of Heat
530.632	Convection of heat and mass
530.640	Statistical mechanics and molecular dynamics
530.642	Plasticity
530.646	Robot Devices, Kinematics, Dynamics, and Control
530.644	Mechanics of composite materials
530.652	Bridge length scales in materials behavior
530.655	Additive Manufacturing (Graduate)
530.656	Deformation Mechanisms
530.671	Statistical mechanics in biological systems
530.684	Orientation Mapping of Crystalline Materials
530.730	Finite element methods
530.732	Fracture of materials
530.733	Microelectromechanical systems
530.748	Stress waves in solids
530.751	Finite elasticity
530.753	Fatigue
530.754	Viscoelasticity
530.756	Advanced analytical electron microscopy
530.757	Nanomechanics
530.766	Numerical Methods



## **BIOMEDICAL ENGINEERING**

580.642

Tissue Engineering

580.774

Molecular & Cellular Imaging

## **CIVIL ENGINEERING**

560.728

Stochastic Micromechanics

560.730

Finite element methods

560.731

Theoretical methods in computational mechanics

560.733

Computational plasticity

560.735

Finite element methods in solid mechanics

560.737

Wave Propagation



## Graduate Board

The Graduate Board is responsible for the administration of University-wide policies and procedures for the award of Master of Arts; M.A.; and Doctor of Philosophy, Ph.D.

## OIS Office of International Services

The primary mission of the Office of International Services (OIS) is to assist international students, scholars, and faculty at Johns Hopkins University's Homewood Campus. OIS works with the academic and administrative departments to facilitate the immigration process. Additionally, OIS' staff members are available to answer your questions about immigration status, financial concerns, health matters, housing, employment possibilities, as well as other issues that may arise during your stay. Please refer to the website: <http://ois.jhu.edu/>

F-1 and J-1 Student questions: [ois@jhu.edu](mailto:ois@jhu.edu)

Telephone: 667-208-7001

After-hours emergency number for border emergencies only: 443-240-1938



University Policy on the Commitment to Mentoring for and the Rights and Responsibilities of PhD Students and their Faculty Advisors

Graduate Student Probation, Funding Withdrawal, and Dismissal Policy

KSAS and WSE Graduate Academic Misconduct Policy (any academic misconduct infractions post-October 11, 2017).

University Research Integrity Policy

University Academic Grievance Policy: Students and Postdoctoral Fellows

RA TA Leave Guidelines

Personal Relationships Policy

Johns Hopkins University Student Conduct Code applies to all students, including without limitation graduate students and student groups/organizations, whether recognized by the University or not.

### **Counseling Center:**

The Counseling Center is committed to supporting students wherever they may be through remote, phone and in-person services.

Our services:

- Remote Initial Consultation (IC) Hours/Same Day Appointments
- Mental Health Workshops
- Group Therapy
- Brief Goal-Focused Individual Therapy
- Psychiatric Evaluations and Medication Management
- Referral Assistance
- Chat With a Counselor (now fully online)
- Self-Help Resources

Click [here](#) for more detailed information



## **Health Insurance**

All graduate students are required to carry sufficient health insurance. The University offers a low-cost health insurance plan for students and the Department covers 100% of the expense for all PhD students. Masters students are offered a reduced cost of \$500.

Students who are already under a plan through their parents or employer have the option to waive the JHU plan by filling out a waiver form and turning it in to the Registrar's Office. This must be done every year. Students who plan to choose this option must also notify the Academic Program Administrator and Department Administrator. A copy of the waiver form must be turned in to the Department office and kept on file. More information on the waiver and policy can be found on the [Office of the Registrar](#) website.

## **Medical**

PhDs are auto-enrolled into individual medical coverage. The plan is administered by Wellfleet and utilizes the Cigna PPO network of providers. Prescription coverage is included in the medical plan. For more information about the plan, please visit: [Wellfleet Medical Plan – JHU Human Resources](https://hr.jhu.edu/benefits-worklife/health-life/student-health-benefits/wellfleet-medical-plan/) (<https://hr.jhu.edu/benefits-worklife/health-life/student-health-benefits/wellfleet-medical-plan/>)

To enroll dependents into medical coverage, please visit: <https://students.care26.com/login>

## **Benefits Information**

Benefits information and the enrollment process guidance is available on the [PhD Benefits Resource Page](https://hr.jhu.edu/benefits-worklife/health-life/student-health-benefits/phd-benefits-overview/) at <https://hr.jhu.edu/benefits-worklife/health-life/student-health-benefits/phd-benefits-overview/>

Contact [jhustudentbenefits@jhu.edu](mailto:jhustudentbenefits@jhu.edu) with any questions.

## **Collective Bargaining Agreement**

The three-year CBA, or contract between TRU-UE and Johns Hopkins University, can be found at <https://provost.jhu.edu/wp-content/uploads/2024/06/TRU-UE-Local-197-Johns-Hopkins-University-Contract-2024-2027-SIGNED.pdf> (This copy of the CBA is subject to final review and signature by JHU and TRU-UE).

## **Stipends/Pay**

AY 2024-2025 PhD Stipends: \$47,000

## **MTA All Access Bus Pass & U-Pass**

PhD students are eligible to be reimbursed for bus passes purchased through the MTA All Access College Program or through the U-Pass program. PhDs can be reimbursed for 2 passes at one time. Each pass is valid for 31 days. Reimbursement for passes will be processed through Concur and must be submitted within 90 days of payment.

PhDs must opt-in to have their information shared with the MTA / U-Pass for discounted bus passes. To Opt-In, PhDs must complete the form at:

<https://forms.office.com/pages/responsepage.aspx?id=OPSkn-axO0eAP4b4rt8N7MEfv57Tto5HjcnGOMrDI2RUMTBSVVc4UjVWNTZGMzBDMVY0MzBXRjFBUCQlQCN0PWcu>

To submit your receipt to Concur, please visit: <https://login.johnshopkins.edu/concur>. Prior to submitting a reimbursement in Concur, you must gather the required information to complete the reimbursement request, including the cost object number from your department or program. Your department or program is required to provide guidance on using Concur.



## Transportation and Parking

The mission of JHU Transportation Services is to provide safe, reliable, efficient transportation services. As an office of Johns Hopkins Facilities and Real Estate, we help plan, create, operate and maintain exemplary physical environments to support the Johns Hopkins mission.

JHU Transportation Services provides several services to faculty, staff and students. These include daytime services which connect the various Johns Hopkins properties across Baltimore, and evening services which provide safe transportation around the Homewood Campus and vicinity. Hopkins affiliates are permitted a reasonable number of guest passengers, typically limited to four, or one family group. Children are welcome as guests, and some are even affiliates if enrolled in childcare programs or classes.

Children under the age of 8 must ride in a car seat provided by, installed by and removed by a Hopkins affiliate guardian who is also a passenger.

Click [here](#) for more information on daytime bus and shuttle services and the evening Blue Jay Shuttle Service.

### JHU Scooter Safety

#### Parking:

The Homewood Campus Parking Office manages a variety of garages, lots, and metered parking on campus and in the Charles Village area.

Other campus parking information can be found:

- [East Baltimore](#)
- [Bayview](#)
- [Carey](#)
- [Peabody](#)
- [SAIS](#)

Staff members and Graduate students working at the Homewood Campus may access the following locations:

- Garages
- Surface lots
- Daily garage

Staff members and Graduate students may also be eligible for other parking options depending on work location or department:

- Proximal lots
- Departmental reserved spaces

All parking spaces, garages and lots are subject to the Homewood Campus' published parking rules and regulations.

