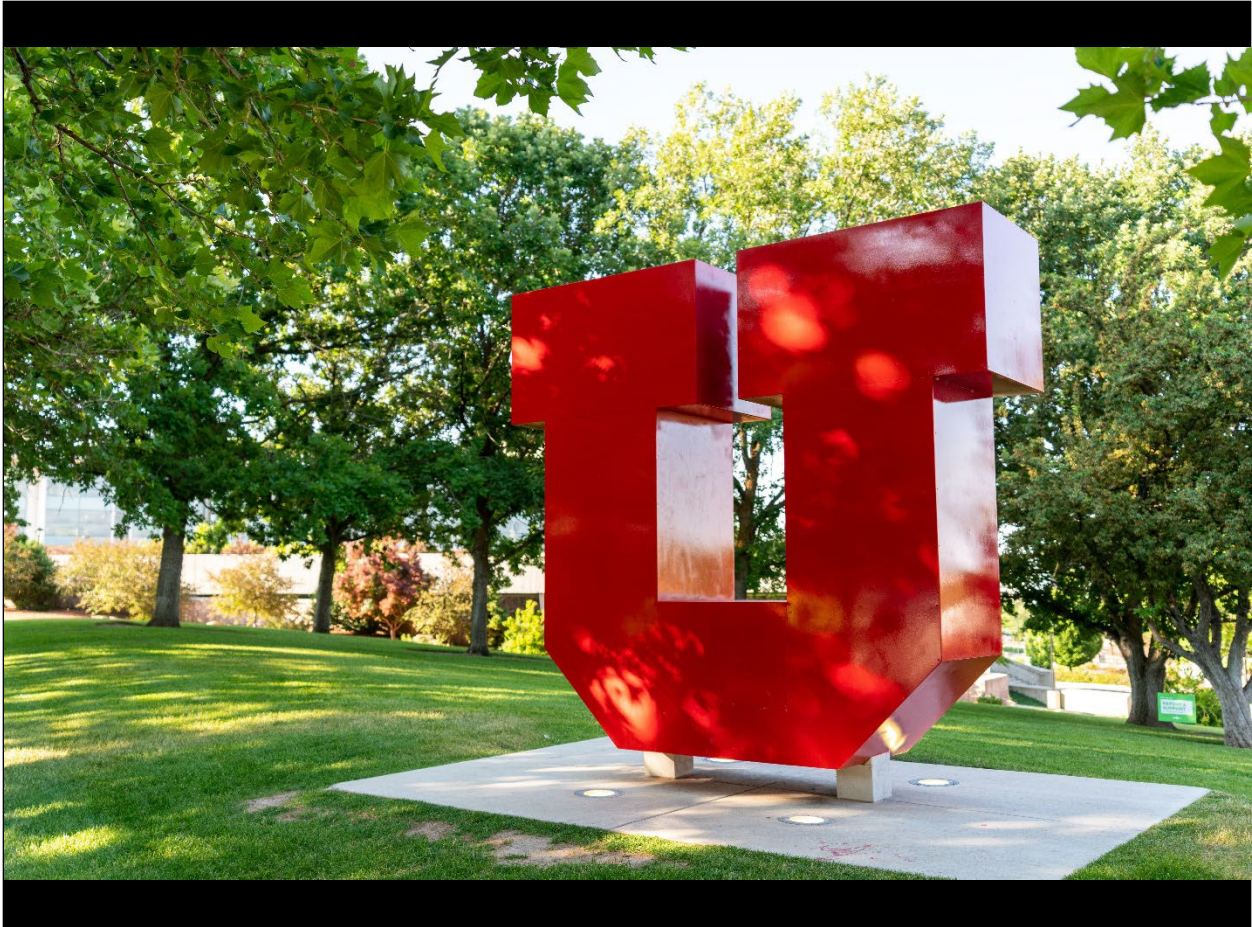


MATERIALS SCIENCE & ENGINEERING



Graduate Program in Materials Science & Engineering & Graduate Program in Metallurgical Engineering

