

School of Materials Science and Engineering  
Georgia Institute of Technology

# **Graduate Student Handbook**

**2023-24**

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## A. INTRODUCTION

The purpose of this Handbook is to acquaint all graduate students entering the School of Materials Science and Engineering with the relevant requirements and procedures. The general rules and regulations governing all graduate students at Georgia Tech (GT) are contained in the Georgia Tech General Catalog. **All MSE graduate students must carefully read and become familiar with both the Georgia Tech Catalog and the MSE Graduate Handbook.** The MSE handbook should be viewed as a supplement to the material in the GT Catalog. Although some portions of the material in the GT Catalog will be repeated here, this handbook is not a substitute for the GT Catalog (<http://www.catalog.gatech.edu/>) or the GT Graduate Education Grad Guide: (<https://grad.gatech.edu/new-students#grad-guide>).

Graduate students should consult their advisors or the MSE Graduate Office for further information regarding curricula, research areas, and other program-related matters. The MSE Graduate Office should also be consulted regarding financial assistance, assistantships, fellowships, tuition waivers, etc. The necessary forms for handling matters such as requesting to be admitted to Ph.D. candidacy, doctoral minor forms, certificates of thesis approval, enrollment waivers, etc., can be obtained online at <http://www.grad.gatech.edu/theses-dissertations-forms>.

Other general sources of information for MSE graduate students include the following:

- MSE School Web Site: <http://www.mse.gatech.edu/>
- Information on various multidisciplinary activities and programs:  
<http://www.catalog.gatech.edu/search/?search=certificate+programs+>
- Graduate Student Handbook (covering all GT students):  
<http://www.grad.gatech.edu/student-handbook>
- Graduate Student Government information: <http://www.sga.gatech.edu/>
- Graduate Thesis/Dissertation Guidelines & Procedures Manual:  
<https://grad.gatech.edu/sites/default/files/documents/thesisDissertationManual.pdf>
- OSCAR, listing all classes to be offered in the following semesters, also containing registration instructions (<https://oscar.gatech.edu/>)
- Information specific for international students available in the Office of International Education (<http://www.oie.gatech.edu/>)

For more information regarding the MSE graduate program, please contact the Academic Advising Manager or the Associate Chair for Graduate Program:

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## B. GRADUATE PROGRAM OVERVIEW

The MSE graduate program is broadly focused on materials research primarily at the Ph.D. level. Admissions are also granted to students wishing to pursue M.S. degrees. The MSE School has roots dating back over a hundred years in textile, ceramics, and metallurgical engineering. The graduate program is fairly young and has rapidly established itself as a leading research and education program in Materials Science and Engineering. MSE graduates are hired by the leading companies, government laboratories, as well as academic institutions, both nationally and internationally. The MSE School has 33.65 full-time or joint faculty, with an additional almost 30 courtesy or adjunct appointments associated with the School. There are also approximately 200 students in the MSE graduate program. Students with a BS or MS degree in Polymer Science and Engineering, Chemical Engineering, Materials Science and Engineering, Ceramic Engineering, Metallurgical Engineering, Mechanical Engineering, Textile Engineering, Chemistry, Biomedical Engineering, Biology, Physics, or in a related field of science and engineering can be admitted in the Ph.D. or M.S. programs. Ph.D. admissions are generally granted with tuition waivers and financial assistance in the form of graduate research assistantships. Most of MS students are self-funded.

The MSE faculty have diverse backgrounds and expertise in various areas of Materials Science and Engineering constituting three typical working groups: (a) Functional Materials, (b) Soft and Biomaterials, (c) Structural Materials, and spanning all forms and functions of materials. MSE students, research scientists, and faculty are currently engaged in research in the following general areas:

- *Polymers and Macromolecules*
- *Biologically Enabled and Bioinspired Materials*
- *Nanomaterials and Nanoengineered Devices*
- *Computational Design, Modeling, and Simulations*
- *Functional Electronic and Optical Materials*
- *Fibers and Composites*
- *Energy Storage and Harvesting*
- *Advanced Structural Materials*
- *Multi-scale Structural & Chemical Characterization*
- *Advanced Manufacturing*

## C. Ph.D. DEGREE PROGRAMS

The School of Materials Science and Engineering offers a program of study and research leading to the Doctor of Philosophy degree. The Ph.D. degree recognizes demonstrated proficiency and high achievement in research. Beyond mandatory core classes, the students in the Ph.D. program pursue an individually structured study plan culminating in a dissertation that makes an original and substantial contribution to the fundamental knowledge in the field of study.

The graduate student will work with the Faculty Advisor to develop a Program of Study consistent with the student's educational objectives and the School's mission and submit it to the MSE Graduate Office by the end of the first semester in residence for review and approval.

### C.1. REQUIREMENTS FOR THE Ph.D. CANDIDACY

When starting the Ph.D. program, students are considered to be 'probational' Ph.D. students until they successfully complete the qualifying requirements, at which point, they become 'candidate' Ph.D. students. The requirements for the Ph. D. candidacy are outlined below:

#### C.1.1. Placement Mechanism

Based on student records and the chosen area of research, the 'major' course work requirements for an incoming graduate student will be chosen during their first semester. The majority of incoming students will be expected to follow the MSE course work and complete the Ph.D. candidacy requirements in 1 academic year. In some cases, such as students entering the program without a sufficient subject background, pre-requisite classes will be recommended. In this latter case, the student may be allowed to work on a two-year cycle to complete the Ph.D. candidacy requirements.

#### C.1.2. Course Work

All graduate students starting their Ph.D. program are expected to take the core courses in the 1<sup>st</sup> year. Students must pass the three core courses (i.e., MSE 6411, MSE 6402, and MSE 6768). (If a student gets an "F" grade in a core course then they must retake that course and get a passing grade).

The total number of hours required for a Ph.D. depends on whether the student enters with a BS or suitable MS. Three credit hours toward a graduate degree may be taken for elective courses under the pass/fail system, only if the major school has approved the course prior to taking it. The rules for withdrawal from letter grade courses apply to pass/fail courses as well. Institute rules for the pass/fail system can be found at: <http://www.catalog.gatech.edu/rules/10/>

Failure to comply with all of these standards will terminate the students' degree candidacy.

It is essential for each full-time PhD student to sign up for a total of 21 credit hours (full time GRA) for Fall and Spring semesters and 16 credit hours in the Summer semester.

Required course work is described below.

<b>Core Courses</b>	<b>Hours</b>	<b>Description</b>
MSE 6411 (Fall)	3-0-3	THERMODYNAMICS
MSE 6402 (Spring)	3-0-3	STRUCTURE & DEFECTS
MSE 6768 (Spring)	3-0-3	POLYMER STRUCTURE, PHYSICAL PROPERTIES, AND CHARACTERIZATION

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<b>Other Required Courses</b>	<b>Hours</b>	<b>Description</b>
MSE 8200, Adv. Presentation Skills**	1-0-1	Technical Communications
Seminar (8801S)	1-0-1 (P/F)	Every Fall and Spring Semester
RCR (Online CITI and in-person PHIL6000 class) <a href="http://rcr.gatech.edu/">http://rcr.gatech.edu/</a>		
Safety Seminar and MSE Safety Exam		

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\*\* Minimum requirement – can be substituted for an approved technical communication alternative. Alternative advanced technical communication courses include MSE 6754, Engineering Communication. Only 1 hour of the alternative course credit will be allowed to satisfy the total MSE hours required.