Set up campus parking

## **Security**

The safety of our students is a top priority. There are more than **200 campus police officers, security personnel, and support staff** charged with keeping the Homewood campus and the surrounding communities safe and secure.

Officers patrol campus on foot, bikes, Segways, and in security vehicles. They receive specialized training in cultural diversity, sexual harassment, hate crimes, AED/first aid, community policing, and crime prevention. They do not carry firearms.

For emergencies, **117 blue light call stations** are located on or near campus—pressing a button will sound an alarm and connect you with the **24-hour Homewood Communication Center**. There are also 186 smart CCTV cameras on and off campus that allow security officers to watch for criminal activity or safety issues.

To reach Campus Security, or in case of emergency, call:

**Emergency: (410) 516-7777 (24/7)**

**Non-emergency: (410) 516-4600 (24/7)**

[Resources & Services](#)

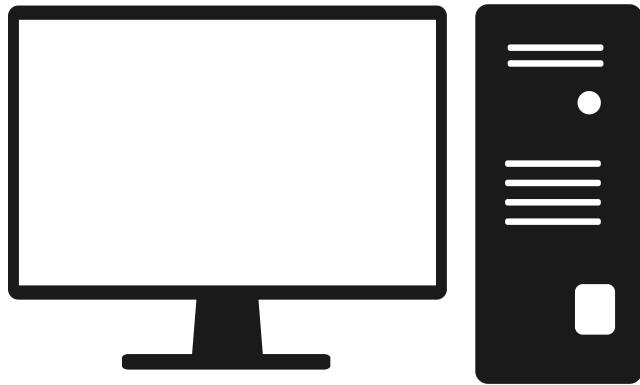
[Report a crime](#)

[Safety Tips](#)

[Feedback](#)

[Emergency Response Guide](#)

[Emergency Notifications](#)



## **Computer Security**

### **VPN:**

Johns Hopkins offers a Virtual Private Networking (VPN) tool to provide secure access to systems normally only accessible when directly connected to the Hopkins network. The VPN is required (for example) when connecting to file servers on campus and to connect to the software license servers that let you run applications like Creo or COMSOL. As of Spring 2020, VPN options have been simplified. There is now only one option, and approval for use is now automatic. Clients are available for Mac, Windows, Linux (tested on CentOS and Ubuntu), iOS, and Android. Downloads for the VPN client are linked in [MyJH](#) (it's under the Technology menu, but you can also easily find it using the search bar).

You can confirm the VPN client is installed and working correctly by checking [this page](#). You should see a display like this:



[IT security Information](#)

## **Purchasing:**

Procurement Service Portal

Pcard

## **Sales Tax:**

Johns Hopkins are tax exempt and should not be charged sales tax by providing a copy of the W9 tax form.

Supply Store

## **Travel**

### **Policies:**

It is the responsibility of all Johns Hopkins travelers to comply with the policies governing travel. Persons traveling on behalf of Johns Hopkins should exercise good judgment with respect to incurring travel expenses and are expected to spend funds prudently. Travel-related expenses will be paid or reimbursed by Accounts Payable Shared Services if they are deemed to be reasonable, properly documented, provide the appropriate approvals and are within the guidelines of this policy.

### **Johns Hopkins University Travel Policy and Procedures:**

Johns Hopkins University Travel Policy

Johns Hopkins University Expense Quick Guide (Travel Policy Appendix B)

Johns Hopkins University Fly America Policy

Johns Hopkins Health System Travel Policy (Hopkins Policies Online)





## **How to Book:**

### Concur Online Booking Tool:

Eligible travelers should book travel with World Travel Inc. (WTI) agents directly or via Concur. Concur is the online booking tool that links with WTI systems for comprehensive coverage of your travel needs. Click the icon below to access Concur via single sign-on to complete an online booking or maintain your traveler profile. If you have not completed your profile, please do so by clicking the Concur icon - completing your profile is necessary before booking travel with WTI.

### Booking Travel Using Your Department's Central Bill Travel Card

Some departments have opted to utilize the Central Bill Travel Card as a payment option to support travel for faculty, staff, students, and guests. If your department has a Central Bill Travel Card (CBTC) and you would like to request to use it to book your travel, please complete the appropriate webform. For additional information on this card program, which form to use, and how to complete a webform, please visit the CBTC page on the portal.

If you have any questions regarding the status of a travel request authorization (TRA) you have already submitted, please email the JH Travel Office at [jhtravel@jhu.edu](mailto:jhtravel@jhu.edu).

### Booking for Guests or Groups

(e.g., Faculty recruits, conference attendees)

WTI can support your booking needs for guests or groups. To begin the booking process for guests and/or groups, please contact the JH Travel Office at [jhtravel@jhu.edu](mailto:jhtravel@jhu.edu) or you are welcome to use a web-based process to manage requests and approvals for booking guests and groups. For the web-based process, please click here for more information.

If you are booking guests in Concur, please use your email address (as opposed to the traveler's) in order to ensure receipt of the final, ticketed itinerary that should be used for reimbursement.

## **Trainings:**

Trainings, Help Videos and Reference Materials

For an overview of the Travel Program and Concur, you're welcome to watch a [FastFacts](#) (search for travel) or attend an in-person class. Schedules for the in-person trainings are on the Johns Hopkins University MyLearning site (search for Travel Program Overview / Concur 101) and held monthly at either the Eastern Campus or East Baltimore Campus.

The Johns Hopkins Travel Team has created a number of quick guides and reference materials to support you as you book travel. Please access the following materials below for assistance:

## **Concur Online Booking Guides:**

[Concur Training Video](#)

[Concur User Guide](#)

[Concur Mobile App Guide](#) (iPhone)

[Concur Mobile App Guide](#) (Android)

## **Tip Sheets:**

[Setting up Concur Mobile App](#)

[Top 10 Concur Tips & Tricks](#)

[WTI Service Fee Summary](#)

[Update Your Travel Profile](#)

## **How to:**

[Create Your Travel Profile](#)

[Book a Car](#)

[Book a Flight](#)

[Book a Hotel](#)



## **Reimbursement:**

Receipts and credit card statements must be uploaded in concur within 60 days of purchase for it to be reimbursed. Expenses must be approved by department before submission. Any questions you can email the Academic Program Administrator.

## **Leave of Absence Policies**

### Leave of Absence Application

To petition the Dean's Office for a Leave of Absence, students must submit the Application for Leave of Absence to their department chair and, in the case of international students, to the Office of International Services for approval prior to its submission to WSE Dean's Offices.

### Leave of Absence Extension Request Application

To petition the Dean's Office for an extension of their approved Leave of Absence, students must submit the Leave of Absence Extension Request form to their department chair and, in the case of international students, to the Office of International Services for approval prior to its submission to WSE Dean's Offices.

### Return from Leave of Absence Application

To petition the Dean's Office for a Return from a Leave of Absence, students must submit this application to their department chair and, in the case of international students, to the Office of International Services for approval prior to its submission to WSE Dean's Offices.

