

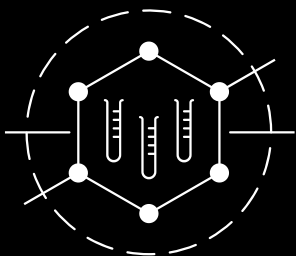
Northwestern

McCORMICK SCHOOL OF
ENGINEERING

**MATERIALS SCIENCE
AND ENGINEERING**

PHD STUDENT
HANDBOOK

2023 - 2024



NON-DISCRIMINATION STATEMENT



Northwestern University does not discriminate or permit discrimination by any member of its community against any individual on the basis of race, color, religion, national origin, sex, pregnancy, sexual orientation, gender identity, gender expression, parental status, marital status, age, disability, citizenship status, veteran status, genetic information, reproductive health decision making, or any other classification protected by law in matters of admissions, employment, housing, or services or in the educational programs or activities it operates. Harassment, whether verbal, physical, or visual, that is based on any of these characteristics is a form of discrimination. Further prohibited by law is discrimination against any employee and/or job applicant who chooses to inquire about, discuss, or disclose their own compensation or the compensation of another employee or applicant.

Northwestern University complies with federal and state laws that prohibit discrimination based on the protected categories listed above, including Title IX of the Education Amendments of 1972. Title IX requires educational institutions, such as Northwestern, to prohibit discrimination based on sex (including sexual harassment) in the University's educational programs and activities, including in matters of employment and admissions. In addition, Northwestern provides reasonable accommodations to qualified applicants, students, and employees with disabilities and to individuals who are pregnant.

Any alleged violations of this policy or questions with respect to non-discrimination or reasonable accommodations should be directed to Northwestern's Office of Equity, 1800 Sherman Avenue, Suite 4-500, Evanston, Illinois 60208, 847-467-6165, equity@northwestern.edu. Questions specific to sex discrimination (including sexual misconduct and sexual harassment) should be directed to Northwestern's Title IX Coordinator in the Office of Equity (same phone and email as above), or TitleIXCoordinator@northwestern.edu. A person may also file a complaint with the Department of Education's Office for Civil Rights regarding an alleged violation of Title IX by visiting this webpage or calling 800-421-3481. Inquiries about the application of Title IX to Northwestern may be referred to Northwestern's Title IX Coordinator, the United States Department of Education's Assistant Secretary for Civil Rights, or both.

DIVERSITY, EQUITY, AND INCLUSION - VISION STATEMENT



THE DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING AT NORTHWESTERN UNDERSTANDS THAT TRUE EXCELLENCE REQUIRES DIVERSITY IN MYRIAD WAYS.

We affirm the profound value of diversity of thought as it arises from diversity of background, experience, race, ethnicity, gender/gender identity, sexual orientation, socioeconomic status, belief system, nationality, age, ability/disability, veteran status, and marital and family status. We are committed to proactive outreach to recruit, support, and promote those from underrepresented and underserved populations. Inclusion, equity, and engagement are essential to the well-being of our diverse community. We acknowledge our responsibility to foster equitable educational and professional outcomes across our department, and to ensure that all members are safe from harassment arising from differences. Thus, we actively strive to create an environment that is anti-racist, anti-sexist, and anti-biased in all ways, while celebrating the differences that enrich our intellectual and personal discourse. Integral to our pursuit of academic excellence and rigor is a supportive environment of mutual respect in which we engage in open, inclusive discussion and vigorous debate. This is how great ideas are born and nourished.

We invite you to join us, hand in hand, with partners from all walks of life, on our mission to expand the frontier of knowledge.

Learn more about the concrete steps we are taking to enhance and support diversity, equity, inclusion, and belonging through the programs and activities listed [here](#).

MESSAGE FROM THE CHAIR

August 1, 2023

Dear Incoming Graduate Students,

Welcome to our Department!

This handbook will guide you in your educational and research endeavors in the Materials Science and Engineering Department at Northwestern University. Please read it carefully and refer to it regularly so you are aware of the policies, requirements, and responsibilities herein. As compared to the information provided by The Graduate School, the content of this handbook is more specific to our department. You should also familiarize yourself with the academic policies and procedures of The Graduate School.

We hope your time in the program will be enjoyable, enriching, and rewarding. I look forward to getting to know you and working with you. I am always available to help and support you during your time at Northwestern. Feel free to reach out to me about anything.



Mark Hersam

*Chair and Professor of Materials
Science and Engineering*

II.

DEPARTMENT CONTACTS

Department staff are committed to providing attentive and comprehensive administrative support to the MSE community. For more information about MSE department services, please visit the page linked here

DEPARTMENT CHAIR (DC):	Pr. Mark Hersam	m-hersam@northwestern.edu
ASSISTANT DEPARTMENT CHAIR (ADC):	Pr. Kathleen Stair	kstaire@northwestern.edu
DIRECTOR OF GRADUATE STUDIES (DGS):	Pr. Ken Shull	k-shull@northwestern.edu
ASSISTANT DIRECTOR OF GRADUATE STUDIES (ADGS):	Pr. Jonathan Emery	jonathan.emery@northwestern.edu
BUSINESS ADMINISTRATOR (BA):	Marilyn Hall	mhall@northwestern.edu
PROGRAM COORDINATOR SENIOR / MSE ACADEMIC + OUTREACH MANAGER :	Willie James	william.james@northwestern.edu
GRADUATE PROGRAMS COORDINATOR (GPC):	Murphy Sharp	murphy.sharp@northwestern.edu
FINANCIAL ADMINSTRATOR SENIOR:	Laura Olson	olsonlaura@northwestern.edu

PHD MATRICULATION

A ACCEPTING THE OFFER

The Admissions Chair informs students of acceptance to the doctoral program in late winter. In the letter, students are informed of their enrollment decision date, which is usually in mid-May. Students must accept the admission offer through the application portal by this date, or The Graduate School will mark the student as not enrolling. Matriculation to the doctoral program happens officially in late August. First stipend checks and any additional departmental financial reports are dispersed on Sept. 30th.

B EMAIL, NETID, WILDCARD, CAMPUS ACCESS

Students are provided with their NetIDs and University email address in mid-summer. Students should activate their NetIDs as soon as possible using NUValidate. Timely activation of the NetID is important - it provides students with access to email, Canvas (learning management system), human resources, online library, Caesar (grades and transcripts), and other resources. For more, see [here](#).

The Wildcard provides students with access to the Northwestern campuses, in general, including buildings, recreational facilities, and shuttles. Students can acquire their Wildcards when they have matriculated, which for the 2023 incoming class is late August. Follow the directions [here](#) to sign up for a time to pick up your Wildcard. As Wildcards are not distributed until matriculation dates, students will not have access to campus prior to the matriculation date unless other arrangements are made.

Please email matsci@northwestern.edu with any Wildcard access requests. Please copy your PI so they can provide approval for your access request via email.

C STIPENDS, TUITION, + FEES

Students receive a stipend, the minimum rate which is set by the Dean of the Graduate School and the budget office. Cost-of-living stipend increases are applied on Sept. 1st each year. Students may be funded by TGS (typically for the first year), grant funding, fellowship, or some combination of these sources. Note, the University Payroll Office will not withhold taxes from your fellowship stipend unless you request it. More information is [here](#).

All recipients of Research Assistantships or Fellowships must complete Employment Eligibility (I-9) forms, the Federal W4 and Illinois W4 forms. International students must also complete the Alien Tax Status and other forms required by the Federal government. These forms are now on the web and the Human Resource Department will assist you. The I-9 form must be completed electronically and we have staff to help students with this during orientation week.