### **Ph.D. Requirements**

- Students must pass the three core courses. (If a student gets a 'F' grade in a core course then they must retake that course and get a passing grade)
- Twelve hours from approved MSE curriculum (12 hours), if direct from B.S.
- Six hours from approved MSE curriculum (6.0 hours), if direct from M.S.
- Nine hours in an approved minor (9 hours)
- Pass the qualifying exam
- Complete all course work with a minimum GPA of 3.0
- Write, present, and defend a Ph.D. dissertation
- Technical Communications (1.0 hour)

### ***Additional Ph.D. Requirements***

- 31 credit hours are required for Ph.D. if direct from BS
- 25 course credit hours are required for Ph.D. if direct from MS

**\*MSE Approved Elective Courses (*not limited to*):**

MSE 6010 Functional Materials  
MSE 6105 Diffraction Studies  
MSE 6110 Transmission Electron Microscopy  
MSE 6120 Quantitative Characterization of Microstructures  
MSE 6130 Surface Characterization  
MSE 6334: Materials for Energy Storage and Conversion  
MSE 6335: Fundamentals of Soft Nanomaterials and Nanostructu...  
MSE 6402 Structure and Defects (*Core Course*)  
MSE 6403 Kinetics of Phase Transformations  
MSE 6404 Scattering Theory  
MSE 6405 Advanced Nanomaterials  
MSE 6406 Corrosion of Materials  
MSE 6407 Biological Properties  
MSE 6408: Quantum Mechanics for Materials Science and Engine...  
MSE 6409: Fundamentals of Corrosion  
MSE 6411 Thermodynamics (*Core Course*)  
MSE 6510 Polymers for Electronic and Photonic Applications  
MSE 6600 Advanced Polymer Processing  
MSE 6602 Tensor Anal and Math Tech  
MSE 6603 Natural Polymers  
MSE 6750 Preparation & Reactions of Polymers  
MSE 6751 Physical Chemistry of Polymers in Solutions  
MSE 6752 Polymer Characterization  
MSE 6755 Theoretical Chemistry of Polymers or Statistical Mechanics  
MSE 6768 Polymer Structure, Physical Properties & Characterization  
(*Core Course*)  
MSE 6774 (MSE/BMED): Biomaterials: Structure and Function  
MSE 6776 Integrated Low-Cost Microelectronics System Packaging  
MSE 6777 Advanced Biomaterials  
MSE 6795 Mathematical, Statistical, and Computational Techniques in  
Materials Science  
MSE 6796 Structure-Property Relationships in Materials  
MSE 7140 Impedance and Dielectric Spectroscopy  
MSE 7210 Dislocation and Deformation Mechanics  
MSE 7420 Solidification Processing  
MSE 7771 Mechanics of Polymer Solids and Fluids  
MSE 7772 Fundamentals of Fracture Mechanics  
MSE 7774 Fatigue of Materials and Structures

\* The majority of courses must be at 6000 level or above, but up to 3 hrs. credit at 4000 level can be used. PhD students, with approval of MSE graduate office, can take the elective courses offered by other schools at Georgia Tech.



### C.1.3. Technical Communications

All graduate students in MSE must complete the 1 credit hour course, MSE 8200 *Adv Presentation Skills*. It is highly recommended that this course be taken within the initial phase of the degree, i.e., before the Proposal Defense. This requirement can also be satisfied by MSE 6754, Engineering Communication (3 credit hours). Also, with approval from the MSE Graduate office before the course is taken, any advanced technical communication course (focusing on technical presentation) offered by CETL can satisfy this 1-hour requirement. **Note that only 1 hour of alternative course credit will be allowed to satisfy the total MSE hours required.**

### C.1.4. Minor Course Work

In addition to an adequate knowledge of the major field of intended research, the student must demonstrate mastery of another smaller body of knowledge—the minor field—preferably outside the student's school. The minor's purpose is to encourage a wider interest on the part of the student and can include topics that will help them in their research or allow them to explore and prepare for their future careers. (<http://www.catalog.gatech.edu/academics/graduate/doctoral-degree-info/#minor-field-of-study>).

Currently for MSE PhD students, approved minor consists of at least **nine** semester hours of work in related courses, selected by the student in consultation with their research advisor and MSE graduate office, and approved by the Office of Graduate Education (on behalf of the Vice Provost for Graduate Education and Faculty Development). These courses should be at the 6000 level or above, but the use of certain 4000 level courses may also be approved. The student must receive a letter grade of C or higher for a course to count towards the doctoral minor. Courses that are taken as pass/fail are not eligible to count toward the doctoral minor. Although, the student need not complete the minor as a prerequisite for admission to candidacy, it must be completed and approved to be cleared for graduation. It is normal practice to decide which courses to take for a minor after passing the qualifying exams, although any minor course may be taken to help with the research work.

On completing all the minor courses, it is necessary to complete, sign and submit the request for Doctoral Minor form to the MSE Graduate Office: <https://grad.gatech.edu/theses-dissertations-forms>

### C.1.5. MSE Qualifying for Candidacy Requirements

The School qualification to candidacy is in 2 parts.

(1) *Core Courses* – The first requirement is to take the three core courses. Students must pass the three core courses (6411, 6402, and 6768). If a student gets an “F” grade in a core course, they must retake that course and get a passing grade.

(2) *Qualifier exam* – The qualifying exam is offered twice a year, one in January, and one in June. All full-time Ph.D. students enrolled in the Fall semester without course deficiency must take the Qualifier Exam in June. Students will be provided with research papers supplied by faculty (articles from published scientific journals). A written exam will be taken by the students 4 weeks after receiving papers. Students will have to answer 6 out of 18 questions, each based on research papers (one question from each paper). The written exam will last 4 hours and will test the ability to read, understand and critically analyze the pre-supplied research papers. It will require knowledge of the fundamentals such as those covered in the undergraduate MSE courses, in the PhD core courses, and related science discussed in the papers. Students are not allowed to discuss research papers with their supervisors but are encouraged to discuss them with their colleagues.

To pass the qualifier exam, students are required to receive a passing grade in minimum of 4 questions out of the maximum of 6 questions attempted by the student. Students who fail this Qualifier Exam will be offered a repeat examination scheduled in the following. This exam will cover a new set of supplied literature. With the recommendation of student’s thesis advisor, students who start their PhD program in fall semester can request

to take their 1<sup>st</sup> qualifier exam in January of their 2<sup>nd</sup> year. In that case, the 2<sup>nd</sup> qualifier exam for those students will be in the following June. In total, only 2 chances will be allowed to pass the Qualifier Exam. (See Dismissal Policy, Section J).

#### **C.1.6. Students Entering the Ph.D. Program Directly with a BS**

Students entering the Ph.D. program holding a BS as their highest degree must complete additional MSE or MSE related course(s) over the lifetime of their Ph.D. compared to the standard requirement for students entering with a MS. A total of 31 credit hours (including 9 credit hours in the minor subject) are required if entering the program directly with a BS (compared to 25 minimum from a MS).

#### **C.1.7. MSE School Seminars**

Ph.D. students must sign up for the MSE graduate seminar series (MSE 8801S) every Fall/Spring semester they are in residence as a graduate student. An exemption will be granted with the permission from the seminar organizer if the student will be away from Georgia Tech for extended periods during the semester for academic study, or due to unavoidable course conflicts. A student must apply for an exemption each semester when such circumstances arise. Students in their final semester and writing their thesis are also exempt and are not required to register for this course.

The seminars are held weekly and run through the Fall and Spring semesters and presented by experts in their field who present their work to the School. This is a 1 credit hour course and is given on a Pass/Fail (S/U) basis. A register of attendance will be taken at each seminar, and students must attend at least 50% of the seminars to obtain an 'S'. The seminar credit will not count towards the total hours needed for your degree. Students are encouraged to meet with the seminar speaker during that individual's visit.

#### **C.1.8. TA Requirements Policy**

Teaching assignments (TA) are considered to be part of the graduate educational process; consequently, all PhD students are required to serve as TAs for 5 semesters. For their TA assignment, students are expected to work (on average) ~5 hours per week with a total of a maximum of 75 hours per semester irrespective of the course type. Time and duties will be recorded weekly by the student via MSE Fusion. The MSE Teaching Practicum course will count as one semester worth of TA duties. The PhD Students who are in their 1<sup>st</sup> semester or their last semester (graduating semester) are not expected to do TA duties. A student is also not expected to register for TA duties during their off-campus internship. Once a student has already fulfilled TA duties for 5 semesters, they will not be required to register for TA duties.

About a month before the semester starts, the MSE Graduate Office will ask the faculty and the graduate students about their TA preferences and try to accommodate these preferences as much as possible. However, if the student preferences do not match the TA need, then the student could be asked to TA for another course. These assignments will be (based on the student's academic background. [Before their 1<sup>st</sup> TA assignment, students should attend a CETL TA-Training course. Contact the MSE graduate office to register for this course.](#)

Students should contact the course instructor/faculty before the semester starts to understand their role/responsibilities as a TA for that particular course. Students login the TA system to report their time and TA duties for the course. The instructor of the course will evaluate the TA's performance and the TA will evaluate the instructor's performance at the end of each semester by completing an evaluation form. If a student is signed up for TA duties but does not fulfill them (as evaluated by the instructor) the student will not be credited with the TA-semester. All TA duties and the number of TA-semesters are tracked by the MSE Graduate Office. Students must also register for 1 credit hour MSE 8997 under the instructor which they are assisting. This is an

audited “course” and does not count towards the total degree hours. It is a way for the student to track their TA semesters and it does show that you participate on their transcript. The MSE Graduate Office will issue permits to the appropriate MSE 8997 to the students once their assignment is finalized.