## **Parental:**

Johns Hopkins University recognizes the importance of balancing the family and academic responsibilities faced by new parents and promoting the well-being of their families. The University is supportive of accommodating eligible full-time graduate students who are expecting a new child (either through birth, adoption, or legal guardianship). Consistent with grant funding policies that place a limit of 8 weeks for parental leave, all eligible full-time graduate students shall receive no less than 8 weeks of (fully-paid for those students/fellows with full funding at the time of the accommodation) new child accommodations.

Graduate students should contact either Assistant Dean Christine Kavanagh to make plans for parental leave.

## **Vacation and Time Off**

To ensure the personal well-being and productivity of our graduate students, safeguard against excessive demands on graduate students' personal time, and introduce a minimum standard across the two Homewood schools regarding leave, the Deans of KSAS and WSE have established guidelines for Graduate Students (not enrolled in a lecture course, etc.) to be able to take leave. A detailed description of the policy can be found here: <http://homewoodgrad.jhu.edu/academics/policies/>.

## **Jury and Witness Duty**

A WSE graduate student receiving stipend/salary from the school summoned for jury duty or subpoenaed to testify, is authorized to be absent from their university obligations for the actual time required by such service. A graduate student employee (salary/hourly) must present the summons or subpoena to their immediate supervisor before a leave can be issued.

Graduate student employees are eligible for paid leave of absence as a juror or court witness. Federal work study funds, however, cannot be used in these instances -- departments should fund this time using other resources.

## **Advisor**

A PhD student conducting research and/or in the writing phase of their degree program will not be able to remain in good standing with their academic and research progress if they do not have a research/dissertation advisor. The department of Materials Science & Engineering assigns your advisor at the time of your offer.

The PhD student has the responsibility to discuss with the advisor relevant policies, commitments, and expectations related to funding, work, research assistantships, teaching assistantships, sick leave, or vacation. As needed, the student will provide any documentation relevant to stated policies on leave and other requirements to the student's program, school, or the University.

### **Changing Advisor:**

If you are changing advisors, you and the new advisor must email the academic program administrator stating the change in advisor.

### **Academic Policies**

#### **Withdrawal:**

Once a student withdraws from the University, their student transcript is closed, and changes to their academic record will not be permitted. International students must consult with Office of International Services to ascertain their visa obligations before withdrawing from the university. Students who withdraw from their program must be formally readmitted, at the discretion of the department, before they may return to the university. If readmitted, they do not pay a second application fee, but must satisfy the residency requirement for the degree following readmission (even if previously satisfied), and pay all outstanding fees.

Read the full policy [here](#).

#### **Voluntary Withdrawal:**

Students wishing to withdraw from the University must file a [Termination/Withdrawal Form](#) with their Department. Graduate students are encouraged to consult the chair of their department prior to submitting their written notice.

#### **Withdrawal by Lack of Registration:**

Students who are not registered by the end of the fourth week of a given semester and either:

- have not responded to correspondence from their department, advisor, Office of Academic Affairs, and/or Office of the Homewood Registrar about their intention to remain in the program, **or**
- have responded to correspondence but have not made effort to maintain a valid student status (defined as either enrolled or on an approved leave of absence), will have been deemed to have withdrawn themselves from the university and will be processed as a Withdrawn student in the student system (SIS).

It is important to note that paying tuition is not the same as registering for classes. [Further Student Enrollment Statuses information](#) under Academic Policies:

### Withdrawal Consequences

Any outstanding fees will be followed up with the student/their department by the Office of Student Accounts. Students who withdraw from their program must be formally readmitted, at the discretion of the department, before they may return to the university.

### **Academic Probation:**

Whenever it is determined that a graduate student has failed to meet minimum academic, research, and/or TA requirements, that student may be placed on academic probation.

This change in status requires a formal letter and a meeting between the student and either their faculty advisor, chair, and/or departmental director of graduate studies. The letter should clearly outline the student's academic shortcomings, indicate the corrective measures necessary to remain in the program and state the length of the student's probationary period. Any funding ramifications for the student should be included as well.

Read the full policy [here](#):





## **Homewood Grades and Registration Change Guidelines**

### Letter Grades (A through F):

Changing letter grades of "A" through "F" to a "Passing" grade is not permissible at any time.

All other grade change requests (e.g., "B" to "A") are acceptable within one year only. Change requests beyond one year can only be changed as a result of a clerical error and must be accompanied by a written explanation/justification from the course instructor.

### Incomplete Grades (I):

Students who are confronted with compelling circumstances beyond their control that interfere with their ability to complete their semester's work during the normal course of a term may request an incomplete grade from the instructor. Approval of such a request is neither automatic, nor guaranteed. Procrastination or distraction by other pursuits are not considered compelling circumstances, and granting extensions in these situations is unfair to students who have completed their course requirements within the allotted time.

If the instructor agrees to grant an incomplete grade, the instructor and student must establish a timetable for submitting the unfinished work, but no later than the end of the third week of the following semester. See below for specific information about graduating students. When entering an incomplete grade in SIS, the instructor may also enter a reversion grade. This is the grade that the student will receive if the missing work is not completed. For example, if the student, based on the coursework completed by the end of the semester, would receive a C+ grade without the missing work, then the grade of I/C+ is entered on the transcript. If the incomplete grade is not resolved within the allowed period (the end of the third week of the subsequent semester), the incomplete grade is automatically converted to the reversion grade (a C+ in this example).

Students who are in good academic standing have until the end of the third week of the next semester to finish incomplete work. Exceptions to this deadline require a petition from the instructor and appeal to the appropriate advising office before the end of the third week of the following semester. When appealing to change the deadline, faculty members must specify a new date for completion of the work which must be before the end of the current semester. Incomplete grades cannot typically be held over to another semester in order to complete the missing work by retaking the course.

#### Special Rules for Graduating Students:

Students with incomplete grades in required courses at the date of degree conferral will not graduate. Students with incomplete grades in courses that are not required for degree completion may still graduate. However, the deadline for completion is abbreviated; students must resolve incomplete grades within approximately 30 days after degree conferral when the university closes their graduate record. If the work is not finished by the deadline, a reversion grade may be recorded.

Dropping an "Incomplete" grade from the transcript is not permissible at any time.

Changing an "Incomplete" grade to a final grade ("A" through "F", "Pass") may be done by the instructor if during the designated timeframe. After that deadline passes, grade change requests must be sent via a grade change form to the student's cognizant Dean's Office of Graduate Academic Affairs (Renee Eastwood, KSAS/Christine Kavanagh, WSE) for review and approval.

### In-Progress Grades (IP):

The “In-Progress” grade (denoted by an “IP” on the transcript) is reserved for classes in which it is expected that the assigned work will require more than one semester to be completed, but the class itself will meet for only one semester. (These are usually graduate seminar courses for which the final product is a major paper.) Students work independently to complete course requirements, at which point, a final grade is assigned.

- Dropping an “In-Progress” grade is permissible only with the approval of the instructor and the Dean’s Office.
- An instructor may change an “In-Progress” grade to a final grade (“A” through “F”, “Pass”) at any time before the student’s departure without Dean’s Office approval by submitting an official Grade Change Form directly to the Office of the Registrar.

### Missing Grades (MR, X):

All instructors have a certain amount of time following the end of the finals period to assign a final grade for all students. A “Missing” grade (denoted by an “MR” or an “X” on the transcript) appears if the instructor has not submitted a grade within that timeframe.

An instructor may submit a Grade Change Form directly to the Office of the Registrar to change a “Missing” grade to a final grade.