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Graduate Program Handbook

Welcome to the Graduate Program in the Department of Materials Science & Engineering

The purpose of this manual is to provide information to graduate students who are considering enrolling or have enrolled for a degree in Materials Science & Engineering or Metallurgical Engineering in the Department of Materials Science & Engineering, so that they may better plan their studies and research during their stay at this University. As such, it is intended to supplement information found in The University of Utah General Catalog. In addition to the Departmental requirements listed in this manual, all the University requirements specified in the Graduate Information section of The University of Utah General Catalog must be satisfied. Therefore, the student should become familiar with both the Departmental and University requirements as soon as possible after they start graduate work. The University of Utah General Catalog contains additional useful information on areas outside the scope of the department, e.g., campus facilities and student housing.

In the event there is a conflict between the Department policy and the University policy, the University policy shall take precedence.

Contents

Welcome to the Graduate Program in the Department of Materials Science & Engineering	i
Faculty & Leadership Contacts	1
Student Contacts	1
Important University Deadlines	2
Timeline of Objectives for Graduate Degrees.....	2
First Year	2
Second Year.....	3
Third Year and Beyond (Ph.D.).....	3
Semester before Graduation	3
Semester of Defense (Final Oral Examination).....	3
After Defense and/or during the Semester of Graduation	4
Program Requirements	6
Graduate Programs in Materials Science & Engineering and Metallurgical Engineering through the Department of Materials Science & Engineering.....	6
Expected Learning Outcomes.....	6
<i>Materials Science and Engineering M.S.</i>	6
<i>Metallurgical Engineering M.S.</i>	6
<i>Ph.D. (METE and MSE)</i>	6
Admission Requirements & Procedures	7
Transfer Credits	7
Nonmatriculated Credits	7
Research Advisor.....	8
International Students	8
Program Coursework.....	8
Requirements for All Degrees.....	8
<i>Graduate-Level Courses</i>	8
<i>Graduate Seminar for Materials Science & Engineering and Metallurgical Engineering</i>	8
Master of Science (Both Thesis and Non-Thesis Option), Both Programs.....	9
<i>General Coursework and Study Requirements for the M.S.</i>	9
<i>Specific Degree Requirements – Overview</i>	9
<i>Required Courses for Masters Degree</i>	9
<i>Thesis or Special Project Hours for Materials Science & Engineering and Metallurgical Engineering</i>	10
Doctor of Philosophy (Ph.D.) Degree.....	10
<i>General Coursework and Study Requirements for the Ph.D.</i>	10
<i>Specific Degree Requirements – Overview</i>	11

<i>Required Courses for PhD</i>	11
<i>Additional Core Courses Recommended for M.S. & Ph.D. Programs in Metallurgical Engineering</i>	12
<i>Thesis Hours for Materials Science & Engineering and Metallurgical Engineering</i>	13
<i>Program of Study</i>	13
Mandatory Exams and Milestones.....	13
<i>Admission to Candidacy for the M.S. Program</i>	13
<i>Admission to Candidacy for the Ph.D. Program — Qualifying Examination</i>	13
Supervisory Committee Formation.....	16
<i>Chair</i>	16
<i>Committee Selection</i>	16
<i>Master of Science</i>	16
<i>Doctor of Philosophy (Ph.D.)</i>	16
<i>Master of Engineering</i>	17
<i>Required Meetings</i>	17
<i>Supervisory Committee Roles</i>	17
Program of Study, All Degrees	17
Thesis/Dissertation/Project/Report	17
Requirements for All Degrees	18
<i>Research Topic and Thesis Advisor</i>	18
<i>Laboratory Notebook</i>	18
<i>Research Equipment</i>	18
Research Proposal Requirements for Ph.D.....	18
<i>Written Proposal</i>	18
<i>Oral Presentation of Proposal</i>	19
Special Project, Master of Science (Non-Thesis Option).....	19
Submission of Thesis or Dissertation	19
Thesis or Dissertation Formatting	20
Final Oral Examination (Thesis or Dissertation Defense).....	20
<i>Thesis Correction, Approval, and Release</i>	21
Ph.D. Dissertation Requirements.....	21
Applying for Graduation, All Degrees	21
Thesis Release	22
Graduation Ceremonies	22
M.S. Advancing to Ph.D.....	22
Doctoral Degree, Optional Practical Training for F-1 Students	23
Leaving the Graduate Program.....	23
Academic Requirements and Policies	24
Minimum GPA	24