### C.1.9. Dissertation Proposal

The dissertation proposal defense must be held within 12 months after the student has passed the Ph.D. Qualifying Exam and completed all course requirements. However, it is fine if minor courses have not been completed. The dissertation proposal must give promise of being a genuine addition to the fundamental knowledge in the field or a new and better interpretation of facts already known. The proposal should include the following:

- Executive summary clearly identifying the topic and the need of the research
- A critical analysis of the related literature including current state of the art
- Description of the overall objectives of the proposed research
- Discussion of the theoretical, fundamental and/or experimental approaches to be used to achieve the objectives
- Preliminary results and discussion if available
- Detailed project work plan/timeline for completion e.g., Gantt chart

The recommended length of this proposal document should **not exceed 20 pages** of text (assuming a minimum 11 pt. font, single line spacing, and 2.5 cm margins) i.e., an approximate maximum of 12000 words. Tables, figures and references would not be counted in this page/word limit. After an editorial review by the advisor, the proposal should be distributed to the other committee members at least 2 weeks before the date of the oral presentation to the whole Thesis Advisory Committee. **Written notice of this oral presentation clearly stating topic, time, date and place MUST be given to the School populace at least two weeks before the presentation.**

**The defense will consist of an oral presentation (~ 30 min) by the student**, followed by a question-and-answer session. The subject matter of the oral defense will be based on, but is not limited to, the research proposal. The proposal defense will be evaluated by the committee, both on the written document and oral presentation using the ‘Proposal & Defense Committee Assessment Form’ – see Section M. This form is also available from the MSE website: [http://www.mse.gatech.edu/graduate/grad\\_current](http://www.mse.gatech.edu/graduate/grad_current) the ‘resources and forms’ menu. It is the responsibility of the student to provide the committee members with these feedback forms at the beginning of the oral presentation. The forms should be returned to the MSE Graduate Office after the proposal defense. The Graduate Office/thesis advisor will provide feedback from the evaluations to the student after the information is collated.

After the successful defense of the proposal, a completed Request for Admission to Ph.D. Candidacy form approved by the Dissertation Committee must be submitted to the MSE Graduate Office. This electronic form and the DocuSign Tips are available on the GT Office of Graduate Education website: <http://www.grad.gatech.edu/thesis/forms.php>.

After completing all course requirements, achieving a satisfactory scholastic record (at least 3.0 GPA), passing the Ph.D. Comprehensive Exam, defending the dissertation proposal, and receiving approval of the dissertation topic, the GT Office of Graduate Education will formally admit the student to candidacy for the Ph.D. degree.

### C.1.10. Summary of MSE Ph.D. Requirements

Requirements specific to MSE are given below, additionally Institute requirements must be complied with:

	With BS	With MS
Total required 'core' course credit hours	9	9
*MSE/MSE-approved <i>elective courses</i>	12	6
Minimum Communications (MSE 8200 seminar) §	1	1
Total <i>minor</i> subject credit hours	9	9
Total minimum credit hours	<b>31</b>	<b>25</b>

#### *Additional Requirements*

Pass MSE Core Courses	Yes
Pass Qualifying Exam	Yes
Register for MSE Seminars (MSE 8801S as S/U)	Yes
RCR (Online CITI and in-person PHIL6000 class)	Yes
Safety Training	Yes

\* The majority of courses must be at 6000 level or above, but up to 3 hours credit at 4000 level can be used.

§ This minimum 1-hour course can be substituted for an approved alternative; however only 1 hour will be counted towards minimum degree requirement (Section C.1.3)

## C.2. DISSERTATION ADVISOR AND DISSERTATION COMMITTEE

**Ph.D. dissertation advisor must be selected by the end of the sixth week during the first semester in residence.** Each new student is recommended to discuss thesis research interests with several members of the faculty in the School. **Failure to meet this deadline may result in suspension of financial aid.** The student, in consultation with the advisor, will recommend to the MSE Graduate Office a Dissertation Committee. The Dissertation Committee will consist of the dissertation advisor (committee chair) and at least four other members with knowledge of the research area. At least three committee members must be members of the School of Materials Science and Engineering faculty, and at least one committee member must be a member of the faculty of another academic unit at Georgia Tech. The majority of members should also be program faculty (Materials Science and Engineering). The composition of the Dissertation Committee must meet all the requirements for **both** the Ph.D. Thesis Advisory Committee and the Final Doctoral Examination Committee, as stated in Georgia Tech's Policy on the Advisement of Graduate Student Research and the Appointment of Thesis Advisory Committees. The Dissertation Committee must be approved by the School Associate Chair for MSE Graduate Programs and the GT Office of Graduate Education. The dissertation committee assists the student in planning an appropriate program of study, approves the research topic, and is charged with approving the dissertation when the research is completed.

There are two committees that function to advise, approve, and conduct the final doctoral oral examination of the thesis and the student's knowledge of the field in which it lies.

The first committee is called the Thesis Advisory Committee or the Thesis Reading Committee and consists of at least three people, one of whom is the Thesis Advisor. This committee approves the research topic, provides advice and guidance during the research, and is charged with approving the thesis when the research is completed and presented as the doctoral thesis. When the Thesis Advisory Committee considers the thesis to be satisfactory, a recommendation is made to the Vice Provost for Graduate and Postdoctoral Education for the

appointment of the second committee, which is called the Final Doctoral Examination Committee, and it consists of at least five individuals.

The Thesis Advisory Committee consists of at least three members satisfying the following: (1) the thesis advisor shall be a member of the Graduate Thesis Faculty (defined below). If the thesis advisor is an Adjunct Faculty or part-time faculty member, then there must be a co-advisor who is a full-time member of the Graduate Thesis Faculty. (2) the majority of committee members shall be members of the Graduate Thesis Faculty. The Committee is approved by the Graduate Curriculum Committee or its equivalent in the academic program, recommended by the School Chair or the faculty director of Graduate Education in the program, and appointed by the Vice Provost for Graduate and Postdoctoral Education.

The Final Doctoral Examination Committee consists of at least five people including at least three members of the Graduate Thesis Faculty. This committee always contains the Thesis Advisory Committee members and others as appropriate, who are recommended by the school or college to the Vice Provost for Graduate and Postdoctoral Education for approval. The thesis advisor will serve as the chair of the Final Doctoral Examination Committee. At least one member of the Final Doctoral Examination Committee must be external to the unit in which the student is enrolled. A committee member is eligible to be the "external" member if they have a terminal degree and either 1) are a faculty member from a unit that is distinct from the unit in which the student is enrolled, or 2) are not employed by Georgia Tech and are active in research related to the topic of the dissertation.

It is recognized that some Schools and Colleges may wish to appoint a Thesis Advisory Committee that consists of five or more persons, and to recommend this committee to serve as the Final Doctoral Examination Committee. Where the constraints outlined above are met for both committees, this is permissible.

(<https://catalog.gatech.edu/academics/graduate/thesis-and-dissertation-policy/>)

\* - "adjunct" does not indicate formal appointment, but rather appointment as indicated in this policy statement.

### C.3. DISSERTATION RESEARCH GRADING AND REQUIREMENTS

All thesis hours are graded on a Pass/Fail basis (S or U). If the progress on the dissertation research of a student is considered unsatisfactory by his/her dissertation advisor, the student will receive a grade of "U" for the term. This grade will appear on the student's transcript and be permanent. **Two "U" grades for dissertation research are potentially the cause for termination of financial aid, stipends and student being dropped from the program. Two "U" grades would also ultimately jeopardize the visa status of international students.** (*See 'Dismissal Policy', Section J*)

All Ph.D. students must register for MSE 9000 at the time of beginning their research and continue to do so each semester until the dissertation is completed. The hours of research for which a student registers each semester must be consistent with a realistic appraisal of the amount of work yet to be done on the dissertation and the amount of faculty time required.