- Dropping a “Missing” grade from the transcript is not permissible.
- Changing a “Missing” grade to an “Audit” is not permissible at any time.

### Audit (AU):

When a grad student enrolls in a course with “audit” status, s/he must reach an understanding with the instructor as to what is required to earn the “audit”. If the student does not meet those expectations (e.g., fails to attend the class), the instructor must notify the Registrar’s Office in order for the student to be retroactively dropped from the course. The course will not appear on the student’s transcript.

Changing a course registration from “Audit” [student receives no letter grade] to “Credit” [student receives letter grade], or from “Credit” to “Audit” is permissible during the Office of the Registrar’s official add/drop dates. Registration changes beyond this deadline are not permissible.

Changing a final grade (“A” through “F”, “Pass”), “Incomplete” grade, “In-Progress” grade or “Missing” grade to “Audit” is not permissible at any time.

*NOTE: No changes can be made to a student’s transcript after he/she graduates or withdraws from an academic program. What appears on the transcript at that time will become the student’s permanent record.*





## **Sources of Funding**

The Department of Materials Science & Engineering covers the first year of a student's graduate program, with the advisor covering the rest of the years of study. External fellowships provide significant flexibility in the choice of advisor and research program. Examples include:

National Science Foundation Graduate Research Fellowship:  
<http://www.nsfgrfp.org/>

National Defense Science and Engineering Graduate Fellowship:  
<https://ndseg.sysplus.com/>

Science, Math, and Research for Transformation (SMART):  
<https://www.smartscholarship.org/smart>

Hertz Foundation Applied Science Fellowship:  
<http://www.hertzfoundation.org/>

Computational Sciences Graduate Fellowship:  
<http://www.krellinst.org/csgf/>

Stewardship Science Graduate Fellowship:  
<http://www.krellinst.org/ssgf/>



## **Student Employment**

### **Rules for RAs:**

The RA compensation plan includes a stipend of \$5,100, allowing Resident Advisors the freedom to focus on RA responsibilities without requiring the need to work outside of the residence hall. The total number of hours expected from RAs ranges from 15-20 per week.

RAs may still work an additional job, but will need to obtain approval from their residence hall supervisor. Students who work on campus are limited to 20 hours per week when class is in session over the fall and spring terms. The approval is to ensure that RAs are not exceeding the 20 hour per week limit across all on campus jobs.

### **Teaching Assistant Responsibilities**

Each graduate student is responsible to TA for two semesters, usually happens in the student's sophomore year. The program chair will assign which course the student will TA for. The student will meet with the instructor of the course in the beginning of the semester to establish the responsibilities and outline it in the TA form. At the end of the semester the instructor and student will sign the TA form and return to the Academic Program Administrator.



## Department Information

Current information on the department is available on our Department website at: <https://engineering.jhu.edu/materials/>

## Core Faculty



Yuting Luo  
*Assistant Professor*



Tine Curk  
*Assistant Professor*



Jonah Erlebacher  
*Professor*



Michael Falk  
*Professor*  
*Vice Dean of Undergraduate Education*



Luo Gu  
*Assistant Professor*



A. Shoji Hall  
*Assistant Professor*

## ***Core Faculty***



Kalina Hristova  
*Professor*



Todd Hufnagel  
*Professor*



Howard Katz  
*Professor*



Michael Kessler  
*Professor*  
*Department Head*



Dingchang Lin  
*Assistant Professor*



Hai-Quan Mao  
*Professor*

## ***Core Faculty***



Patricia McGuiggan  
*Associate Research  
Professor*



Tim Rupert  
*Professor  
Director of HEMI*



Corey Oses  
*Assistant Professor*



Kenneth Livi  
*Associate Research  
Scientist & Director of  
Operations, Materials  
Characterization Processing  
Facility*



Mitra Taheri  
*Professor*



James Spicer  
*Professor*

## ***Core Faculty***



Orla Wilson  
*Associate Teaching  
Professor*



Timothy Weihs  
*Professor*



John Slotwinski  
*Visiting Research  
Professor*



Peter Searson  
*Joseph R. and  
Lynn C. Reynolds  
Professor*



Regina Garcia-Mendez  
*Assistant Professor*



# **Research Groups**

The Johns Hopkins Department of Materials Science and Engineering is committed to nurturing a collaborative environment. Our students have the opportunity to work in small research groups with a faculty advisor and postdoctoral researchers. The following is a list of research groups led by faculty with a primary affiliation in our department.

## **Computational Soft Matter Group**

- Led By: Assistant Prof. Tine Curk
- Research Focus: Computational Materials Science, Bio-materials, and Soft Matter

## **Dynamic Characterization Group**

- Led By: Prof. Mitra Taheri
- Research Focus: In situ and analytical electron microscopy; structural, electronic, and magnetic materials; biomaterials, extreme environments; additive manufacturing

## **Entropy for Energy Group**

- Led By: Assistant Prof. Corey Oses
- Research Focus: Computational Materials Science, High-Entropy Materials, and Materials for Energy

## **Erlebacher Group**

- Led By: Prof. Jonah Erlebacher
- Research Focus: Nanomaterials and Materials for Energy

## **Falk Group**

- Led By: Prof. Michael Falk
- Research Focus: Computational Materials Science, Structural Materials Science, and Optoelectronic & Magnetic Materials

## **Hall Group**

- Led By: Assistant Prof. Anthony Shoji Hall
- Research Focus: Materials for Energy

### **Hristova Group**

- Led By: Prof. Kalina Hristova
- Research Focus: Biomaterials and the Structure and Physics of Biomembranes

### **Hufnagel Group**

- Led By: Prof. Todd Hufnagel
- Research Focus: Structural Materials, Nanomaterials, X-Ray Scattering, 3D Microstructures, and Metals

### **Katz Group**

- Led By: Prof. Howard Katz
- Research Focus: Nanomaterials and Optoelectronic & Magnetic Materials

### **Mao Group**

- Led By: Prof. Hai-Quan Mao
- Research Focus: Biomaterials and Polymer & Tissue Engineering

### **Mueller Group**

- Led By: Prof. Tim Mueller
- Research Focus: Computational Materials Science, Nanomaterials, and Materials for Energy

### **Searson Group**

- Led By: Prof. Peter Searson
- Research Focus: Biomaterials and Electrochemistry

### **Spicer Group**

- Led By: Prof. James Spicer
- Research Focus: Materials Characterization, Laser-Materials Interactions, Materials for Energy, Structural Materials, and Optoelectronic & Magnetic Materials

## **Weihs Group**

- Led By: Prof. Tim Weihs
- Research Focus: Nanomaterials, Thin Films, and Structural Materials

## **Lin Lab**

- Led By: Assistant Prof. Dingchang Lin
- Research Focus: Biomaterials and Protein & Device Engineering



# Academic Ethics

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The strength of the university depends on the integrity of those who engage in its mission. Ethical behavior results in trust providing an atmosphere in which the open and free exchange of ideas can occur. Trust allows us to come together, helping each of us reach levels that we could never achieve alone. The absence of ethical and considerate behavior engenders mistrust among the members of the university community and erodes the quality discourse. It divides us and ultimately degrades what we know and who we are.

The Department of Materials Science and Engineering strives to uphold the ideals of academic integrity and seeks to create an atmosphere in which all members of the Department display the highest degree of ethical conduct. Creating this atmosphere is the responsibility of all members of the Department – students, faculty and staff – and can only be achieved with the consistent education of its members about the standards of academic honesty and ethical behavior.