All checks must be direct-deposit and hard copies are not available. To view your check, please use the FASIS Self Service website. Students are paid at the end of the month. For new students, this means that the first checks are dispersed on Sept. 30th. The University cannot pay students earlier – stipend advances are not permitted. In addition, any supplemental first-year funding (e.g. the moving bonus) cannot be paid out until Sept. 30th per university payroll policy

Students with external fellowships must provide copies of their original award letter and any renewal/adjustment letters in subsequent years.

Beginning the quarter following a student’s qualifier, the monthly check will increase by approximately \$100 for research assistants and those fellows whose stipends are less than the department’s base external fellowship level.

TGS charges all graduate students an Activity Fee, which is \$125/quarter. This fee offsets the costs of TGS services such as the U-Pass, legal services, and organization funding. Students are expected to pay this fee in a timely manner via Caesar. More information is here. In some instances you can waive this fee (e.g., if you are living outside the Chicago area).

Information about your tuition are online through Caesar. PhD student funding covers tuition, stipend, and a health insurance subsidy (see here for more information about Student Health Insurance). More information about student funding is here. If bills other than tuition arise (e.g., Wildcard replacement fee), they may appear in this account. If you have any questions regarding your tuition bill, see the Payroll Financial Assistant, Lizette Aparicio (lizette.aparicio@northwestern.edu).



D THE GRADUATE STUDENT TRACKING SYSTEM (GSTS)

Both TGS and the MSE Department use the Graduate Student Tracking System (GSTS) to record and monitor student progress towards the PhD Degree. Students will interact with this system frequently - much of the documentation necessary during the matriculation process is uploaded to this GSTS. An outline of the system and tutorials on how to use it are available from the TGS webpage.

Essentially, any milestone, change in study plan, accomplishment, or review needs to be recorded in the GSTS. Students should expect to regularly access this system to update their information as they advance through the program.

This profile also contains application materials, approved study programs, grades for completed courses, records of completed examinations, names of committee members, current address, phone numbers, etc. In accordance with Government regulations a student is allowed access to his or her file.

Educational records cannot be released to any outside agency without the student's written consent. Students applying for credit cards, etc., which require employment and/or salary verification by the department, must inform the department that such a request may be forthcoming. Verification of employment may also be done through NU's Employment Verification Infoline.

The student, advisor, GPC, and DGS have access to the student's GSTS profile. In this handbook we highlight instances that require student action in the GSTS profile.

GSTS | **Graduate Student Tracking System** | **Student Primer**

THE GRADUATE SCHOOL, NORTHWESTERN UNIVERSITY
Developed by the Robert L. McCormick School of Engineering & Applied Science in partnership with MSE

The Graduate Student Tracking System (GSTS) is designed to help you and your program track and communicate about your academic progress and achievements. In GSTS you can view and update the following information:

Profile

- View your demographic information.
- View your academic milestones, deadlines, & completion status.
- View an overview of your financial aid.

Committee

- Select & invite your advisor.
- Select & invite committee members.
- Note any changes in advisor or committee.

Plan of Study

- Plan your coursework.
- Assign coursework to requirement categories.
- View completed coursework against program requirements.
- Indicate your specialization.

Academic Progress

- Keep track of your academic activities, including research progress, publications, meetings, & more.
- Inform your program, advisor, and committee of progress & academic achievements.

Login with your NetID at gsts.northwestern.edu
For help, email gsts@northwestern.edu
For additional GSTS resources, visit tgs.northwestern.edu/academics/graduate-student-tracking-system.html

E ARRIVING ON CAMPUS + ORIENTATION WEEK

After matriculation is complete, students may access campus as they like. First-year orientation, however, does not begin until the second week of September. Information about department orientation events are available in the New Student Orientation Canvas Site. During orientation, students will meet their classmates, faculty, staff, and other graduate students. This approximately week-long event includes information sessions, academic resources, trainings, student panels, tours, research talks, and social events. A tentative schedule will be released in early-August through the Canvas site. **We expect every student to attend all scheduled sessions.** Prior to matriculation, we will provide you with access to the Orientation Week Canvas site. This will also give you access to the important resources and documents:

- **Orientation Documents:** There are a large number of documents that you need to complete in your first few weeks in the department.
- **eReserves:** We provide a Canvas directory containing supplemental background reading for those interested in preparing for Fall courses. This includes some selections from introductory MSE texts, as well as undergraduate thermodynamics texts.
- **Faculty Research Presentations:** During orientation week, faculty will present on the groups' research and describe open projects for graduate students. Some professors will provide us with PDF versions of their talks, which will be uploaded here.
- **MSE Bridge Resource:** We will provide a link to an (under construction) interactive electronic resource introduces/reviews content that will help students prepare for their Fall core courses. This resource has four important chapters:
 1. Description and intended outcomes of the core courses.
 2. A brief introduction to the field of Materials Science and Engineering
 3. An primer to MSE-flavored thermodynamic concepts.
 4. An introduction to crystal structure and symmetry

The MSE Bridge resource was first launched in 2023 and is still under construction. We invite current students to contribute - please reach out to Pr. Emery to gain editor access to the document.

The Canvas site is active for your entire first year. We also use this site to promote tutorials or other events. For move-in and housing, both TGS and the Materials Science Student Association (MSSA) are helpful resources.



F MSE-RELATED STUDENT GROUPS AND ORGANIZATIONS

There are numerous student organizations that may be of interest to MSE graduate students. This non-exhaustive linklink and here connects to TGS-affiliatedgraduate student groups. The student groups, and others, are present at the Graduate Student Organizations fair in September.

[The Materials Science Student Association \(MSSA\)](#)

- The mission of MSSA is to build genuine camaraderie in the department by organizing social events, outreach opportunities, and facilitating dynamic and healthy discussions among graduate students and faculty to encourage continued growth as a research community. MSSA's leadership team is composed of second-year graduate students who are responsible for welcoming the incoming cohort to Northwestern's community and helping them acclimate to graduate student life.

MSSA is involved with running New Student Orientation in early September, moderating Town Hall and General Body meetings, hosting department BBQs and holiday parties, organizing intramurals and outreach, and assisting with visit weekends in the spring. Each year (usually at the end of the Spring Quarter) an election is held to fill the offices of President, Vice President/Visit Weekend chair, Secretary, Treasurer, Social chair, Outreach chair, Student Faculty Liaisons, Intramural Chair, Historian, Webmaster, and Interorganization Chair. Students are automatically members and are encouraged to participate. For international students the club provides valuable interaction for the development of English proficiency. For more information, please visit this webpage or reach out to numssa@gmail.com.

[The Materials Science Alliance for an Inclusive Community \(MatSAIC\)](#)

- MatSAIC is the student organization focused on fostering inclusivity within the MSE department. We host discussions and activities that center the challenges and career pathways for students of diverse backgrounds. Please reach out to numatsaic@gmail.com if you have any questions, concerns, or suggestions, or if you would like to get more involved.

[The Materials Science Umbrella Society \(MSUS\)](#)

- MSUS is a student organization that runs professional development events for PhD and undergraduate students at Northwestern in the field of materials science and related fields.



ADVISOR SELECTION

A THE ADVISOR SELECTION PROCESS

One of the most important processes in your first few weeks in the department will be to meet with potential thesis advisors and decide which one(s) you are interested in working with. All students are placed in a research group in their first year - most are placed by the end of the first quarter.