It is essential for each student to sign up for a total of 21 credit hours (full time GRA) for Fall and Spring semesters and 16 credit hours in the Summer semester.

### C.4. ONLINE APPLICATION FOR GRADUATION (OAG)

In order to graduate from Georgia Tech, students must first submit an application for graduation. The Online Application for Graduation (OAG) replaced the previously used Degree Petition. You must apply to graduate by the OAG deadline published on the Current Academic Calendar, <https://registrar.gatech.edu/calendar>. This

deadline always occurs before the term of graduation.

A guide that shows how to use the OAG can be found at <https://registrar.gatech.edu/files/how-to-submit-an-online-application-for-graduation.pdf>.

## C.5. DISSERTATION DEFENSE

To help ensure that the student is making satisfactory progress on his/her dissertation, the student **is encouraged to discuss his/her research with all the members of the Dissertation Committee periodically over the course of the research.** At the conclusion of the research, the student will prepare a written dissertation that meets the criteria published by the GT Office of Graduate Education at <https://grad.gatech.edu/sites/default/files/documents/thesisDissertationManual.pdf>

The Dissertation Committee will review the dissertation and, if the committee deems it satisfactory, will schedule the candidate for an oral examination on the subject matter of the dissertation and the field in which it lies. It is the responsibility of the student to carefully check the grammar, spelling, and sentence structure of the thesis before submitting it to the Dissertation Committee for review. The Dissertation Committee reserves the right of asking the student to have the dissertation corrected by a professional proof reading/editing service, for which the student is financially responsible for the cost.

Every student must orally present his/her research to the Dissertation Committee, other interested faculty, and fellow graduate students prior to graduation. A draft of the dissertation, approved by the major Dissertation Advisor, **must be given to the Dissertation Committee at least two weeks before this presentation. Written notice of the oral dissertation defense clearly stating topic, time, date and place MUST be given to the School populace at least two weeks before the presentation.** Additionally, a Ph.D. dissertation defense notice should be sent to the GT Office of Graduate Education at least two weeks prior to the oral examination.

A typed draft of the dissertation approved by the Dissertation Committee and the School Chair must be approved by the Vice Provost for Graduate Education and Faculty Affairs before preparation of the final dissertation document. The draft dissertation must be submitted for approval about 4 weeks prior to graduation (the actual dates are posted on the GT Office of Graduate Education website.). Upon approval, the dissertation may be prepared for final submission and duplication.

The final submission of the Ph.D. dissertation must be made by the deadline established by the GT Office of Graduate Education (<http://www.grad.gatech.edu/theses-dissertations-deadlines>). Georgia Tech requires that the thesis be submitted electronically. For guidelines and instructions about submission, please visit: <https://grad.gatech.edu/sites/default/files/documents/thesisDissertationManual.pdf>.

The Dissertation Committee will officially conduct the dissertation defense. The participating faculty and students will be permitted to ask questions during the oral presentation. At the presentation's end, all but the members of the Dissertation Committee and the candidate will be asked to leave the room for the closed-door oral examination. Following this, the Dissertation Committee will decide whether the student's dissertation is acceptable. If a candidate should fail the final oral defense, the Dissertation Committee may recommend permission for one additional dissertation defense to the GT Office of Graduate Studies. If the candidate is successful in their Ph.D. defense, they will need to fill out the *Certificate of Thesis Approval for Doctoral Students*: <https://grad.gatech.edu/theses-dissertations-forms>

This form must be signed by all members of the Dissertation Committee and then by the MSE Graduate Coordinator. It is the responsibility of the candidate to get this form completed.

**Costs associated with the preparation of the dissertation is the responsibility of the student.** The student should also check with each Dissertation Committee member if they want a printed copy of the thesis and/or an electronic copy. Once the thesis has been approved it must be submitted electronically as part of the final Institute approval process:

<http://www.grad.gatech.edu/theses-dissertations-electronic-submission>

If both the dissertation and the oral defense are satisfactory and the candidate has completed the requirements of residence, minor field, and any additional school requirements, the GT Office of Graduate Education will certify the candidate as qualified to receive the appropriate Ph.D. degree from the School of Materials Science and Engineering.

## C.6. GEORGIA TECH PHD REQUIREMENTS

In addition to the MSE internal requirements, there are a number of requirements imposed by the Institute. These include:

Description	Requirement
GPA Requirement	3.0
Minimum Full-time enrollment in residence	1 semester
Qualifying/Comprehensive Exam required	Yes
Minor credit hours required	9
Time limit for completion of degree after admission to candidacy (Max)	7 years
Prior approval of dissertation topic	Yes
Public defense of dissertation	Yes

A complete list of all the requirements for Ph.D. candidates can be found in the Institute handbook:

<http://www.catalog.gatech.edu/academics/graduate/doctoral-degree-info/>

The minimum academic standing requirements for PhD degree can be found on the Registrar's website:

<https://registrar.gatech.edu/info/academic-standing>

## D. MASTER'S DEGREE PROGRAMS

The School of Materials Science and Engineering offers a Master of Science with or without a thesis.

### D.1. MASTER OF SCIENCE

Students with a bachelor's degree in engineering, chemistry or science may be accepted into the MS program. Generally, students are accepted into the MS program if faculty have a specific requirement for such a student or if the students are self-financing.

#### D.1.1. Course Requirements

Students in the MS program may take the thesis option or non-thesis option. The general requirements are:

	With Thesis	Without Thesis
MSE/MSE-approved <i>elective courses</i>	12	18
Electives	12	12
MSE 7000- Master's Thesis	6	-
<b>Total Minimum hours</b>	<b>30</b>	<b>30</b>

\*Non-thesis students may take a Special Problems course ([MSE 8903](#)) for research experience.

\*Non-thesis students must complete at least 24 hours of at least 6000-level or higher courses (a maximum of 6 hours of 4000-level courses may be applied).

\*Thesis seeking students must complete at least 12 hours of at least 6000-level or higher courses (a maximum of 6 hours of 4000-level courses may be applied).

\**The majority of coursework must be MSE courses.*

The graduate student will develop a Program of Study consistent with the student's educational objectives and the School's mission and submit it to the MSE Graduate Office by the end of the first semester in residence for review and approval.

Because graduate degrees with thesis are research oriented, once a student obtains financial support as a GRA, the only option available to him/her is to complete a thesis. Students receiving funding for more than 1 semester will not be permitted to change to the non-thesis degree option. All thesis hours are graded on a Pass/Fail basis (S or U). If the progress on the dissertation research of a student is considered unsatisfactory by his/her thesis advisor, the student will receive a grade of "U" for the term. This grade will appear on the student's transcript and be permanent. **One "U" grade for MS thesis research is potentially cause for termination of financial aid, stipends and the student being dropped from the thesis track. One "U" grade may also ultimately jeopardize the visa status of international students.** (See 'Dismissal Policy', Section J)

#### D.1.2. Major Course Requirements

Up to three credit hours of elective course work may be taken Pass/Fail and applied toward the degree hour requirements.

Major course work for MSE-MS degree is described below.