Adding, Dropping, and Withdrawal Procedures (All Degrees).....	24
Adding Classes	24
Dropping Classes	24
Withdrawing from Classes	24
Withdrawal from Full Term Length	24
Course Fees.....	24
Independent Study	24
Maximum Registration	24
Option for Credit/No-Credit Grading	25
Nonmatriculated or Correspondence Work.....	25
Residency.....	25
State Residency.....	26
Study Residency, M.S.....	26
Study Residency, Ph.D.	26
Full-Time Status	26
Part-Time Status	26
Continuous Registration	26
Vacations and Leaves	27
<i>Vacations and Leaves (within a Semester)</i>	27
<i>Family & Medical Leave</i>	27
<i>Leave of Absence, Domestic Students</i>	28
<i>Leaving the Program Early</i>	29
Changing Committee Chair & Committee Members	29
Time Limit to Degree	30
<i>Petitioning the Time Limits</i>	30
Dismissal Policies & Procedures.....	31
<i>Termination of a Graduate Student/Thesis Advisor Relationship</i>	31
<i>Policy on Dismissal from the Program</i>	32
Expectations for Participation.....	33
<i>Seminar</i>	33
<i>Professional Society Meetings and Conferences</i>	33
Student Input.....	33
Professional Development.....	33
Financial Support, Employment, Tuition Benefit, and Awards	34
Teaching Assistant Responsibilities & Policies	34
Research Assistant Responsibilities & Policies.....	34
Tuition Waivers	34

<i>Qualifying for the Tuition Benefit</i>	34
<i>Tuition Benefit Limits</i>	35
<i>Student Health Insurance</i>	35
<i>Residency</i>	36
Other Financial Support.....	36
<i>College/University Fellowships and Awards</i>	36
<i>Student Loans</i>	36
<i>External Fellowship & Award Opportunities</i>	36
<i>Student Travel Assistance</i>	36
Student Awards and Honors	37
Employment and Support Resources.....	37
Employment.....	37
Tuition.....	37
Support, Awards & Fellowships.....	37
Travel Assistance Awards	37
Financial Resources	37
Student & Faculty Code	38
Graduate School Code of Conduct	38
Informal Dispute Resolution.....	38
Formal Dispute Resolution	38
Equal Opportunity, Affirmative Action, and Title IX	39
Americans with Disabilities Act.....	39
Student Safety and Well-Being	40
Laboratory Safety and Work-Related Injuries.....	40
Occupational Safety.....	40
Radiation Safety.....	40
Reporting Safety Issues	41
Safety Resources.....	41
Health, Wellness, and Recreation Services	41
Crisis or Emergency Services.....	41
Research Policies & Training	43
Student Access to Physical Resources.....	43
RATS Courses	43
Institutional Review Board	43
Export Controls.....	43
Research Misconduct.....	44
Intellectual Property Policies.....	44

Student Access to Physical Resources	45
Departmental Resources	45
University Resources	45
<i>University ID Card</i>	45
<i>TRAX Pass</i>	45
<i>Wireless Connections</i>	45
<i>Software</i>	45
<i>Hardware</i>	45
<i>Paychecks & Direct Deposit</i>	45
<i>Housing</i>	45
<i>Meals & Food</i>	45
Student Resources: General	45
Graduate School Resources	45
Communication Resources	46
Computing Resources	46
Wireless Connections	46
Software	46
Hardware	46
Events, Arts, Entertainment and Recreation	46
Student Resources: Academic	47
Admissions	47
Administrative & Records	47
Graduation	47
Professional Development	47
Training & Workshop Programs	47
Writing & Manuscript Editing	47
Graduate Writing Center & Graduate Student Reading Room	47
University Libraries	48
Student Resources: Code of Conduct, Dispute Resolution, Diversity, Support Groups, and Leadership	49
Advocacy and Dispute Resolution	49
Title IX Compliance	49
Diversity, Equal Opportunity, Affirmative Action, and Title IX; Support Groups and Services	49
Resources for International Students	50
International Student and Scholar Services	50
Admission	50
Tuition and State Residency	50