An outline of the schedule is below. Precise dates are available on the *Canvas* site.

- **Mid-September:** Students attend faculty research talks during New Student Orientation.
- **Sept-Nov.:** Students meet with faculty members and other graduate students and postdocs.
- **Late October:** All students submit the non-binding straw poll listing their preferred top-choice of advisor. All students and faculty members are provided with anonymized results of the poll.
- **Early November:** Students submit advisor selection forms via *Canvas*.
- **Mid-November:** Students and advisors are informed of their placements or opportunities in second round placement.
- **Mid-November until placement:** Students not placed in the first round work with the Director of Graduate studies to find placement.

Students arriving for the Fall Quarter have the opportunity to meet all research-active faculty members prior to selecting an advisor. Most faculty that are interested in accepting new members into their research groups will give 10-15 minute presentations on opportunities in their research groups during New Student Orientation. Some may forego this presentation and instead meet with students individually. Faculty members who present their work will encourage interested students to contact them for follow-up meetings or invite them to attend group meetings. One-on-one student-faculty meetings are required for placement. Students must document all student-faculty meetings on the advisor selection form and submit the form when they make their final selection. These meetings aid both faculty and students in assessing best fits. While a student and advisor may verbally agree to placement at any time, no binding agreements are made prior to when the advisor selection form is submitted in early November.

MSE policy is that PhD students are expected to seek an advisor who is an MSE-affiliated faculty member (i.e., core or affiliated faculty members listed on the site below).

<https://www.mccormick.northwestern.edu/materials-science/people/faculty/>

Students may solicit the DGS for an exception to this policy via email. The DGS will evaluate the student's appeal and grant requests when appropriate.

In late October, all students are required to list their current, top-choice for advisor in the Advisor Selection Straw Poll on *Canvas*. The only person with access to identifying information in this poll is Pr. Emery. He will not share this identifiable information with any student or faculty member. Pr. Emery will then release anonymized results of the Straw Poll to both students and faculty. This poll provides both students and faculty with a better understanding of the level of interest for various projects. This non-binding Straw Poll provides students with information about which advisors and projects may be in demand, and should help to stimulate conversation about placement. The poll does not affect placement in any group, its sole purpose is to provide students and faculty members with a better understanding of project/group interest prior to selection.

In early November, each student will submit the Advisor Selection Form through *Canvas* to the Graduate Program Coordinator. This form informs the DGS of both the student's first choice of research advisor and research topic. The DGS then informs the advisors of students who have chosen them, and the advisors make their selections.

Students may be co-advised, in which there is an agreement between two faculty to share advising roles and funding responsibilities. Typically, one advisor takes a more active role in mentorship.

If no agreement for placement is found in the first round, a student enters a second round of selection. This situation is not uncommon - the second round occurs every year. Students that enter the second round of selection work directly with the DGS to choose an advisor. Second-round placement is typically finalized before the start of Winter quarter, but may go as late as Summer quarter.

On occasion, faculty members may agree to advise a student prior to the official matriculation date. These "pre-selects" forego the advisor selection process described above. These students may sometimes have the opportunity to begin research before the beginning of the program. Students who arrive prior to the official matriculation date (i.e., to start research in the summer) will confer with the DGS and the DC in this process. However, for documentation purposes, the student must still submit the Advisor Selection Form.

We strive to make the advisor selection process fair and equitable, and we work so that every student finds a satisfactory placement. However, students need to be aware that research projects and funding can be dynamic. The availability of any particular project depends on a multitude of factors that can change over the period of weeks or years. In some instances, a change of advisor may be necessary due to loss of funding or for other reasons. The DGS handles such changes on an individual basis.

PROGRAM REQUIREMENTS:

PHD IN MATERIALS SCIENCE

The Graduate School defines its own minimal requirements for the conferral of a PhD from Northwestern University. Those requirements are described here. Individual departments establish additional program-specific requirements. Below, we highlight important TGS requirements and define MSE-specific requirements.

Responsibility for meeting published deadlines and degree requirements rests with the student. The [Northwestern University Academic Calendar](#) is available online. The Graduate School deadlines and requirements are available [here](#).

A COURSE LOAD

The course load usually includes 1-3 quality letter grade courses (300- and 400-level), with the remaining units filled with MAT_SCI 590 (research) to reach a load of four units. After coursework is finished, student then register for TGS 500 until completion of the degree.

B COURSE REQUIREMENTS

1) STUDENTS ENTERING WITH BS OR BA DEGREE:

The Department requires that students entering with a BS or BA must take at least **twelve** courses. Requirements are listed below:

- **Six required MSE Core Courses:** Completed in the first year:
 - Fall: 401, 402
 - Winter: 404-1, 404-2, 408
 - Spring: 405, 406
- * **Six elective courses:**
 - Two additional 400-level MSE courses (excluding MAT_SCI 499)
 - One additional 400-level engineering/science/math course.
 - Three other engineering, mathematics, or physical sciences courses (300- or 400-level).
- ★ **Responsible Conduct of Research Training:**
 - GEN_ENG 519 (Fall or Winter, first year)

The student's advisor must approve all course selections.

* Some 300-level courses are not normally appropriate for PhD students (including most of the undergraduate core sequence, including MAT_SCI 201/301, 314, 315, 318, 316-1, 316-2, 332, 351-1, 351-2, 360). However, these courses may be useful for some. *If you are interested in one of these courses, please contact the ADGS and the course instructor for permission.*

*The six electives can be in engineering, mathematics or the physical sciences provided they are approved for graduate level credit by TGS and are not among the excluded 300-level MSE courses listed above. For example, one can not apply music, language, or business courses to the Department's course requirements.

* For elective courses to apply for the requirements of PhD, they must be new to the student - not a repetition of coursework completed as an undergraduate.

★ In addition to these courses, PhD students are required to complete GEN_ENG 519 - a course on Responsible Conduct of Research - within their first year in the program. There are multiple offerings of this course (typically in Fall and Winter) and registration takes place through Caesar.

Courses offered by the department are listed [here](#). Other departments have similar listings. Students can also search Caesar for courses and other registration information.

Students may have completed coursework in their course of undergraduate study that would make core classes repetitive. Students can petition to the ADGS to have core courses waived (see Section V.B.3), but this requires documentation that they've completed graduate-level coursework on the topic. Waiving a course does not reduced the total number of courses required by the program or TGS, which remain at 12 and 9, respectively

2) STUDENTS ENTERING WITH AN MS DEGREE:

Students entering with MS degrees can count a maximum of five courses taken during study for an MS degree toward the twelve-course requirement if a grade of "B" or better was obtained in each course. Students desiring to pursue this option should send a copy of their MS transcript to the ADGS by email, indicating the specific courses that they would like to transfer, and suggesting closest equivalent Northwestern courses. The ADGS can assist students in determining these equivalent courses. In many cases the equivalent course will be MSE 495 (Special Topics). After approval from the ADGS, these the classes will be added to the study plan in GSTS by the GPC. These courses can serve to fulfill program requirements by substituting for core or elective courses. It is best to confer with the ADGS during Fall term regarding course replacement.

All requirements, i.e., six core courses, two additional 400-level MSE courses, and four electives must still be satisfied. Courses that were assessed on a P/NP, C/NC, or S/U bases (these are denoted "non-quality letter grade courses") cannot typically be used to replace NU coursework. However, the MSE Department may waive this quality grade requirement for courses a student was required to take on a P/NP basis due to their University's policies during the COVID-19 pandemic. Students will consult with the GPC and the ADGS in these cases. TGS does not allow P/NP to be applied to their requirement that students complete nine quality letter grades at Northwestern.