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Courses Hours Description

RCR (Online CITI, if MS w/Thesis) <http://rcr.gatech.edu/>

Safety Seminar and MSE Safety Exam



**\*MSE Approved Elective Courses (not limited to):**

MSE 6010	Functional Materials
MSE 6105	Diffraction Studies
MSE 6110	Transmission Electron Microscopy
MSE 6120	Quantitative Characterization of Microstructures
MSE 6130	Surface Characterization
MSE 6402	Structure and Defects ( <i>Core Course</i> )
MSE 6403	Kinetics of Phase Transformations
MSE 6404	Scattering Theory
MSE 6405	Advanced Nanomaterials
MSE 6406	Corrosion of Materials
MSE 6407	Biological Properties
MSE 6411	Thermodynamics ( <i>Core Course</i> )
MSE 6510	Polymers for Electronic and Photonic Applications
MSE 6600	Advanced Polymer Processing
MSE 6602	Tensor Anal and Math Tech
MSE 6603	Natural Polymers
MSE 6750	Preparation & Reactions of Polymers
MSE 6751	Physical Chemistry of Polymers in Solutions
MSE 6752	Polymer Characterization
MSE 6755	Theoretical Chemistry of Polymers or Statistical Mechanics
MSE 6768	Polymer Structure, Physical Properties & Characterization ( <i>Core Course</i> )
MSE 6774	(MSE/BMED): Biomaterials: Structure and Function
MSE 6776	Integrated Low-Cost Microelectronics System Packaging
MSE 6777	Advanced Biomaterials
MSE 6795	Mathematical, Statistical, and Computational Techniques in Materials Science
MSE 6796	Structure-Property Relationships in Materials
MSE 7140	Impedance and Dielectric Spectroscopy
MSE 7210	Dislocation and Deformation Mechanics
MSE 7420	Solidification Processing
MSE 7771	Mechanics of Polymer Solids and Fluids
MSE 7772	Fundamentals of Fracture Mechanics
MSE 7774	Fatigue of Materials and Structures
MSE 8803A	Nanomaterials and Nanotechnology
MSE 8803C	Advanced X-ray Diffraction
MSE 8803E	Materials for Energy Storage and Conversion
MSE 8803HG	Statistical Mechanics of a Heterogeneous Media
MSE 8803I	Fundamentals of Nanomaterials & Energy
MSE 8803M	Biomaterials Properties
MSE 8803T	Teaching Practicum
ME 6104	Computer-Aided Design
ME 6124	Finite-Element Method: Theory and Practice
ISYE 6739	Basic Statistical Methods
BMED 6710	Rational Design of Biomaterials
CHEM 6172	Physical Methods in Inorganic Chemistry
CHEM 6181	Chemical Crystallography
CHEM 6283	Electroanalytical Chemistry
CHEM 6382	Computational Methods in Organic Chemistry and Biochemistry
CHEM 6752	Polymer Characterization
CHEM 6572	Macromolecular Structure
MATH 4347	Partial Differential Equations I
MATH 4348	Partial Differential Equations II
MATH 4255	Monte Carlo Methods

\* The majority of courses must be at 6000 level or above, but up to 6 credit hours at 4000 level can be used. MS students, with approval of MSE graduate office, can take the elective courses offered by other schools at Georgia Tech. The majority of course-work must be MSE courses.

\* Submit Program of Study to MSE Graduate Office for Approval

### D.1.3. MSE School Seminars

All MS students are strongly encouraged to attend the MSE graduate seminar series (MSE 8801S) every Fall/Spring semester, but it is only required for PhD students.

The seminars are held weekly and run through the Fall and Spring semesters and presented by experts in their field who present their work to the school. Students are encouraged to meet with the seminar speaker during that individual's visit.

## D.2. BS-MS PROGRAM

MSE undergraduate students are eligible to apply for the program after completion of 30 semester-credit hours at Georgia Tech and appropriate progress in the degree program. Students must have a Georgia Tech GPA of 3.5 or higher for admission into the BS/MS program. Once admitted, a GPA of at least 3.0 must be maintained to remain in the program. Students in the BSMS program are eligible to use the [Graduate Course Option](#) even if the cumulative GPA drops below the 3.5 but is a 3.0 or higher.

Given that the BS/MS program is intended to be a thread between the undergraduate and graduate programs, students need to apply with at least 3 semesters remaining in their bachelor's degree program.

The following hours are required at the MS level:

	With Thesis	Without Thesis
MSE/MSE-approved elective courses	12	18
*Electives taken from BS at 4000 level	6	6
*Electives taken from BS at 6000 level	6	6
MSE 7000- Master's Thesis	6	0
Total Minimum hours	30	30

The BS-MS Program allows eligible students to use six credit hours of undergraduate-level MSE courses for both BS and MS degrees and six credit hours of graduate-level MSE courses (or MSE approved courses). No course below 4xxx is permitted for counting towards the M.S. degree.

## D.3. PROGRAM OF COURSE STUDY

MS students should prepare a tentative schedule for a complete MS study program during his/her first term in Graduate School, including the selection of thesis/non-thesis option. The form to be used can be obtained from the MSE Graduate Office. The student needs to complete the Proposed Program of Study form and submit it before registration for his/her second term of study to the MSE Graduate Office. The students pursuing the thesis option should discuss their program of study with their thesis advisor before submitting the form to the MSE Graduate Office. Again, the student must have a thesis advisor prior to declaring a thesis.

BS-MS students must submit a proposed program of study to the MSE Graduate Office by the end of the BS degree coursework (senior year). The program of study can be modified as many times as necessary if there are conflicts or scheduling issues. The BS-MS program of study form can be found on the MSE website:

[https://www.mse.gatech.edu/sites/default/files/2022-04/BSMS%20Program%20of%20Study%20\(Writable\).pdf](https://www.mse.gatech.edu/sites/default/files/2022-04/BSMS%20Program%20of%20Study%20(Writable).pdf)

#### **D.4. MS THESIS TOPIC SELECTION**

For the MS students pursuing the thesis option, their thesis advisor will recommend to the MSE Graduate Office a Thesis Committee consisting of at least three members. One member of the Thesis Committee can be from outside the School. The composition of the Thesis Committee must meet all the requirements for the MS Thesis Advisory Committee, as stated in the Georgia Tech's Policy on Advisement of Graduate Student Research and Appointment of Thesis Advisory Committees<sup>ii</sup>. Finalization of the Thesis Committee and approval of the thesis topic must be completed by the fourth week of the second term in residence. The Thesis Topic Form must be approved by the Thesis Committee. All thesis forms can be found via the Office of Graduate Education at: <https://grad.gatech.edu/theses-dissertations/forms>.

Non-thesis degree candidates can take a three-credit hour, graduate-level Special Problems course (MSE 8903) on a Pass/Fail basis. In that case, a final **Technical Report** approved by two MSE faculty members is required at the end of semester. This technical report must be submitted to the MSE academic office to receive credits for the Special Problems (MSE 8903) course. *Only three* (3) credit hours of MSE 8903 may be applied toward the Institute minimum of 30 credit hours required for the MS degree.

#### **D.5. THESIS RESEARCH GRADING**

Those MS students following thesis degree paths must register for MSE 7000 at the time of beginning the research and continue to do so each term until the thesis is completed. The hours of research for which the student registers each term must be consistent with a realistic appraisal of the amount of work yet to be done on the thesis and the amount of faculty time required.

All thesis hours are graded on a Pass/Fail basis (S or U). If the progress on his/her thesis research is considered unsatisfactory by the thesis advisor, the student will receive a grade of "U" for the semester. This grade will appear on the student's transcript and be permanent. **A "U" grade for thesis research is a potential cause for termination of financial aid, which may also jeopardize the visa status of international students. A 2<sup>nd</sup> "U" will result in loss of stipend.**

#### **D.6. ONLINE APPLICATION FOR GRADUATION (OAG)**

To graduate from Georgia Tech, you must first submit an application for graduation. The Online Application for Graduation (OAG). You must apply to graduate by the OAG deadline published on the Current Academic Calendar, <https://registrar.gatech.edu/calendar>. This deadline always occurs before the term of graduation.

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<sup>ii</sup> For Master's Thesis advisement, the Thesis Advisory Committee consists of at least three members, the majority of whom must be members of the Academic Faculty. The thesis advisor who serves as the Chairman of the Thesis Advisory Committee must be a member of the Academic Faculty (with approval of the school or college Graduate Committee, an adjunct\* faculty member appointed by the specific purpose of advising graduate students may serve as the thesis advisor.) The committee is recommended by the School Director through the College Dean and appointed by the Vice Provost for Graduate Education and Faculty Affairs.

[https://grad.gatech.edu/sites/default/files/documents/thesismanual\\_2020\\_april\\_2021.pdf](https://grad.gatech.edu/sites/default/files/documents/thesismanual_2020_april_2021.pdf)

\* - "adjunct" does not indicate formal appointment, but rather appointment as indicated in this policy statement.

A guide that shows how to use the OAG can be found at <https://registrar.gatech.edu/files/how-to-submit-an-online-application-for-graduation.pdf>.

## **D.7. THESIS DEFENSE**

At the conclusion of the proposed research, the student shall prepare a thesis that meets the criteria (see [https://grad.gatech.edu/sites/default/files/documents/thesismanual\\_2020\\_april\\_2021.pdf](https://grad.gatech.edu/sites/default/files/documents/thesismanual_2020_april_2021.pdf) for guidelines and instructions). The Thesis Committee will review the thesis and, if the committee deems it satisfactory, will schedule the candidate for an oral examination on the subject matter for the thesis and the field in which it lies. The student should give the Thesis Committee at least two weeks to read the thesis document.