Continuous Registration and Full-Time Status.....	50
Leave of Absence	51
Employment.....	51
Research Restrictions.....	51
After Defense and/or during the Semester of Graduation.....	51
Resources for International Students.....	51
Important Forms.....	52
Research and Other Forms.....	52
Glossary.....	53

Faculty & Leadership Contacts

Please refer to our Department webpage for the current list of faculty,

<https://mse.utah.edu/faculty/>

Student Contacts

The Departmental Graduate Student Advisory Committee (GSAC) consists of several graduate students from within the department, who are elected yearly at the end of the Spring semester for the following academic year. This body then meets to elect a Committee Chair and to appoint any additional members deemed necessary.

The primary objective of the Department GSAC is to promote purposeful communication between the student body and the faculty on a professional and technical as well as a social level. The following duties are illustrative of the ways in which this can be accomplished:

- a. It is the aim of the GSAC, with the assistance of the faculty, to promote a feeling of professionalism among the students and to prepare the students for what will be expected of them in their careers. Special emphasis is placed on those intangible items that are difficult to transmit in a classroom environment (e.g., the demands of an industrial environment as opposed to an academic one: job availability and interviewing).
- b. Department GSAC chair or its selected/elected representative serves as a member of the College Student Council.
- c. As required by university policy the GSAC provides -input on any faculty member being considered for retention, tenure or promotion.
- d. In cases of disputes involving students and faculty the GSAC acts as intermediary.

Important University Deadlines

- Academic calendar deadlines: <https://registrar.utah.edu/academic-calendars>
- International Teaching Program deadlines: <https://gradschool.utah.edu/ita/important-dates-and-deadlines>
- University Fellowship deadlines, including Teaching Assistantship & Research Assistantship deadlines: <https://gradschool.utah.edu/tbp/graduate-fellowship-opportunities>
- Thesis Office manuscript submission deadlines: <https://gradschool.utah.edu/thesis/calendar>
- Graduation deadlines: <https://registrar.utah.edu/graduation>

Timeline of Objectives for Graduate Degrees

To stay on schedule, the graduate student should complete the objectives within the time given. See appropriate sections in this handbook for additional information. The student is expected to provide necessary information for the department to prepare the required online forms. For specific deadline dates in any semester, see the calendars for the graduate program and the thesis office on the Graduate School website (see Important Deadlines). Unless otherwise specified, requirements apply to both M.S. and Ph.D.

First Year

Familiarize yourself with the requirements in the Graduate Catalog: Policies and procedures for graduate students (see the Graduate School website) and in the department's Graduate Student Handbook.

To plan your coursework, ask the departmental Graduate Academic Advisor if you are limited to a specific number of semesters in which you can receive tuition benefit. There are some instances where there are no specific time limits.

Take Chemical Hygiene Safety Training every year.

M.S. Register for seminar each Fall and Spring semester for two years.

Ph.D. Register for seminar each Fall and Spring semester for three years.

If a thesis advisor was not selected during admission, select one during the first or second semester. Select a research topic.

Ph.D. If you have received a Master's degree, consult with your thesis advisor and the departmental Director of Graduate Studies whether any M.S. courses may be used to waive required Ph.D. coursework.

M.S. During the second semester, form a Supervisory Committee. Request the departmental Graduate Academic Advisor, in writing, to enter the Supervisory Committee in the online record.

Ph.D. Take the Ph.D. Qualifying Examination the first May after admission.