The Graduate School requires that a minimum of nine graded courses be taken at Northwestern. For students entering with an MS degree, a maximum of two quarters of MAT SCI 499 (Independent Research Project) are allowed.



Students with MS degrees may also appeal to waive courses (see Section V.B.3), but waived courses do not decrease the total number of required courses (12).

A scenario - if a student arrives with five quality-grade MS courses that are approved by the ADGS, they need only take seven courses in the department that are *not* MAT_SCI 499. They can then take two MAT_SCI 499 courses for quality grades to satisfy both TGS and program requirements. They may also, of course, take other courses in place of MAT_SCI 499 if they wish.

3) TRANSFER CREDIT

Students who have completed coursework in pursuit of a graduate-level (MS or PhD) degree at another program but did not receive a degree for their work may count coursework towards program requirements. This works much in the same way as it does for Master's. However, transfer students should consult directly with the DGS to clarify requirements and expectations. The minimum of nine TGS quality grades is still required.

4) GRADUATE CORE COURSES-- PREPARATION AND WAIVING

We are confident that admitted students can succeed at the graduate core without preparatory coursework beyond their undergraduate or Master's work. The vast majority of students register for - and satisfactorily complete - the core sequence within the first year.

The MSE Bridge Resource can help prepare and guide students in preparation for Fall courses. However, this resource is not an cannot be a replacement for more extensive undergraduate study. If a student feels unprepared for the core, they may appeal to their advisor and, the DGS for an alternative first-year course schedule. The DGS to may approve the inclusion of up to two courses in the twelve-course requirement from the list of classes normally not open to MSE graduate students. Students should contact the ADGS or DGS directly if they wish to consider this option.

International students may take Linguistics 380, Spoken English for Non-Native Speakers, Linguistics 381, Written English for Non-Native Speakers and Linguistics 480, The Language of Teaching and Learning, in place of units of MAT_SCI 590. These courses, however, do not count toward the department's 12 course requirement and, as such, may be taken P/N. See TGS's English Language Support webpage for more information.

Students who are sufficiently prepared in the subject matter of a core course may request a waiver of that course by obtaining email approval from the instructor. The instructors may require documentation, e.g. text used, course outline, lecture notes, exams, etc. The student then forwards the email to the GPC to be added in the student's GSTS profile. Please note that the waiving of a course does not decrease the total number of courses required - it only excuses the student from the course.

The number of required core courses is reduced if it is successfully waived, but the student must replace that course with a 400-level elective.

5) GPA REQUIREMENTS

Both the TGS and the Department define GPA requirements necessary to maintain good academic standing. GPAs are calculated according to the scale below:

A = 4.0	A- = 3.7	B+ = 3.3	B = 3.0	B- = 2.7	C+ = 2.3	C = 2.0	C- = 1.7	F = 0
---------	----------	----------	---------	----------	----------	---------	----------	-------

According to TGS, students must maintain a 3.00 GPA to remain enrolled in The Graduate School. If a student's GPA drops below this threshold, the student is placed on probation by TGS. The student then has two quarters (not including summer) to resume good academic standing. The DGS will work to support the student in their return to good academic standing. Full details about TGS academic standing are provided [here](#).

The Department also expects students to maintain a minimum 3.2 GPA in the core courses. This is not a hard requirement, but the academic progress of students with a core course GPA below 3.2 will be explicitly reviewed by faculty during the preliminary evaluation (see V.D, below).

The MSE department does not allow P/N grades for any courses. In some instances, a student may receive a temporary grade of X (missed final examination) or Y (incomplete coursework) in cases of injury, illness, or with those struggling with mental health. If a student is considering taking an incomplete, they must confer with the course instructor, their advisor, and the ADGS/DGS. If an incomplete is granted, all coursework must be completed by the end of the next offering of the course or sooner - as determined by the course instructor. The instructor is allowed *complete* discretion in setting deadlines for the completion of coursework.

C RESEARCH TIME COMMITMENT

Students are expected to be fully involved in laboratory research under the supervision of their advisor, with a minimum 20-hour week commitment during coursework. After coursework is completed, a minimum of 40 hours per week is expected. It is the responsibility of the advisor to provide continuing feedback to the student regarding their progress after the first year. This progress is communicated to the DGS either directly or through GSTS.



D THE PRELIMINARY EVALUATION

Near the end of Spring quarter of the first year), students wishing to continue toward the PhD must undergo a Preliminary Evaluation, which is reviewed by the faculty in the June Faculty Meeting.

The preliminary evaluation considers:

- Performance in research, as presented in the Research Report (see below).
- Advisor comments on student progress and potential for completion of the PhD.
- Core course performance. The faculty pay specific attention to the overall performance of students with a core course GPA of 3.2 or lower, but GPAs of less than 3.2 do not necessarily indicate
- Overall grade point average. (TGS requires an overall 3.0 GPA). See [here](#) for TGS academic policies.
- Other factors such as the student's undergraduate major and work ethic may also be considered. An accurate study plan must be on file in GSTS.

The Research Report is a 1-pg write-up (not including figures, references, or advisor comments) and prospectus of the research progress to date. It is *not* a literature review. This report should be submitted through the New Student Orientation site on *Canvas* in late Spring. The precise due date is provided in the *Canvas* assignment. The department will send out reminders during the Winter and early Spring quarters about this requirement. The format of the Research Report is provided in the *Canvas* assignment.

The student should solicit the advisor for a short (1-3 sentence) statement summarizing their progress and making a recommendation for the outcome of the Preliminary Evaluation. The student appends this statement to the Research Report. We encourage faculty to provide this statement directly to the student in order to stimulate discussion of the student's progress, but faculty may also elect to send their statement directly to the ADGS.

Three possible outcomes will result from the preliminary evaluation:

- **Pass:** The student may proceed with coursework and begin to prepare for the Qualifying Examination.
- **Re-evaluate:** The student will be reevaluated after a time period specified by the faculty and advisor. This is typically at the end of the Summer quarter. At the end of this time period, the student will either be passed, discontinued, or can work with the DGS to explore opportunities in other research groups.
- **Discontinue:** The student is not eligible to continue pursuit of their PhD in their group. Various outcomes are possible at this point: 1. the student may speak with the DGS to find another group to join, 2. the student may opt to continue work towards a Master's degree, or 3. the student may leave the program.

Students will be informed of the outcomes of the preliminary examination through GSTS. **We highlight that most students (>90%) pass the preliminary evaluation during the first round.** Some students may need additional time to demonstrate proficiency in labwork before proceeding towards qualification.

E THE QUALIFYING EXAMINATION

Admission to the graduate program does not mean that a student is a candidate for the PhD degree. TGS stipulates that students must successfully complete a comprehensive qualifying examination. Upon completion, the department will recommend to TGS the student be admitted to candidacy. Upon approval, the student becomes a PhD Candidate.

1) PURPOSE

The Qualifying Examination is an important step towards the PhD degree in which faculty and other experts assess both the student's knowledge in their field of materials research and their capability to identify unresolved problems or challenges and propose viable solutions. In addition, it provides an opportunity for formative assessment of a student's writing and oral communication skills.

2) FORMAT

The Qualifying Examination is comprised of two deliverables: 1. a written research proposal and 2. an oral research proposal presentation, both presented to the Thesis Committee (discussed below). **These deliverables should persuade the Thesis Committee of the scientific merit and feasibility of the proposed research project.** Students use these deliverables to educate and persuade the Thesis Committee that the proposed work is novel and that the student's approach is practical and appropriate. In persuasive proposal writing, the writer must demonstrate the merit of their ideas by demonstrating logic and reason in their approach to addressing the questions of interest.