Every student must orally present his/her research to the Thesis Committee, other interested faculty and fellow graduate students prior to graduation. The Thesis Committee will officially conduct the thesis defense. If a candidate fails to pass the final oral defense, the Thesis Committee may recommend permission for one additional thesis defense to the GT Office of Graduate Education.

**Costs associated with the preparation of the thesis are the responsibility of the student.** The student should also check with each member of the Thesis Committee as to whether they want a printed copy of the thesis and/or whether they prefer an electronic copy. Once the thesis has been approved it must be submitted electronically as part of the final Institute approval process:  
<http://thesis.gatech.edu/>

**To help ensure that the thesis will be accepted by the Thesis Committee, the student is encouraged to discuss his/her progress with all members of the committee frequently.**

## **D.8. FINAL SUBMISSION OF THESIS**

The final submission of the master's thesis must be made by the deadline established by the GT Office of Graduate Education. Georgia Tech requires that the thesis be submitted electronically. For guidelines and instructions, please visit:

[https://grad.gatech.edu/sites/default/files/documents/thesismanual\\_2020\\_april\\_2021.pdf](https://grad.gatech.edu/sites/default/files/documents/thesismanual_2020_april_2021.pdf)

If both the thesis and the oral defense are satisfactory and the candidate has completed the course requirements, and any additional school requirements, the Office of Graduate Education and Research will certify the candidate as qualified to receive the appropriate Master of Science degree from the School of Materials Science and Engineering.

## **D.9. SPECIAL PROBLEMS REQUIREMENTS & GUIDELINES**

Non-thesis MS degree candidates can take a three-hour credit, graduate-level Special Problem course (MSE 8903 taken on a Pass/Fail basis). A final Technical Report is required. Before a final grade can be assigned the following must be satisfied:

- a) Only those students pursuing the Non-thesis MS degree will be allowed to sign up for MSE 8903 Special Problem hours. All thesis-based MS students should sign up for thesis hours (MSE 7000) to satisfy their degree research requirements.
- b) Only *three (3)* credit hours of MSE 8903 may be applied toward the Institute minimum of 30 credit hours required for the Non-thesis MS degree.

- c) The student must register for MSE 8903 on a Pass/Fail basis. Thus, the student taking MSE 8903 cannot count any regular course taken as Pass/Fail toward graduation because of the 3-hour maximum allowed for Pass/Fail courses.
- d) During the first week of the term in which a student begins the Special Problem (MSE 8903) research with guidance from a principal advisor, an additional committee member will be chosen by the principal advisor; the principal advisor will also chair the two-person committee. The committee will monitor the research's progress throughout the semester(s) in which it is conducted and evaluate its quality and adequacy and the final report.
- e) **It is the student's responsibility to keep the principal advisor and the additional committee member informed about the research's progress. The student should schedule regular discussions with the principal advisor and the committee.**
- f) The signatures of both committee members are required on the final report, and a signed copy must be submitted to the MSE Graduate Office before the grade (assigned by the principal advisor) can be submitted to the Registrar's office.
- g) If the Special Problem is being completed during the term the student is planning to graduate, the final report must be submitted to the committee at least two (2) weeks before the Registrar's deadline for grade submission (normally Friday of the week before Finals). Failure to do so may jeopardize the student's graduation date. The approved report must be submitted by the last day of classes for students not graduating that term.

## D.10. GEORGIA TECH MS REQUIREMENTS

There are several requirements imposed by the Institute. These include:

	With Thesis	Without Thesis
GPA Requirement		2.7
Minimum Full-time enrollment in residence	1 semester/year (min. 3 hours)	
Time limit for completion of degree	6 consecutive calendar years	
Prior approval of thesis topic	Yes	-
Public defense of thesis	Yes	-

*The minimum academic standing requirements for MS degree can be found on the Registrar's website:*

*<https://registrar.gatech.edu/info/academic-standing>*

*Institute requirements for MS degrees can be found at:*

*<https://catalog.gatech.edu/academics/graduate/masters-degree-info/>*

## E. CLASSIFICATION OF GRADUATE STUDENTS (All Graduate Students)

Graduate students are classified according to their graduate standing (i.e., full graduate standing, conditional graduate standing, and special graduate standing) and according to their course workload (i.e., full-time, and part-time).

### E.1. CLASSIFICATION ACCORDING TO GRADUATE STANDING

- a) Full Graduate Standing - Students who satisfy the entrance requirements (see General Catalog) as

judged by the Associate Chair for Graduate Program of the School and the School Graduate Committee, the Registrar, and the Vice Provost for Graduate Education and Faculty Affairs are admitted to full graduate standing for study toward an MS or Ph.D. degree.

- b) **Conditional Graduate Standing** - Students who do not meet the requirements for full graduate standing may be admitted to study toward a graduate degree on conditional graduate standing. Students whose academic backgrounds do not satisfy the prerequisites for a degree program will be expected to take several courses to make up for this deficiency. Such courses will not count toward a graduate degree. In general, the student will be expected to demonstrate an ability to do effective work<sup>iii</sup> before his or her classification is changed from conditional to full graduate standing. This change of classification requires the recommendation of the MSE Graduate Committee and the approval of the MSE Associate Chair for Graduate Program. Courses passed by a student while on conditional standing can be counted toward a degree program upon the recommendation of the School Graduate Committee to the School Associate Chair for Graduate Program
- c) **Special Graduate Standing** - A student who wishes to enroll for course work but not to pursue a program of study for a graduate degree can be admitted as a special graduate student upon approval by the School Associate Chair for Graduate Program (upon recommendation by the MSE Graduate Committee), the Registrar, and the Vice Provost for Graduate Education and Faculty Affairs. Courses taken by students on special standing cannot apply more than 16 semester credit hours taken on special standing toward a graduate degree.

## E.2. CLASSIFICATION ACCORDING TO COURSE WORKLOAD

Graduate students are classified as full-time or part-time depending upon the number of hours of course work taken in a given semester. Course work includes regularly scheduled courses, seminars, special problem courses, and thesis research (that is, any activity carrying a course number, whether or not these carry graduate credit or are taken on an audit basis). A full-time student must register for at least 12 hours per semester, excluding audit, with a maximum of 21 hours. Exceptions to the maximum load of 21 hours must have the approval of the School Associate Chair for Graduate Program and the Vice Provost for Graduate Education and Faculty Affairs. The only exception is that a minimum of 1 hour course load may be taken in the semester of graduation. *This exception can only be applied once.* A part-time student will register for not more than 11 and not less than 3 credit hours.

<https://catalog.gatech.edu/academics/graduate/doctoral-degree-info/#enrollment-requirements>

## E.3. COURSE LOAD REQUIREMENT

The following regulations govern the term workloads of students who are pursuing graduate degrees (see <http://catalog.gatech.edu/academics/graduate/work-loads/>):

1. Full-time students must be enrolled **for at least 12 hours per semester**, excluding audit.
2. The maximum course load for all students is **21 hours per semester**.
3. The minimum load for part-time students is **3 hours per semester**.
4. Students with fellowships, traineeships, or tuition waivers, and those assigned to the Institute by the Armed Forces to pursue a degree must be enrolled for at least 12 credit hours per semester, excluding audit.
5. **The minimum load for international students on visas is 12 hours per academic term, excluding audit,**

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<sup>iii</sup> i.e. maintaining a GPA of at least 3.0 for Ph.D. or 2.7 for MS students.

**with the possible exception of the Summer term.** Students on F-1 or J-1 visas may apply for a reduced course-load during their graduating semester if less than 12 credit hours are needed for graduation. For detailed advice, please contact the Office of International Education.

6. Students in the Graduate Cooperative Program are required to carry a full-time load during study terms.
7. Full-time GRA students working on thesis/dissertation research must register for a total of 21 or more credit hours (that includes course credits + MSE 7000 or 9000, as appropriate) during Fall and Spring semester and up to 16 hours during Summer semester.
8. ***Continuing students must register during Phase I of registration.***
9. GRA students must enroll for a minimum of 12 credit hours on a Letter Grade or Pass/Fail basis. One 3-hour Letter Grade or Pass/Fail course may be taken on an audit basis with the permission of the advisor, MSE Associate Chair for Graduate Program and the Graduate Committee, exclusive of any GRA audit hours.
10. ***Graduate students must take all MSE Courses counting toward the degree requirements on a Letter Grade basis.***
11. The maximum allowable term load for employed students other than graduate assistants (GRA) is reduced based on the number of hours employed per week as shown below:

#### **E.4. ALLOWABLE COURSE LOAD IF EMPLOYED**

Students who are employed (on or off campus) are limited in the amount of course work they may take per term as shown below.