Briefly, acts of academic dishonesty include cheating on exams, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition. University approved procedures for addressing academic ethics violations are published in the Undergraduate Academic Ethics Board Constitution (<http://e-catalog.jhu.edu/undergrad-students/student-life-policies/#UAEB>). Students accused of academic dishonesty are encouraged to consult the Ethics Board Constitution as well as with the Dean of Student Life in Office of Homewood Student Affairs. More information on academic ethics at Johns Hopkins is available, at <https://studentaffairs.jhu.edu/student-life/student-conduct/academic-ethics-undergraduates/> and at <https://studentaffairs.jhu.edu/student-life/student-conduct/resources-conduct-ethics/>.

## **Office of the Dean of Student Life**

Mattin Center

Offit Building Suite 210

The Johns Hopkins University 3400 N. Charles St.

Baltimore, Md. 21218

Voice: 410-516-8208



# Meet The Staff

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**Lauren Rodgers**  
*Academic Program  
Administrator*



**Conner Allen**  
*Communication Specialist*



**Alden Murphy**  
*Lab Manager*



**Pam Jackson**  
*Sr. Administrative  
Coordinator*



# Meet The Staff

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**Sainjali Hussain**  
*Budget Specialist*



**John Modica**  
*Sr. Grants & Contracts  
Analyst*



**Melissa Gaines**  
*Sr. Grants & Contracts  
Analyst*



**Anne Albinak**  
*Sr. Administrative  
Manager*

# Who to Go to For .....

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Students may contact the following Department staff for assistance:

## **Academic Program Administrator**

Registration problems, missing grades, access to documents in your application file, assistance understanding departmental and university policies, help with university paperwork, letters for leaving the country, financial hold, advisor holds, GSLC and graduate affairs.

## **Budget Specialist**

Budgets, policies, payroll questions, tuition/health insurance, expense accounts reimbursement, petty cash voucher, questions about lab budgets, turning in receipts, procurement card or purchasing questions, assistance with SAP

## **Senior Administrative Coordinator**

Reserve space for lab meetings, key requests, mailboxes, deliveries, assistance with copier



# Important Contacts

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## **Chair of the Doctoral Program**

Prof. Todd C. Hufnagel; Email: [hufnagel@jhu.edu](mailto:hufnagel@jhu.edu)  
Phone: 410-516-6277, 111 Maryland Hall

## **Doctoral Program Committee:**

Assistant Prof. Anthony Shoji Hall; Email: [shoji@jhu.edu](mailto:shoji@jhu.edu)  
Phone: 661-860-7443, 107 Maryland Hall

## **Prof. Kalina Hristova; Email: [kalina.hristova@jhu.edu](mailto:kalina.hristova@jhu.edu)**

Phone: 410-516-8939, 204B Shaffer Hall

## **Prof. Peter C. Searson; Email: [searson@jhu.edu](mailto:searson@jhu.edu)**

Phone: 410-516-8774, 120 Croft Hall

## **Prof. Timothy P. Weihs; Email: [weihs@jhu.edu](mailto:weihs@jhu.edu)**

Phone: 410-516-4071, 115 Maryland Hall

## **Departmental Diversity Champion**

Prof. James B. Spicer; Email: [spicer@jhu.edu](mailto:spicer@jhu.edu)  
Phone: 410-516-8524, 101D Maryland Hall

## **Academic Program Administrator**

Lauren Modica Rodgers Email: [lmodica1@jhu.edu](mailto:lmodica1@jhu.edu)  
Phone: 410-516-8760, 203 Maryland Hall

## **Assistant Dean for Graduate and Postdoctoral Academic Affairs**

Christine Kavanagh; Email: [christinekavanagh@jhu.edu](mailto:christinekavanagh@jhu.edu)  
Phone: 410-516-0777,

## **Communications Specialist:**

Conner Allen; Email: [conner22@jhu.edu](mailto:conner22@jhu.edu)  
Phone: 410-516-8560, 204 Maryland Hall

# Libraries/Information Resources

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As America's first research university, we take learning seriously, and we have the libraries and study spaces to help fuel discovery—from the stately Hutzler Reading Room to the open and modern Brody Learning Commons.

The Brody Learning Commons opened in 2012 and was built with our students in mind. A focal point of activity (both studious and social), it contains 16 group study rooms, a 75-seat café, a 100-seat quiet reading room, and the thing our students told us they wanted more than anything else—lots of natural light. The 24/7 building is also environmentally friendly and was recognized for its green construction and operations by the U.S. Green Building Council.

The adjacent (and more traditional) Milton S. Eisenhower Library is the main research library for the university. Home to our incredibly helpful librarians (the original search engines), the stacks, and our impressive collection of rare books and manuscripts, the library is one of the most heavily used buildings on campus.

The George Peabody Library, also known as “the cathedral of books,” holds some 300,000 volumes, mostly from the 18th and 19th centuries, and is routinely ranked among the most beautiful libraries in the world. The ornate, cast-iron balconies rise to a latticed skylight above a black-and-white-marble-floored atrium, providing an Instagram-worthy and inspiring place to connect to the past.

With spaces both traditional and modern, and world-class resources—from rare books to the latest electronic databases and millions of print volumes—the university libraries help make discovery possible around the clock, across our campuses, and around the world.

The Sheridan Libraries—made up of the Brody Learning Commons, the Milton S. Eisenhower Library and its collections at the Albert D. Hutzler Reading Room in Gilman Hall, the John Work Garrett Library at Evergreen, and the George Peabody Library at Mount Vernon Place—provide the major research library resources for the university. Together they contain more than 3.7 million books and provide round-the-clock access to a rich collection of electronic resources, including more than 171,000 print and e-journals, and more than 900,000 e-books.

Other university libraries:

Arthur Friedheim Music Library (Peabody Institute)

William H. Welch Medical Library (East Baltimore campus)

Institute for the History of Medicine (East Baltimore campus)

Carol J. Gray Nursing Information Resource Center (School of Nursing)

Sydney R. and Elsa W. Mason Library (SAIS)

Core Engineering Databases:

- Academic Search Ultimate [ [More Info](#) ]
- ACS Publications [ [More Info](#) ]
- Compendex [ [More Info](#) ]
- IEEE Xplore [ [More Info](#) ]
- O'Reilly for Higher Education [ [More Info](#) ]
- Science Database [ [More Info](#) ]
- SciFinder-n [ [More Info](#) ]
- SciFinder (old) [ [More Info](#) ]
- SCOPUS [ [More Info](#) ]
- Web of Science [ [More Info](#) ]



## PROFESSIONAL DEVELOPMENT

### CLE

The Center for Leadership Education's core mission is to develop influential and imaginative leaders by preparing students across the university to translate their innovations from the classroom and lab to the real world and to effectively transition from academic to professional life.

In CLE, we foster a culture of innovation and intentional collaboration that serves students at all levels in the Whiting School of Engineering, the Krieger School of Arts & Sciences, the School of Public Health, the School of Medicine, and the Peabody Institute. We provide Hopkins students with opportunities to develop skills in problem discovery, problem solving, quantitative reasoning, effective written and verbal communication, systems thinking, and teamwork, as well as the diversity of thought and experience that comes from bringing students from all disciplines and varying levels of education together in the classroom.