- The research proposal should be a complete but concise report of not more than 7500 words of text (not including references or figure captions). This proposal should include:
 - The objectives of the research - what is to be accomplished?
 - The significance of the research - what impact the accomplished objectives would have, assuming the research progresses as planned?
 - The literature background - enough description of prior knowledge for readers to understand what progress is to be made and what makes the proposed work important and useful.
 - A logical plan of attack - a description of foreseen difficulties, options, and plans to overcome the difficulties.
 - A brief description of the procedure, which could be theoretical, analytical, computational, or experimental.
 - A brief description of work completed by the student. Students are encouraged to base the structure of the thesis proposal on past outstanding examples of successful proposals as determined by the thesis advisor.

- The research proposal talk is presented to the committee and should highlight the most important parts of the research proposal text. Often, these presentations are ~30 minutes long, but students should confer with their advisors regarding expectations for this presentation.

3) PROCEDURE & COMMITTEE MAKEUP:

Students are responsible for assembling their own Thesis Committee, which will assess the student during the Qualifying Examination. Students should reach out directly to potential committee members to ask them to serve. Frequently, the members that serve on the committee for the Qualifying Examination are the same as those that serve on the Thesis Defense.

The committee consists of three or more core faculty members of the MSE Department and at least one faculty member from another department, or a suitable expert in the field of the candidate's thesis from outside the University (external member). All committee members must hold doctoral degrees, and at least three committee members must be listed as members of the graduate faculty of the University. Faculty members with joint appointments in the Department are considered internal members of a committee, as are emeritus faculty from the MSE department. Faculty members with courtesy appointments can be considered as either internal or external members of the committee, provided that the committee has at least two core MSE faculty members.

Students have the responsibility to:

- Personally contact each member of the committee asking if they are willing to serve. Students must find a date and hour for the research talk that is satisfactory to each member of the committee. The students should reserve a conference room for at least 2 hours. Be sure to allow yourself time to set up.
- Provide the written qualifier to each committee member at least ten days before the scheduled Qualifying Exam.
- On GSTS (see the TGS Forms tab for more information), students must:
- Ensure committee information is entered and up-to-date under the "Committee" tab in their GSTS profile.
- Update their Plan of Study information under the "Plan of Study" tab in their GSTS profile.
- Check to see if their TA milestone (see TA requirements V.F) is incomplete or complete (click "Show Profile" then "Milestones"). If it is incomplete but they believe it should be marked complete, contact the GPC with this information. Note - TA requirements need not be completed by this time, but students need to registered this information with TGS
- Complete the PhD Qualifying Exam form and the PhD Prospectus forms. The dates will be the same for both forms.
- At least two weeks before the qualifier, please complete the Qualifier Request Google form [here](#).

Please reach out to the GPC if you have questions about any of the tasks listed above.

4) SCHEDULING

Students are encouraged to take the Qualifying Examination before the end of their ninth quarter (including summers). For students matriculating in the Fall, this corresponds to the fall quarter of the third year. Part-time students must take the Qualifying Examination within one quarter after completing coursework.

Exceptions for extenuating circumstances can be made by petition to the DGS by email, with the permission of the student's advisor. However, TGS stipulates that any student who has not been admitted to candidacy by the end of the 12th quarter be placed on academic probation. TGS can also make exceptions in the case of an approved leave of absence or other accommodations.

5) OUTCOMES

One of three possible outcomes will result from the qualifying examination:

- **Pass:** The student is now recognized by the Graduate School as a candidate for the Ph.D. degree.
- **Conditional Pass:** The Qualifying Examination Committee has the right to pass a student with the requirement that certain additional conditions (such as English proficiency - see below) be satisfied within specified time limits. Once these conditions are met, the student will be recognized by TGS as a candidate for the Ph.D. degree.
- **Fail:** The student cannot continue work directly toward the Ph.D. degree. A student who fails the Qualifying Exam may consult with his/her advisor and the DGS to determine the best course of action following this result.

Students failing to pass the Qualifying Examination within the time limits outlined above are generally not eligible to receive financial aid from University sources (Research Assistantships, Fellowships, and Teaching Assistantships). With approval from the advisor and associate chair, exceptions can be made for students who have received a conditional pass.

F TEACHING ASSISTANT (TA) REQUIREMENTS

PhD students are required to serve as TAs during their time in their graduate program. This serves to support the teaching mission of the Department as well as provide students with valuable instructional and mentoring experience. The ADC (Pr. Kathleen Stair) assigns graduate students to assist in MSE classes or laboratory sessions. Assignments may vary in the number of hours per week and in tasks required (grading, office hours, assisting in lectures, etc.).

The minimum requirement is for students to serve a total of 200 hrs as TAs, and a quarter is assumed to be approximately 10 weeks long. TAs may serve as 5 hr/week graders, 10 hr/week TAs, or 20 hr/week TAs. Most students complete their TA responsibilities with two quarters of 10 hr/week commitments performed sometime after the first year of study.

Some TAs may be assigned to serve in a 20-hr/week TA role, a position for which the Department will provide financial support (i.e., stipend). 20 hr/week TA assignments are limited in number and assignment to this role is first requested by the student's advisor, and granted by the DC in consultation with the BA and ADC. Because 20 hr/week TA assignments are special, they may or may not serve to satisfy the minimum requirement of the program, at the discretion of the ADC, DC, and DGS.

Prospective TAs are strongly encouraged to attend the training sessions offered by the Searle Center for Advancing Learning and Teaching and to attend the Department's TA training sessions. Students who are particularly interested in teaching may consider enrolling in Searle's Teaching Certificate Program or other Searle teaching programs. Students are encouraged to serve more than the required minimum, particularly if considering an instructional career. TA roles beyond the minimum must be approved by the student's advisor.

Each quarter the ADC releases a list of courses in need of TA support. Students submit preferences to the ADC, who makes assignments based on the preferences and needs of students and instructors. Students will not necessarily assist in courses taught by their advisor. Because the workload necessarily varies between courses, the Department and cognizant faculty will make every effort to clearly establish the responsibilities associated with a given course at the time the assignments are being made. To assist in this effort, TAs are required to complete a TA Responsibility Form (available from Pr. Stair) together with the faculty teaching the course.

Students should be cognizant of this TA requirement as they approach the completion of their degree. While the Department does their best to accommodate TA requests, it is sometimes difficult to find TA assignments for students who leave this duty until the end of their time in the program. Students should contact Pr. Stair if they are within 4 quarters of graduation and have not yet served as TAs. This will facilitate placement and allow better situations for all.

At the end of the course, TAs receive CTECs (Course and Teacher Evaluation Council) - student evaluation and feedback on their teaching. Students should review these CTECs and save them for future reference.

The Department may accept alternate TA responsibilities in lieu of traditional service in a class. This has typically involved the development of tutorials or other instructional materials - particularly in the Department's Open Educational Resource efforts. These alternate arrangements must be approved by the DGS and ADC and students must demonstrate (i.e. record) that at least 100 hrs (equivalent to a 10-hr TA service) is spent on these alternate projects.

G REQUEST FOR MASTER'S IN PRIMARY PHD

PhD students have the option of completing a thesis-based MS degree by completing the requirements prior to completion of the PhD (see below). However, PhD students who have received stipend and tuition support are *not* eligible for the course-based MS degree. Nearly all PhD students are eligible.