<b>Hourly Employment Load Per Week</b> (On or Off Campus)	<b>Maximum Course Load Allowed</b> (Credit Hours)
Full-Time (40 hours)	6
3/4 of Full-Time (30 hours)	9
2/3 of Full-Time (27 hours)	10
1/2 of Full-Time (20 hours)	12
1/3 of Full-Time (13 hours)	15
1/4 of Full-Time (10 hours)	18

These limitations can be overridden in a given term with the approval of the student's Graduate Advisor provided the average course load for the student's program does not exceed the figures shown. Exceptions to these maximum loads may be made by the Vice Provost for Graduate Education and Faculty Affairs with approval of the School Associate Chair for Graduate Program.

## F. REGISTRATION INFORMATION (All Graduate Students, MS and PhD)

### F.1. MSE GRADUATE REGISTRATION POLICIES & GUIDELINES

1. All students' graduate students are required to register every semester.
2. MSE PhD students are required to register on a Pass/Fail basis for the school seminar series (MSE 8801S) every spring and fall semester for as long as they are registered at Georgia Tech. At least fifty percent (50%) attendance will be required to obtain a passing grade in the School seminar series. Credit towards the degree is not given for the seminar. Exemptions may be requested from the graduate coordinator in advance and granted only in specific cases, i.e., student is working in another institute for that semester, graduate course conflict, etc. Failure to obtain advance permission to not register for the seminar series will result in a 'U' grade being added to the students' transcript. MS and CS-MSE students are strongly encouraged to register for MSE 8801; however, it is not mandatory.
3. Incoming graduate students pursuing a graduate degree (MS or Ph.D.), who do not have the undergraduate prerequisite introductory materials science course MSE 2001 are recommended to take this course during the first Fall semester of their graduate program.  
Graduate students pursuing their research in polymer materials, who do not have the undergraduate prerequisite courses MSE 4775 (Polymer Science & Engineering I) and MSE 4776 (Polymer Science & Engineering II), are recommended to take these courses.
4. MS students must take all MSE courses counting toward the core graduate degree requirements on a Letter Grade basis. This excludes Thesis, Special Problems, and School Seminar courses. However, up to three credit hours of elective course work may be taken Pass/Fail and applied toward the degree hour requirements.

### F.2. RESEARCH ASSISTANTSHIP

Graduate Research Assistantships are paid from funded research projects and are renewed every semester subject to satisfactory academic record and research performance. Lack of research progress jeopardizes future funding and can result in termination of the assistantship. For a Ph.D. student, the assistantship will be limited to four years. Renewal beyond four years will require special justification and the approval of the thesis committee. Examples of justification includes change of research topic and/ or change of thesis advisor, unforeseen difficulty in research, undue delay in procuring or fixing instrument(s) that is essential for research, and the course work recommended by the advisor and/or the thesis committee beyond the minimum major/minor course work requirement. Lack of diligence, poor planning, normal difficulties encountered in research, and courses taken beyond the major/minor requirement without the express approval of the thesis advisor are not to be considered as justification for funding beyond four years. Students should consult with their advisors if they anticipate a funding requirement beyond four years.

### F.3. ADVISEMENT

It is expected that the student will maintain an open communication and good rapport with their advisor(s). To obtain the full benefit of advisor's experience, students should feel free to seek their advisor's advice as frequently as practically possible.



If unresolved conflicts do occur, students should feel free to consult any member of the graduate committee, their thesis committee, and/or the School Associate Chair for Graduate Program as appropriate. Alternatively, students can seek advice from the Office of the Provost: <https://provost.gatech.edu/reporting-units/advocacy>

#### F.4. SAFETY AND ETHICS REQUIREMENTS

All incoming graduate students in the School of Materials Science and Engineering are required to fulfill the Safety and Ethics training specified by the Institute and the school.

Ethics and Code of Conduct training is required by the Institute and has to be taken on-line:

*Responsible Code of Conduct required by the Institute:* <http://rcr.gatech.edu/> (only required for students registered for 7000 or 9000 hours)

Graduate students are required to familiarize themselves with the Institute Fire and Life Safety procedures and to abide by safety rules in the laboratory. Failure to follow agreed-upon safe practices may result in dismissal from the program.

Departmental safety requirements and information can be found at: <https://mse.gatech.edu/lab-safety>. Attendance at the safety training course which includes Right-to-Know Training, and Worker's Compensation and satisfactory completion of the exam is compulsory:

*Safety course:* <https://www.mse.gatech.edu/lab-safety>

#### F.5. AUDITING COURSES

When signing up to audit a course, the student must meet the requirements established by the course instructor at the beginning of the term. These requirements may include attending all classes, completion of homework assignments and taking quizzes. If the student does not satisfy the instructor's minimum criteria, the student's name will be deleted from the final class roll.

**If this results in the number of hours scheduled dropping below 12 and the student is receiving financial aid, the aid will be terminated. For an international student, if deleting the audited course drops the number of hours registered to below 12, the student will no longer be considered a full-time student. This may affect the international student's visa status.**

#### F.6. THE ACADEMIC YEAR & VACATIONS

Graduate students may take advantage of a **two-week** vacation and the University administrative holidays during each 12-month period of residency. Vacation and any special (unpaid) leave must be approved well in advance by the thesis advisor and the research director if the student is working on a separate project as a GRA.

**Periods between semesters are not automatic vacation days.** Furthermore, the long period of instructional recess in December is to be a time of working and studying; it is a particularly valuable time for first-year students for making headway on development of their research and presentation skills.

#### F.7. SCHOOL KEYS AND PROPERTY

The School of Materials Science and Engineering issues keys to offices and laboratories a student has been granted permission by the faculty responsible. The keys are issued by Frank Moss ([frank.moss@mse.gatech.edu](mailto:frank.moss@mse.gatech.edu)). Keys issued while enrolled as a student, as well as any other School property in

the student's possession (research notebooks, equipment, etc.) must be returned to the School prior to graduation. **Failure to return all school/Institute property, including keys, will result in the delay of the student's graduation.**

All personal items should be removed from all desks, laboratories and offices used by the student before their last official day. Unless official GT employment follows completion of the degree and/or enrollment waiver, students must vacate their office immediately. Georgia Tech policy does not allow anyone without an official affiliation on GT premises. This policy also applies to volunteers.

## **F.8. LABORATORY CLEAN-UP REQUIREMENT**

Graduate students involved in any kind of research are required to clean up their area of responsibility and identify all materials before leaving the Institute. The Department of Environmental Safety will inspect the laboratory and ensure that all chemical substances are acceptable for disposal and that the area being vacated meets laboratory safety guidelines. Graduate students will not have their final grades released or final paychecks released until they have complied with this Institute policy. Failure to comply with this Institute policy will make the host department responsible for all costs involved with the required chemical analysis for identification of "unknowns" as well as any costs involved with the disposal of chemical waste, other substances and/or research apparatus. **Consequently, the School of Materials Science and Engineering will enforce this Institute policy and failure to follow proper procedures may jeopardize the student's graduation.**

## **G. GRADUATE CO-OP AND INTERNSHIP REQUIREMENTS**

### **G.1. Co-op**

A student planning to co-op must meet the following requirements:

- Good academic standing (GPA of 2.7 for M. S. students and 3.0 for Ph.D. students)
- Ph.D. students should have been admitted to the candidacy of the Ph.D. degree.
- Approval of student's advisor for the Co-Op application
- The student must complete the MSE Co-Op Permission Form and submit it to the MSE Graduate office with the advisor's approval by the second full week of the semester *preceding* the work semester. This will enable the student to explore opportunities with the Institute Graduate Co-Op office during the semester.