### Industry Partnerships:

CLE curriculum centers on interdisciplinary, problem-based learning in collaboration with corporate and nonprofit partners who provide real-world projects and hands-on experience to our students.

### The Hopkins Method:

CLE teaches students to innovate by searching the boundaries of uncertainty to discover previously un-articulated problems worth solving. By imagining the challenges, opportunities, and needs that people will face, they help create a better future.

### Leadership at CLE:

CLE delivers coursework and experiential learning opportunities designed to help students succeed in and lead in entrepreneurial ventures and professional settings using key innovation and sustainability principles.



## **Career Planning Resources**

Advanced Academic Programs offers resources to support your professional success, regardless of where you are in your career or your job search.

### Explore and Connect:

#### Life Design Lab

- Aligning values and identity with decisions and aspirations
- Developing actionable plans for professional goals
- Intentionally growing your network and finding opportunities to gain experience

#### OneHop Mentoring

OneHop is the platform to build connections with JHU alumni. Think LinkedIn, but exclusive to Hopkins students with access to thousands of alumni from all of our schools, filterable by professional industry, academic background, and geographic location.

#### VMock Resume Platform

Résumé critique software based on an algorithm built from over 3 million resumes, with benchmarking for Hopkins students built using more than 5,000 JHU resumes.

#### Handshake

Handshake is the career services platform for Johns Hopkins University that houses additional resources to support your exploration and development – including an extensive job board of full-time, part-time, and internship positions – and connects you to career coaching and employers through workshops and events.

### **Skill Up:**

#### LinkedIn Learning

JHU students have full access to LinkedIn Learning's expert-led online video tutorials.

#### SkillSoft

Access virtual trainings on professional skills to enhance your resume.

## **Prepare and Apply:**

### Tutoring

Log on for 24/7 virtual career coaching on resumes, cover letters, interview prep, and job searches through our partners at Tutor.com. Log on to Tutor.com through Blackboard.

### VocaPrep

Practice and prepare for a strong case interview.

To contact AAP (Advanced Academic Programs) Career Services: email [AAPLifedesign@jh.edu](mailto:AAPLifedesign@jh.edu)



# JHU Services

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Office of the Registrar

75 Garland Hall

JCard Services (JHU student ID)

Wyman Park Bldg – Suite 171

Student Financial Services

146 Garland Hall

Student Accounts

Office of Student Disability Services

385 Garland Hall

Office of Institutional Equity

Wyman Park Building Suite 515

Ralph O'Connor Recreation Center

Community Living (Housing)

JHU Information Technology

JHU Career Center (Life Design Lab)

Graduate Representative Organization (GRO)

JHU Sheridan Libraries

Homewood Student Affairs

Digital Media Center

Campus Security

Campus Police: 410-516-7777

Security office: 410-516-4600

Safety Escort Services

Phone: 410-516-4600

Barnes & Noble Bookstore

JHU Charles Commons

Office of International Services (visas etc)





# Lab Locations

## **Materials Characterization and Processing (MCP):**

JHU Stieff Building  
800 Wyman Park Drive  
Baltimore, Maryland 21211

## **Maryland Hall (MD)**

Chen Lab: MD 43B-C  
Erlebacher Lab: MD 10, 14, 43A, 50, 136  
Fairbrother Lab: MD 7  
Gu Lab: 138C  
Hall Lab: MD 6, 143  
Hristova Lab: MD 8  
Hufnagel Lab: MD 17A, 17B  
Lin Lab: MD 136  
Spicer Lab: MD 9, 12  
Taheri Lab: MD 4, 15, 16  
Weihs Lab: MD 11, 13, 14

## **Krieger**

Katz Lab: KR 9-12  
McGuiggan Lab: KR 157

## **Croft Hall**

Gu Lab: Croft 141  
Hristova Lab: Croft 202, 210, 220, 231, 235, 237  
Lin: Croft 365  
Mao Lab: Croft 330, 385  
Searson Lab: Croft G5, G09, G10, G11, G12, G20, G27, G29

## **Department Office and mailing address:**

Department of Material Science and Engineering  
Maryland Hall 206, Johns Hopkins University  
3400 N. Charles Street Baltimore, Maryland 21218, USA



# Research Centers & Institutes

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## **Applied Physics Lab (APL)**

We solve complex research, engineering, and analytical problems that present critical challenges to our nation. APL—the nation's largest university affiliated research center—provides U.S. government agencies with deep expertise in specialized fields to support national priorities and technology development programs. We also serve as independent trusted technical agents to the government, providing continuity for highly complex, multigenerational technology development systems.

## **Center of Excellence on Integrated Materials Modeling (CEIMM)**

CEIMM is intended to create a collaborative, multidisciplinary research and educational program that can foster foundational advances in computational and experimental methodologies, supporting the Integrated Computational Materials Science and Engineering (ICMSE) theme. These new generations of computational tools, together with high-resolution imaging tools, give us an opportunity to look far deeper than people could do before.

## **Center for Integrated Structure- Materials Modeling and Simulation (CISMMS)**

The Center for Integrated Structure-Material Modeling & Simulation (CISMMS) creates a collaborative, multidisciplinary research and educational program to foster foundational advances in computational modeling, simulation and design in the fields of Integrated Computational Materials Science and Engineering (ICMSE) , Multi-Scale Analysis (MSA) and Computational Structure-Material Analysis and Design (CSMAD)



### **Institute for Data Intensive Engineering and Science (IDIES)**

The Institute for Data-Intensive Engineering and Sciences (IDIES) is a team of Johns Hopkins researchers and engineers actively helping research groups find the best solutions for their big data needs and fill any skill gaps with our broad variety of technical expertise and experience.

### **Institute for NanoBioTechnology (INBT)**

The Institute for NanoBioTechnology (INBT) at Johns Hopkins University is an exceptionally diverse, multidisciplinary team of faculty, researchers, and student experts uncovering new knowledge and creating innovative technologies at the interface of nanoscience, engineering, biology, and medicine.

### **Hopkins Extreme Materials Institute (HEMI)**

The Hopkins Extreme Materials Institute (HEMI) is one of Johns Hopkins University's premier research institutes on the Homewood Campus. The mission of the Hopkins Extreme Materials Institute is to provide global intellectual leadership to advance the fundamental science associated with materials and structures under extreme conditions and demonstrating extreme performance.

### **Translational Tissue Engineering Center (TTEC)**

The mission of the Johns Hopkins Translational Tissue Engineering Center (TTEC) is to blaze new trails in the fields of tissue engineering and immunoengineering while training tomorrow's top researchers and accelerating the delivery of regenerative medicine technologies to patients.



# General MSE Info

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## **Keys**

Graduate students may request a key to the mailroom, a laboratory, or workspace by filling out a Key Request Form located in 206. Keys may only be given to those students who have completed the Safety Course.

## **Stipends/Pay**

AY 2024–2025 PhD Stipends: \$47,000

## **Mail and Supplies Policies**

Laboratories are responsible for procuring their own supplies and managing their own shipping accounts (FedEx). Each lab should have a person designated to oversee such purchases and track budget spending.

The door to the mailroom will be locked after normal business hours; graduate students may request a key to that room, a laboratory, or workspace by filling out a Key Request Form located in 221. Keys may only be given to those students who have either completed the Safety Course or watched the equivalent DVD and passed the safety test administered by the Administrative Secretary on a weekly basis. A multi-function photocopier is also available for student use in 224C for tasks related to the conduct of research or the academic pursuits of the faculty. This printer will only Scan and Send to @jhu.edu e-mail addresses.