PhD students wishing to receive an MS degree must fulfill the following requirements:

- Consult with their advisor about their plans to defend a Master's thesis and receive approval.
- Write a Master's thesis document in accordance with specifications laid out by the primary research advisor. The advisor will communicate their expectations for an acceptable thesis document, but this document can simply be a published paper or a draft of a paper to be submitted to a journal.
- The Master's thesis document should be submitted to the student's committee at least *two weeks* before the qualifying exam.
- Defend the MS thesis before a committee of at least three faculty members, with at least two being Materials Science faculty. This committee can be the same as the Qualifier Committee. The MS degree must be approved by the entire committee. The MS defense can be coincident with the Qualifying Examination, with (for example) the first part of the student presentation focused on past work done as part of the MS thesis, and the second portion focused on future work proposed for the PhD. The qualifying exam cannot be used retroactively as a MS thesis defense.
- Work with the GPC to make sure that the necessary forms to complete the MS degree are submitted to TGS.

H ANNUAL REVIEWS

The Graduate School requires programs to conduct annual reviews of all students in the program. Students are notified in writing of the outcome of the review, and a copy will be placed in your file. The preliminary exam serves in this capacity for the first year and the qualifying exam for the third year.

More information can be found on TGS Webpage.

I THE THESIS DEFENSE / FINAL EXAMINATION

Each PhD candidate must successfully pass a Final Examination based principally on work presented in the dissertation. A faculty committee, composed for the Qualifying Examination, conducts the examination; the same members normally serve on both committees, but this may not be the case for various reasons (change of thesis focus, retirements, etc.).

This examination involves a mandatory open and publicized oral presentation and discussion during the first hour followed by a closed examination with only the committee during the second hour. A conference room should be reserved for three hours.



Students should complete the following steps (also available here):

1. Contact committee members to set date and time well in advance (a month or more, preferably much more – faculty have busy schedules).
2. Enter information regarding committee members, date and title of thesis in GSTS PhD Final Defense at least three weeks before the exam.
3. Contact GPC (murphy.sharp@northwestern.edu) to reserve a conference room.
4. Submit the Proof of Publishing Document to GPC. Neither the Department or TGS have a minimum required number of publications. However, the advisor may set expectations for number and quality of publications needed to complete the PhD. Students should make sure to discuss these expectations with their advisors.
5. Receive the advisor's approval that the dissertation is fully proofread and ready to be presented to the committee for review.
6. The format of the dissertation must conform to standards established by TGS, available on their website. Present each examining committee member with a copy of the dissertation at least two weeks before the examination. The student should directly ask each committee member as to whether they prefer soft- or hard-copies of the dissertation. Hard copies can be printed and bound in the Department office.
7. Complete the Application for Degree in GSTS.
8. Complete the Request for Final Defense form on GSTS at least two weeks in advance so that a public notice of the presentation can be posted on the board outside the Department office.
9. Complete the Defense Request Google form.
10. The deadline for completing the final exam and submitting the dissertation to TGS varies each quarter. This timing affects participation in graduation ceremonies and the conferral of the degree. Consult the timetable on the Academic Calendar website for exact dates each year.
11. After final approval, submit your dissertation via ProQuest prior to the published due date for your graduation quarter.
12. Before final departure, return borrowed items (theses, library books, etc.), properly dispose of all research chemicals. Upon return of all keys and your key deposit will be returned. Also complete the Department Google checkout form.
13. Students should speak with their advisor about funding if they plan to continuing research after their defense date.

J ACADEMIC STANDING

The department aligns with the TGS with regards to policies of satisfactory academic progress, academic probation, academic integrity, and research integrity. Those policies are not reproduced here, but students should review and be aware of these important policies and procedures.

The department does maintain the additional expectation that students must achieve a 3.2 GPA in the core courses by the time of the Preliminary Evaluation. When concerns arise about academic performance in the Department's core courses, the student's progress will be presented to the full faculty during the Preliminary Examination review at the end of the first year.

SERVICE OPPORTUNITIES AND POLICIES

Graduate students engage in department outreach and service roles in various capacities. This includes inclusion in (e.g.) admissions, hiring, curriculum, and DEI committees. Student participation is solicited at various times throughout the year. Each committee defines protocols for student involvement. Selection for these roles may proceed through nomination and/or voting procedures managed by committees or centers themselves, or mediated by MSSA.

Listed below are the policies and procedures for involvement in Department service roles.

A ADMISSIONS

The recruiting of new graduate students is a cooperative endeavor between faculty, students, and staff, overseen by the Chair of the Graduate Admissions Committee. Current graduate students are involved in the recruiting of new students through (1) participation in pre-admissions recruiting of under-represented applicants (e.g. our GEM Fellowship Applicant info session), (2) making welcome phone-calls to just-admitted students, and (3) working with staff and the Admissions Chair to host the virtual and in-person visits.

The Admissions Committee also invites one or two graduate student representatives to join the first committee meeting. At this meeting, the committee reviews the admissions rubric, updates it if necessary, and discusses the application of the rubric to ensure an equitable process. The student representatives provide feedback and suggestions during the meeting, and are also asked to review the application instructions on-line to ensure that the language we use is welcoming and inclusive. Finally, the student representatives report back to the general student body when called upon.

B HIRING

The department hires faculty through two modalities: *open* searches that are advertised broadly and *opportunity* searches that are not disclosed to the MSE community. For open searches, we invite a select number of post-qualifying exam graduate students nominated by their research advisor (with approval of the time commitment and a record of demonstrated maturity and leadership) to participate in a range of activities as part of the department hiring committee which may include but are limited to the following:

- Serving as non-voting members of the hiring committee
- Reviewing and providing feedback on the faculty position description
- Assisting in establishing an equitable timetable for the search process
- Assist in recruiting diverse candidates
- Developing evaluation criteria and rubrics for evaluating candidates

- Assisting in the standardization of the Zoom interview process
- Observing Zoom interviews
- Providing rubric-based feedback on Zoom-interview candidates
- Reviewing finalists' cover letters and CVs (appropriately redacted)
- Reviewing the summary statement of the search outcome for distribution to the MSE community.

These select students also have opportunities to meet with candidates over lunch (without MSE faculty present) and provide written feedback based on their interactions and voluntary question and answer sessions. All graduate students can attend open seminar talks given by visiting faculty candidates and provide written feedback to the search committee chair.

C **GRADUATE CURRICULUM COMMITTEE (GCC)**

The Graduate Curriculum Committee is comprised of the DGS, ADGS, and the graduate core instructors. There are also 3 student representatives with voting privileges who are selected by their peers in a ranked voting procedure. Candidates can self-nominate or be nominated by their peers. All candidates supply a statement outlining their goals and qualifications that can be viewed by voters. The ADGS administers the election by online poll.

Student members responsibilities include 1. contributing ideas to future directions for curriculum development, 2. voting on proposed curricular changes and 3. reporting to constituencies.

D **DIVERSITY, EQUITY, AND INCLUSION COMMITTEE (DEIC)**

The Diversity, Equity, and inclusion Committee is comprised of a faculty chair (or co-chair), additional faculty representatives (1-3), a staff representative, a researchers' representative (post-doc or research faculty/staff), and four student representative (1 undergraduate, 1 master's student, and 2 PhD students). The mission of the DEIC is to work to 1. Diversify the department at all levels 2. Foster a culture that celebrates and supports all dimensions of diversity 3. Support inclusive pedagogy and effective mentoring practices 4. Improve transparency in department decision-making processes.