### **G.2. INTERNSHIPS**

Students are encouraged to take advantage of internship opportunities. Planning for an internship must be done in consultation with your research advisor. In addition, students should register as a co-op on work assignment during the term(s) that they are away at their internship. The procedures for registering with the co-op office can be found at <https://career.gatech.edu/graduate-internship-program-information> should plan internships to start and end in concurrence with either Fall, Spring or Summer terms' starting and ending dates. If a student starts or ends an internship after a semester has started, it is generally not possible to pay the student as a GRA during that semester. Thus, it is very important to plan internships in advance and make every effort to have them coincide with the semester start and end dates.

## **H. EMAIL**

The official method of Institute and MSE communication to all faculty, staff, and students is through @gatech.edu e-mail address of record. E-mail accounts are assigned and maintained by OIT. Georgia Tech assumes no responsibility for the reliability of external e-mail services. The most straightforward way to ensure that you are not missing official Georgia Tech electronic communications is to point your alias to your @gatech.edu e-mail address. If you choose to associate your alias with an address other than your @gatech.edu

e-mail address, you are assuming the responsibility of checking mail daily at both your @gatech.edu and alias destination addresses.

Georgia Tech students are provided a central email mailbox.

### **Student-Employee Email**

Student employees will be treated as an employee for the purposes of email mailbox management for the remainder of their employment at Georgia Tech. If a student employee is forwarding to a third-party service, they will no longer have that opportunity to maintain that forward. Work-related messages must be received and sent through the email address approved for their employment.

You can find more information in the Email Data Protection Policy at:

[https://gatech.service-now.com/home?id=kb\\_article\\_view&sysparm\\_article=KB0025136](https://gatech.service-now.com/home?id=kb_article_view&sysparm_article=KB0025136)

## **I. GT STUDENT POLICIES**

There are a number of Georgia Tech policies that are relevant to students. It is the student's responsibility to familiarize him/her with these policies and abide by them. The policies can be found at: <http://studentlife.gatech.edu/>.

The policies regarding various types of standings such as special graduate student status can be found at: <http://www.catalog.gatech.edu/admissions/grad/standing/>.

## **J. DISMISSAL POLICY**

All students receiving stipends must maintain minimum academic standards and must make good progress toward the degree goal to retain their stipends. Toward this end, the following is expected:

1. MS students receiving a stipend must complete all degree requirements in 5 semesters or less, including Summer term.
2. Students must not receive an unsatisfactory grade on thesis research more than once. With the first unsatisfactory grade, the student will receive a letter from the MSE Graduate Office placing them on review, outlining the deficiencies and indicating corrective actions that must be taken to remove the deficiencies. The second unsatisfactory grade will result in losing their stipend and being dropped from the program.
3. Ph.D. students without an advisor for more than one term will be dropped from the program.
4. Ph.D. students must pass the three core courses. (If a student gets a "F" grade in a core course then they must retake that course and get a passing grade)
5. All Ph.D. students are required to take the written Ph.D. qualification examination at the end of their first year in the Ph.D. program. Students failing to pass the written qualification examination on their first attempt must retake the written exam as described in the letter given to the student at the time, he/she failed on the first attempt. If the student fails to pass the written exam on the second attempt, they will be dropped from the graduate program.
6. Students must pass the annual safety examination to work in any laboratory or use any equipment on campus.
7. Students must make progress in their research as judged by their academic advisor.
8. Exceptions to the above conditions may be granted on demonstration of extraordinary circumstances by successful petition to the MSE Graduate Committee. The petition must include a letter of support from the student's thesis advisor and a demonstration of satisfactory progress toward his/her degree objective.

## K. TRANSFER OF CREDIT

A student may not apply for transfer credit until after matriculation at Georgia Tech. The courses to be transferred would typically be those appearing on the approved program of study form for the master's degree. A doctoral student normally does not request transfer credit. The rules relative to and the process for obtaining transfer of credit for graduate-level courses are as follows:

1. A student in a master's degree program requiring fewer than 33 semester credit hours may receive up to 6 hours of transfer credit for graduate-level courses taken at an institution accredited by a Canadian or U.S. regional accrediting board, or at a foreign school or university that has a signed partner agreement with Georgia Tech, and **not used for credit toward another degree**. A student in a master's degree program requiring 33 semester credit hours or more may receive up to 9 hours of transfer credit for graduate-level courses taken at an institution accredited by a Canadian or U.S. regional accrediting board, or at a foreign school or university that has a signed partner agreement with Georgia Tech, and not used for credit toward another degree. The student must supply a current transcript for this evaluation.
2. To obtain transfer of credit, the student must complete the following procedure:
  - The student will confer with the graduate advisor to ascertain whether the courses to be transferred are a logical part of the student's graduate program;
  - If the courses are appropriate, the student will deliver to the school that teaches such courses a copy of the current transcript, necessary descriptive materials including catalog descriptions, and textbooks used for evaluation. The faculty of the appropriate school will determine the equivalent Georgia Tech course and the number of credit hours accepted. The faculty member who prepares the transfer credit form should have the school chair cosign it. The school should then send the form directly to the registrar with a copy of the student's Approved Program of Study attached;
  - If the student wishes to transfer more than the number of hours permitted in paragraph 1), a petition must be submitted to the Institute Graduate Committee including statements of possible justification for the granting of such a petition, transfer credit forms, and the recommendation of the student's school Associate Chair for Graduate Program.
3. A student may not receive transfer credit from universities outside the United States and Canada except if the courses were taken at a foreign school or university that is accredited by a Canadian or U.S. regional accrediting board or has a signed partner agreement with Georgia Tech. In any other case, an international student can obtain credit for courses previously taken but not applied toward another degree by filling out an Examination for Advanced Standing Authorization Request Form, paying the appropriate fee at the Cashier's Office, and passing the examination for advanced standing. The school or college that normally teaches the equivalent course will administer any necessary examinations.

## L. STIPEND POLICY

### Graduate Student Stipend Policy School of Materials Science and Engineering

#### Objective:

To ensure that MSE at Georgia Tech remains competitive for attracting the best graduate students to the program

#### Stipends:

\$2790/month; \$33,483/year

Students on external fellowships (from sources outside of Georgia Tech) are entitled to enhancement awards from the School. The amount of enhancement will vary depending on the value of the external fellowships. To be eligible for such enhancements, the student must disclose the amounts of all fellowships he/she receives from sources outside of Georgia Tech. For both MS and Ph.D. students receiving external funding, the total award (from MSE) must not normally exceed the rate shown in table above. In no case will the payment from the school exceed the stipend levels established for the level of the student. Presidential Fellowships are in addition to any other sources of funds.

For exceptional students supported entirely on research grants, enhancements of up to 50% over the normal level subject to the maximums in the table above may be possible solely at the discretion of the thesis advisor after the student has completed all *requirements* for Ph.D. other than completing the thesis defense. Such appointments will be entirely supported by the grant/contract that the student is supported on. No part of the student stipend can be paid from school funds.

## M. HEALTH PROBLEMS, STRESS, AND MAJOR LIFE EVENTS

During graduate school, some students may experience health problems (sickness, injury, mental health, etc.), legal problems, or upsetting major life events, such as the death of a family member. In addition, some students find that they are unable to cope effectively with the stresses they encounter while in graduate school. Students in these situations are encouraged to take advantage of on-or off-campus resources for managing either general stress or specific problems. The following is a short list of some available resources for graduate students:

**Counseling Center** [www.counseling.gatech.edu](http://www.counseling.gatech.edu) 404-894-2575

Professional counselors are available to consult confidentially with students about any issue, whether personal or school related.

**Dean of Students** <https://studentlife.gatech.edu/about/dean-students> 404-894-6367

The **Dean of Students** office advocates for students in handling missed classes and making up work due to sickness, injury, and other adversities. If you experience a problem that interferes with classes for more than a few days, you should contact the Dean of Students' office for advice and assistance.

**National Graduate Crisis Line** 1-800-GRAD-HLP (800-472-3457)

An off-campus, non-profit center for graduate students in crisis that is available 24/7.

In a small number of cases, a health problem or life event may be so significant that it prevents a student from making progress in classes or research. In these extreme cases, it may make sense to consider a leave of absence, and students should discuss the situation candidly with their advisor, the MSE Associate Chair for Graduate Studies, and/or the Dean of Students office.





For questions, comments, and suggestions on this graduate handbook, please send an email to [academics@mse.gatech.edu](mailto:academics@mse.gatech.edu)