## Materials Graduate Society

The mission of the Materials Graduate Society (MGS) is to focus on the advancement of materials scientists and researchers at the graduate and post-graduate level. Through professional and social development events, our graduate student organization will strive to improve department camaraderie, academic excellence, and professional advancement for future scientists. The MGS aims to not only build lifelong friendships but a solid professional network, along with the opportunity for those involved to expand their communication, social, and networking skills for the workforce upon graduation.

To learn more, visit <https://engineering.jhu.edu/materials/materials-graduate-society/>



# Academic Forms

## Department of Materials Science and Engineering Doctoral Candidate Annual Review

### Student information

<b>Name:</b>	<b>JHED ID:</b>
<b>Research Advisor:</b>	<b>Hopkins ID (SIS):</b>
<b>Review for Year 2023:</b>	<b>Date entered PhD program:</b>

### Instructions for the student

The purpose of the annual review is to ensure that you are on track towards completion of your degree, and to assist your advisor and the department in mentoring you towards your career goals.

The review has five parts, the first four of which are in this file:

5. A report of progress towards the PhD degree, including completion of formal requirements (such as courses taken and exams completed) and production of research products (such as papers, presentations, and patents).
6. A self-evaluation of your scientific and technical accomplishments as well as your professional development. In addition to describing your accomplishments, in this section you set goals for the coming year and assess progress against last year's goals.
7. Your advisor's evaluation of your research progress and professional development, along with suggestions for improvement.
8. Documentation that you have discussed Parts 1-3 with your advisor.

To complete the review, fill out Parts 1 and 2 and give the file to your advisor, who will complete Part 3. The two of you will then meet to discuss your progress towards your degree and your professional goals, and document this meeting in Part 4. If necessary, you may revise Parts 1 and 2 to reflect your discussion with your advisor.

Please be aware that your annual review will be read by the Doctoral Program Committee and the Department Chair. In some circumstances your responses may be read by other members of the faculty, after redaction of any personally identifying information. All of your reviews will be retained on file for one year after you have left the PhD program, after which they will be deleted.

Although not part of this annual review, if you have any concerns about your interactions with your advisor or the climate in your research group, you are encouraged to discuss them with either the Chair of the Doctoral Committee (Prof. Hufnagel) or the Department Chair (Prof. Kessler). If you would prefer to discuss your concerns with someone outside the department, please consult the Assistant Dean for Graduate and Postdoctoral Academic Affairs (Ms. Christine Kavanagh, [christinekavanagh@jhu.edu](mailto:christinekavanagh@jhu.edu)).

### Instructions for the advisor

Your advisee will complete Parts 1 and 2 and submit them to you. Complete your evaluation in Part 3, and meet with your advisee to discuss all three sections. This meeting must be documented in Part 4, which is signed by both of you. If necessary, you may revise Part 3 to reflect your discussion with your advisee.

The entire review must be completed annually for each PhD student, and submitted to the Academic Program Administrator no later than August 15.

Part 1 – Academic Coursework (Fill in number & title of electives below)	Instructor	Semester/Year (enter "W" if Waived)	Grade*
510.601 Structure of Materials			
510.602 Thermodynamics of Materials			
510.603 Kinetics and Phase Transformations			
510.615 Physical Properties of Materials			
Elective #1:			



Elective #2:			
Elective #3:			
360.624/625 Responsible Conduct of Research			
<b>Teaching assistant requirement</b> (two semesters)		Semester/Year	Completion form Submitted
Course number and instructor:			
Course number and instructor:			
<b>Oral qualifying exam</b> (before start of third year)		Semester/Year	Completion form Submitted
<b>Thesis proposal</b> (by middle of third year)			Date passed or planned
Thesis Title:			
Names of committee members:			

<b>Thesis defense/GBO:</b>	Date passed or planned
Thesis Title:	
Names of committee members:	

\*Core courses (601-603, 615) require B- or higher and overall GPA>3. Electives require a C or higher.

<p><b>Other academic work</b>—Additional coursework beyond requirements, plus other workshops, and training.</p>
<p><b>Progress towards M.S. degree</b>—If you plan to obtain a M.S. while working towards your Ph.D., describe your progress here and give the expected (or actual) date of your degree.</p>

**External presentations**—List authors (underline presenting author) and provide title, event or conference name, location, and date.

**Refereed journal publications**—If published, provide complete citation information and DOI. Otherwise, indicate status (submitted, in review, or accepted) and name of journal. Do not include manuscripts “in preparation”.

**Other research products and professional activity** — such as conference papers, software, invention disclosures, patents, and outreach.

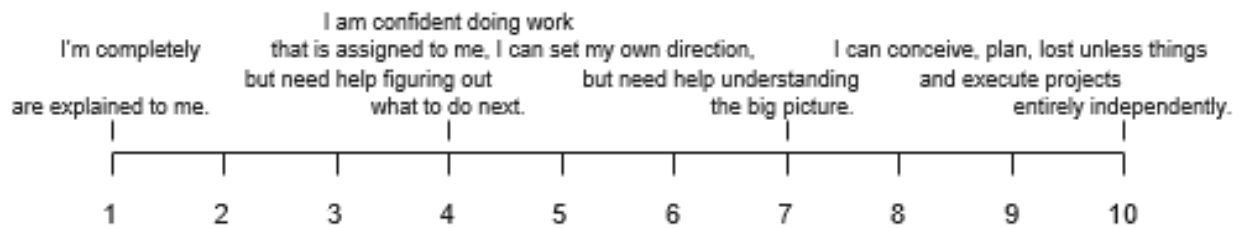
## Part 2 – Student self-evaluation

**Research accomplishments for the past year** – List any significant accomplishments, clearly defining your contribution

**Progress against last year's goals** – List goals and progress made on each

**Goals for the coming year with target dates** (courses, exams, research objectives, papers)

Intellectual progress – Rate your intellectual ownership of your thesis project on the scale below.



Where do you want to be on this scale by next year? What can you and your advisor do to help you move up the scale?

**Long-range career goal** – What is your ideal job?

**Skills** – What skills are your strongest assets for that job? What skills do you need to cultivate to succeed at that job?

**Professional network** – How expansive is your professional network? What strategies can you use to expand it?



**Department/professional citizenship** – List service activities for your group, the department, or other professional organizations.

**Extenuating circumstances (optional)** – List any circumstances that limited your progress last year.

### Part 3 – Advisor evaluation of student

**Areas of strength** – Give specific examples from coursework, research progress, and citizenship.

**Areas for growth and development** – Give specific examples and expectations for the coming year.

**Suggestions for professional development** – What should be done to make progress towards career goals?

**Estimated graduation date:**

**Funding source for coming year:**

#### **Part 4 – Discussion and certification**

☐ I certify that I have discussed Parts 1-3 of this Doctoral Candidate Annual Review with my advisor.

Date of meeting:

Type of meeting: ☐ In person ☐ Video conference  
☐ Telephone/audio

**Advisee name:**

**Advisee signature:**

*The next question is to be answered by the advisor.*

☐ I certify that I have discussed Parts 1-3 of this Doctoral Candidate Annual Review with my advisee.