Student representatives can, but do not necessarily, turn over each year. When a member steps down, the chair solicits self-nominations and holds a vote.

Student members responsibilities include 1. contributing ideas to future directions for DEI action, 2. voting on proposed DEI actions and 3. reporting to constituencies.



FELLOWSHIP OPPORTUNITIES AND AWARDS

To be included before AY23-24.

GENERAL INFORMATION

A WORK OBLIGATIONS AND OUTSIDE COMPENSATION

Students are funded to work on the research project from which the stipend, supplement, and/or tuition are paid. Since all support monies are derived from government or industry contracts and grants, it is the students' responsibility to satisfactorily perform their assigned research tasks. Most contracts require formal progress reports on the research performed.

Students are not to hold additional part-time jobs or perform contract work, except where there are exceptional extenuating circumstances and the student has secured the consent of the advisor and department chair.

Students must inform the Business Administrator regarding any awards or grants. This is so that an account can be set up for proper disbursement of the funds. If the award includes salary support, the project-derived stipend will be adjusted so that total support does not exceed that of the Cabell awards (the highest level stipend support) for the current year. The support from the research grant or contract cannot be less than the minimum specified for Graduate Research Assistant Tuition Scholarships. Other award money should be used to support the student's educational expenses; e.g., conference travel, books, computer purchases, etc. Accounting assistance is available from the department office if spending must be documented.

B VACATION POLICY FOR GRADUATE STUDENTS

Students receiving financial aid through the University (Research Assistantships, Fellowships, Teaching Assistantships) are entitled to scheduled holidays. Please note that the breaks between academic quarters, such as at Winter Recess and Spring Break, are not vacation periods. Paid vacation or excused absences must be arranged in advance with the faculty advisor. A paid vacation of two weeks per year is considered normal for a student making satisfactory progress toward a degree. If approval from the advisor is not obtained before taking any time off, loss of financial support may result. Students electing not to take vacation are not entitled to any extra compensation.

C STUDENT SUPPORT AND CONFLICT RESOLUTION

The Department understands that students may need support in case of personal struggles or interpersonal conflict. There are numerous routes of mediation and conflict resolution. Often, the first step will be to talk to someone within the department. Designated faculty and staff that can help or provide referrals for Department-specific issues (e.g., academic struggles, issues with research progress, student-advisor disagreements) are listed below, and include both tenure and non-tenure eligible faculty as well as staff:

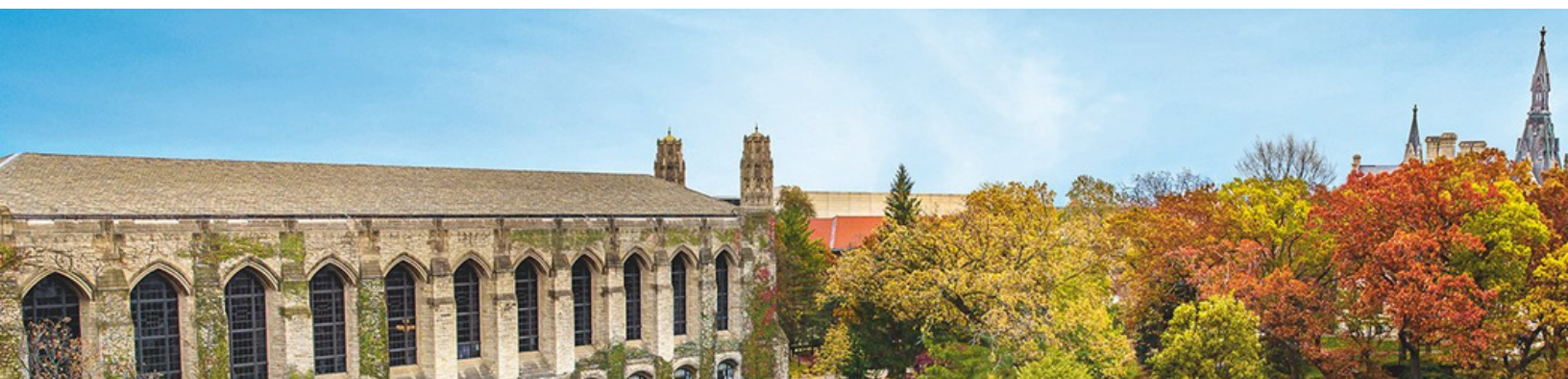
- Mark Hersam, Department Chair (Tenure-line)
- Kathleen Stair, Assistant Department Chair (Non-tenure Eligible)
- Ken Shull, Director of Graduate Studies (Tenure-line)
- Jonathan Emery, Assistant Director of Graduate Studies (Non-tenure Eligible)
- Marylin Hall, Business Administrator (Staff)

Kathleen Stair and Jonathan Emery also serve as confidential, non-research points of contact. Students may also choose to engage with a number of other resources, depending on the nature of the issue. These include:

- TGS
- CAPS (Counseling and Psychological Services)
- CARE (Center for Awareness, Response, and Education)
- AccessibleNU
- International Office
- Ombuds Office
- Office of Equity
- Dean of Students Office

In addition, students who are struggling with mental health issues or are in crises may approach one of the Department's Mental Health Allies, listed below. These individuals are not trained to counsel students, but are educated as concerned listeners who can support and guide students towards appropriate support services.

- Lincoln Lauhon (Tenure-line)
- Derk Joester (Tenure-line)
- Steve Carr (Emeritus)
- Kathleen Stair (Non-tenure Eligible)
- Jonathan Emery (Non-tenure Eligible)
- Murphy Sharp (Staff)



D LEAVE OF ABSENCE AND PARENTAL ACCOMODATION

Students may request a temporary leave of absence for personal, medical, family, or professional reasons. These temporary leaves can be between 1 quarter and 1 year. TGS leave of absence policies are listed here. Students must confer with their advisor about leave and contact either the aDGS or the DGS to discuss the effects their leave of absence will have on their progress in the program.

TGS also provides flexible parental accommodation policies, listed here. Again, students should confer with their advisor about their leave. It is important to note that these accommodations do provide for extension of TGS milestone deadlines.

E CONSUMPTION OF CONTROLLED SUBSTANCES

Consumption of alcoholic beverages in Cook Hall (except at official departmental functions and other recognized events such as post-defense celebrations) is incompatible with sound safety and work-place practices and is therefore unacceptable. We expect our students to abide by Illinois laws concerning all controlled substances. Use of cannabis is prohibited by Federal law and is not allowed on campus, including for medical purposes.

F CHANGE OF ADDRESS

The Department Office must be notified of any change of address. Students may change address through the myHR website and in Caesar. Be sure to change your address in both as the two systems are separate.

The US Citizenship & Immigration Services (USCIS) requires every international student and scholar to report a change of address within 10 days of their move. It is critical for F-1 and J-1 students to update their address in Caesar immediately upon their relocation. For J-1 and H-1 scholars they will need to inform the international office as soon as possible. All F-1 students, J-1 students and scholars, and H-1B scholars will also need to complete a change of address form (AR-11) available on the USCIS website. Failure to do so will be a violation of their F1 or J1 status and could result in severe consequences for them and their dependent(s)!

G INTERNATIONAL STUDENTS

The Graduate School and the Office of International Student Scholars provide a myriad of resources and support for international students (see here and here, respectively). International student issues can be addressed directly to the GPC, who can refer you to additional resources. The department also maintains an international student listserv (MSE_INTERNATIONAL@listserv.it.northwestern.edu) for international student-specific communications. To be added to this listserv, please contact the DGS.

H **SAFETY**

Although the University personnel strive to maintain a safe working environment, students must continually be vigilant regarding safe laboratory practice and equipment. No amount of information and training can replace common sense on the part of the experimenter. If you are uncertain about the safety of a procedure, contact your faculty advisor, the aDC Kathleen Stair, or the Office of Research Safety, (1-5581).

The department has taken a number of steps to help provide a safe environment for your research. During orientation, students are provided with a copy of the Cook Hall Emergency Evacuation Plan, which describes the building's alarm system and evacuation procedures. You must read this material carefully and retain it for future reference. Safety glasses and appropriate clothing must be worn at all times when carrying out experiments in the laboratory or the shop. Safety glasses are available through the Laboratory Stockroom KG48 or your advisor. Safety glasses and lab coats are available, free of charge, through the Office of Research Safety. Handbooks of dangerous materials and lists of biohazardous/carcinogenic chemicals are available from Research Safety in Tech NG71, and from your advisor.

I **KEYS AND OFFICE/RESEARCH SPACE**

Graduate students will receive keys/Wildcard access for Cook Hall as well as their laboratories and offices. In order to get your keys, you must complete a key request form and return it to Mimi Givens (matsci@northwestern.edu). Please copy your PI so they can provide approval for your access request via email.

Students may be issued keys to laboratories (from MSE office) and MRC central facilities (from the MRC Office in the Jacobs Center, room 5246) upon approval of the faculty member responsible for that laboratory. Keys must not be passed on to anyone else.

Students are not to enter the office of a faculty member at any time when the faculty member is not present, and students may not be in the Department Office outside normal working hours, generally 8:30 AM to 5:00 PM.

A desk for personal use will be assigned to each graduate student once the permanent advisor has been assigned. The assignment of both desk and research space are handled by your advisor - please see them concerning any move you wish to make. No changes should be made without your advisor's authorization. The Department office tracks usage of research space within the department, so students are required to inform the Department Office of any changes in office assignment.

J **COMPUTER/DESIGN LABS**

Computers are available for individual use in the Undergraduate Teaching Lab in Cook 2022 and the Bodeen-Lindberg Materials Design Studio in Tech C115. These computer resources are not meant to substitute for equipment provided by the research advisor. Access can be limited: classes and MSE undergraduates are given first and second priority use of the machines. Both rooms are unavailable during lab or class periods. Access to the Bodeen room (Tech C115) is by access code on a numeric pad. This code will allow access at all hours. Please do not share the access code with non-MSE individuals.

Access to the Teaching Laboratory (for office hours, etc.) is granted by request by contacting matsci@northwestern.edu. Other individuals who require access may submit their request to Dr. Kathleen Stair in Cook 2022. If there are problems with the computer resources, please reach out to Pr. Stair.

K **SOFTWARE**

The University provides a myriad of free (and paid) software for students, including research tools, word processing, graphical editing, operating systems, and security/backup software. Please visit this webpage to find these resources. You may also be provided access to software for your courses (*COMSOL, Minitab, ThermoCalc, Matlab, Ansys/ANSYS Granta Edupack*). You must comply with the license policies of the software you use! Often, software must be uninstalled by the end of a course. Contact your instructor if you have questions about this. Further, the department provides licenses for *Adobe, Overleaf* and *Origin* for those interested. Students should contact Boe Welter for this license information.

Pirated software is illegal, and the University policy is that no member of the Northwestern community may engage in activity that violates federal, state, or local laws. See [here](#) for more.

L **TELEPHONE AND MAIL SERVICE**

Laboratories and offices possess telephones that can be used for University business. Personal calls should be made on cell phones. Each laboratory is provided with a telephone for calls connected with University business. Collect calls are not acceptable by Northwestern regulations.

Mail is delivered once a day to the Department Office, usually around lunchtime. The student mailboxes are in the main office hallway. Use of the University mailing address for personal mail is not allowed by University regulations. The US Mail basket in the office is for university business only. WE suggest that students direct journals and other mail to their home address if possible, as routing these through University mail and the department office can delay receipt.

M PRINTING AND COPYING RESOURCES

Printing and copying resources machines for research related copying are available in the Department Office, and in the south corridor of the third floor of Cook Hall. Printing instructions can be found [here](#). Printer registration requests should be sent to matsci@northwestern.edu. A user code, which can be obtained from the department, is required. Personal copying should be kept to a minimum on the department machines and research groups are responsible for ordering paper for lab and office printers through the department Accounting Specialist.

Copy cards for use in copying machines at the library are available through the Wildcard Office or at Seeley Mudd Library. Photocopying services are also located at Norris Center and 2020 Ridge for large orders. A fax machine is located in the Department Office. International faxes require an access code.

N AUTOMOBILE REGULATIONS

The University Police Parking Division enforces parking regulations in the University parking lots. Students requiring a sticker that will enable them to park in the various University parking lots should obtain an application from the Parking Office located at 1841 Sheridan Road, Evanston (open Monday through Friday, 8:00 A.M. to 4:00 P.M.). The commuter sticker is subject to various requirements. Additional information can be found [here](#). The University also encourages bicycles be registered.

The Office of Research also supports a carpool to facilitate transportation to Argonne National Laboratory. The service is free. More information is [here](#).

O PURCHASING, SERVICES, FACILITIES, AND SUPPLIES

The Department supports research group purchasing of items and supplies through Accounting Specialist Michele McManmon (MSEpurchasing@northwestern.edu). Michele manages purchasing for all research groups. In order to make any purchase, students must obtain a chart string from their advisor or funding source and provide it to the Accounting Specialist at the time of ordering. Additional information is available [here](#).

Dozens of core research facilities serve to support the University's research mission. A list of these facilities is available [here](#). Most facilities have usage fees. Students must have the permission of their advisors before charging any time on equipment or obtaining supplies from any storerooms.

Booking time at the shared research facilities is usually done through the NUCore website. To get started and create an account, email nucore@northwestern.edu with the chart string provided by your advisor.

Two facilities of note include:

1. Research Shop (NG-40): Students can fabricate their own equipment or devices (with proper training) or work with the shop foreman.
2. Laboratory Supply Stockroom (KG- 48): This stockroom provides general laboratory supplies such as chemicals, pipettes, gloves, masks, etc.

P TRAVEL REIMBURSEMENT

Students on supported travel (e.g., conferences, research trips, etc.) are eligible for reimbursement for some expenses incurred during travel. Please contact MSEReimbursements@northwestern.edu for reimbursement assistance. It is recommended that you check in with both MSE staff prior to travel to ensure that your expenses are allowable and that you obtain all necessary documentation. Please also obtain approval from your PI prior to travel or purchases that you wish to have reimbursed. Full reimbursement instructions and frequently used forms can be found on the department website.

The Department can also support pre-pay registration fees, flights, and hotels so that students do not need to provide personal funds up-front. Please contact matsci@northwestern.edu for help with this. More details about Northwestern-affiliated travel agencies, per diem allowances, and other relevant University policies can be found on Northwestern's Travel website.

Q U-PASS

All full-time students can opt-in to receive a U-Pass as part of the graduate student activity fee. This pass allows unlimited rides on the CTA. Information about use of the U-Pass information, distribution dates, and other transportation information are available [here](#).

R BIKE RIDING, SKATEBOARDING, AND SCOOTERS

For obvious safety reasons, bike riding, skateboarding, and scooting are prohibited in the corridors of Tech and Cook. In addition, bikes may not be stored in labs or in public spaces in the building.