**OR**

☐ I certify that I have been unable to complete this Doctoral Candidate Annual Review with my advisee for the following reason:

**Advisor name:**

**Advisor signature:**

**Department of Materials Science & Engineering**  
**Teaching Assistant Verification Form**

Instructions: In the beginning of the semester the Teaching Assistant should acquire these forms from Lauren Rodgers, take them to the instructor they are assigned to, discuss the TA assignment, and then the TA and the instructor should sign this form.

**Course#:** \_\_\_\_\_

**Name of Course:** \_\_\_\_\_

**Instructor Name:** \_\_\_\_\_

**Teaching Assistant Name:** \_\_\_\_\_

**Duties of the Teaching Assistant:**

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**We are in agreement to the responsibilities as noted above.**

**Instructor Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Student Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

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At the end of the semester, the instructor should sign this form to note the duties of the teaching assistant were properly carried out, and then return the form to Lauren Rodgers in MD Hall 204.

**Instructor Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

# About Baltimore

Baltimore has so much to offer. Museums, restaurants, concert venues, coffee houses, and one-of-a-kind shops are just a short walk or a free shuttle ride away from our four Baltimore campuses.

A city with a rich history as a working-class port, Baltimore has blossomed into a hub of social, cultural, and economic activity but retains the small-town feel that has earned it the nickname Charm City. From popular tourist attractions—the Inner Harbor, the National Aquarium, or Fort McHenry (birthplace of “The Star Spangled Banner”)—to more off-the-beaten path destinations—the Edgar Allan Poe House and Museum, or the tranquil Sherwood Gardens—there is always something new to discover.

Our students enjoy exploring Baltimore many neighborhoods, including Charles Village and Hampden (home to the famous holiday lights on 34th Street and the colorful, quirky Honfest); Mount Vernon and Station North, a prime destination for artists and arts enthusiasts alike; the historic waterfront neighborhoods of Fells Point, Canton, and Federal Hill.

The city hosts events both big and small throughout the year. Baltimore sports fans are passionate about their Orioles and the Ravens; sci-fi lovers can geek out at Baltimore Comic-Con; and hundreds drop by the Baltimore Farmer’s Market each Sunday to pick up fresh local meats, cheeses, flowers, and produce (and perhaps a cup of locally roasted Zeke’s coffee, too). There’s the Maryland Film Festival each spring, a book festival each fall, and Artscape—America’s largest free crafts festival—in the summer.





# Contact Us

The offices for the staff of Materials Science & Engineering are located in Maryland Hall on the second floor. The staff works a hybrid schedule where some days are remote. The Program Administrator works in the office Tuesday-Thursday and remotely Monday/Wednesdays

- **Phone**



+410-516-8760

- **Message**



lmodical@jhu.edu

- **Website**



<https://engineering.jhu.edu/materials/>

- **Address**



Maryland Hall 204  
3400 N. Charles Street  
Baltimore, MD 21218

## Additional Resources

- Graduate & Postdoctoral Affairs - <http://homewoodgrad.jhu.edu/>
- Life at Hopkins - <http://homewoodgrad.jhu.edu/life-at-hopkins/>
- Financial Aid - <https://finaid.jhu.edu/>
- Graduate Representative Organization (GRO) - <https://studentaffairs.jhu.edu/gro/>
- Baltimore Collegetown - <http://baltimorecollegetown.org/>
- LGBTQ Life - <https://studentaffairs.jhu.edu/lgbtq/>



# Appendices

## **NSF Proposal Preparation Guidelines [AH1] (from NSF Grant Proposal Guide)**

[https://www.nsf.gov/pubs/policydocs/pappg17\\_1/pappg\\_2.jsp#IIB](https://www.nsf.gov/pubs/policydocs/pappg17_1/pappg_2.jsp#IIB)

The Project Description should provide a clear statement of the work to be undertaken and must include the objectives for the period of the proposed work and expected significance; the relationship of this work to the present state of knowledge in the field, as well as to work in progress by the PI under other support.

The Project Description should outline the general plan of work, including the broad design of activities to be undertaken, and, where appropriate, provide a clear description of experimental methods and procedures. Proposers should address what they want to do, why they want to do it, how they plan to do it, how they will know if they succeed, and what benefits could accrue if the project is successful. The project activities may be based on previously established and/or innovative methods and approaches, but in either case must be well justified. These issues apply to both the technical aspects of the proposal and the way in which the project may make broader contributions.

The Project Description must contain, as a separate section within the narrative, a section labeled "Broader Impacts". This section should provide a discussion of the broader impacts of the proposed activities. Broader impacts may be accomplished through the research itself, through the activities that are directly related to specific research projects, or through activities that are supported by, but are complementary to the project. NSF values the advancement of scientific knowledge and activities that contribute to the achievement of societally relevant outcomes.

Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM); improved STEM education and educator development at any level; increased public scientific literacy and public engagement with science and technology; improved well-being of individuals in society; development of a diverse, globally competitive STEM workforce; increased partnerships between academia, industry, and others; improved national security; increased economic competitiveness of the US; and enhanced infrastructure for research and education.

### **Proposal Review Criteria**

In writing your thesis proposal it is helpful to consider how the proposal will be reviewed. Below are the review criteria for NSF and NIH grants. Make sure that your thesis proposal clearly addressed the review criteria.

## **Relevant NSF Review Criteria (from NSF Grant Proposal Guide)**

Reviewers will be asked to evaluate all proposals against two criteria:

1. Intellectual Merit: The Intellectual Merit criterion encompasses the potential to advance knowledge; and

*Broader Impacts:* The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The following elements should be considered in the review for both criteria:

1. What is the potential for the proposed activity to:

a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and

b. Benefit society or advance desired societal outcomes (Broader Impacts)?

2. To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?

3. Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?

4. How well qualified is the individual, team, or organization to conduct the proposed activities?

5. Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?

## Relevant NIH Review Criteria

[https://grants.nih.gov/grants/peer/critiques/rpg\\_D.htm#rpg\\_01](https://grants.nih.gov/grants/peer/critiques/rpg_D.htm#rpg_01)

**Significance.** Does the project address an important problem or a critical barrier to progress in the field? Is there a strong scientific premise for the project? If the aims of the project are achieved, how will scientific knowledge, technical capability, and/or clinical practice be improved? How will successful completion of the aims change the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field?

**Innovation.** Does the application challenge and seek to shift current research or clinical practice paradigms by utilizing novel theoretical concepts, approaches or methodologies, instrumentation, or interventions? Are the concepts, approaches or methodologies, instrumentation, or interventions novel to one field of research or novel in a broad sense?

Is a refinement, improvement, or new application of theoretical concepts, approaches or methodologies, instrumentation, or interventions proposed?

**Approach.** Are the overall strategy, methodology, and analyses well-reasoned and appropriate to accomplish the specific aims of the project? Have the investigators presented strategies to ensure a robust and unbiased approach, as appropriate for the work proposed? Are potential problems, alternative strategies, and benchmarks for success presented? If the project is in the early stages of development, will the strategy establish feasibility and will particularly risky aspects be managed? Have the investigators presented adequate plans to address relevant biological variables, such as sex, for studies in vertebrate animals or human subjects? If the project involves clinical research, are the plans for (1) protection of human subjects from research risks, and (2) inclusion of minorities and members of both sexes/genders, as well as the inclusion of children, justified in terms of the scientific goals and research strategy proposed?