Second Year

Domestic students apply for Utah residency.

Take Chemical Hygiene Safety Training each year.

Graduate Seminar

Ph.D. Form a Supervisory Committee within one year after passing the qualifying exam. Request the departmental Graduate Academic Advisor, in writing, to enter the Supervisory Committee in the online record using the form found on the department website.

M.S. Present a graduate seminar.

M.S. Complete at least twenty credit hours of course work and ten hours of MSE 6970/MET E 6970 *Thesis Research* within two years or four semesters.

Third Year and Beyond (Ph.D.)

Ph.D. Take Chemical Hygiene Safety Training once a year.

Ph.D. Present a graduate seminar.

Ph.D. Present the research proposal no later than the third year of the program and before the semester of the defense. Submit a printed copy to the supervisory committee two weeks before the oral presentation.

Ph.D. Complete at least 24 credits of course work and 24 hours of MSE 7970/MET E 7970 *Thesis Research*, with a total credit of no fewer than 54 credit hours.

Semester before Graduation

M.S. This will probably be the third semester of graduate studies (that is, starting the second year).

Ph.D. This will probably be the fifth or a later semester of graduate studies (that is, starting the third year).

Familiarize yourself with *A Handbook for Theses and Dissertations*, available on the Thesis Office website and also in this Handbook. Use it while drafting your thesis. Check the Thesis Office Calendar for deadlines.

File a graduation application with the Office of the Registrar, Graduation Division.

After completion of all the graduate coursework, provide a worksheet, found on the department website, www.mse.utah.edu, to the departmental Graduate Academic Advisor showing which courses you have selected to be used for the "Program of Study". Submit transcripts of transfer credits to the department for graduate work completed elsewhere.

Semester of Defense (Final Oral Examination)

Register for at least three credit hours.

To graduate during the same semester as the Final Oral Examination is taken, schedule the Final Oral Examination during the first few weeks of the semester. The last permissible day to defend the thesis or dissertation during the defense semester is the day before the next semester starts.

Submit a draft of the thesis or dissertation to the Committee Chair at least three weeks

before the Final Oral Examination, and to the Supervisory Committee at least two weeks before.

After Defense and/or during the Semester of Graduation

Nearly all paperwork is filed electronically.

International students apply for Optional Practical Training, if desired.

Make changes in the thesis or dissertation required by the Supervisory Committee. Get the “Final Reading Approval” signed by the thesis advisor and department chair via the online system through the graduate school.

Check with the departmental Graduate Academic Advisor that all required forms and documentation have been submitted.

Submit one copy of the defended, committee-approved thesis or dissertation manuscript plus the Final Reading Approval to the Thesis Editor. To expedite the thesis clearance process, the thesis office has shifted the primary responsibility of checking formatting, grammar and proof-reading to the advisor, supervisory committee and the department before the final reading approval. Make any changes to the manuscript that the committee may require after the oral defense and get the final reading approval within two weeks of the thesis defense. ***The thesis/dissertation manuscript should be submitted to the Thesis Office within 2 weeks of the successful defense date.*** The target date for submission to the thesis office of the final reading approved manuscript is one week before the last day of classes for the semester. The thesis office is working continually on improving the clearance process and thus, please check with the Thesis office for updated guidelines and deadlines.

Submit a PDF copy of the thesis or dissertation that has been defended and approved by the supervisory committee, the final reader, and the chair of the department to the Thesis Office for Format Approval. Submit your manuscript by following the directions on Gradschool.utah.edu/thesis/online-thesis-submission/. You will need the university ID numbers (Unids) of all your committee members and the chair of your department. Electronic signatures are gathered through this system.

After you submit your manuscript, the online system will send emails with links to the approval forms for your committee members and department chair to sign. You should give the committee members and department chair notice to look for these emails. Your chair will receive two emails with a different link for each of the two different forms they need to sign. Manuscripts remain in a holding queue until the signatures from your committee chair, department chair, and the majority of the rest of the committee members have signed the electronic forms. You will receive an email as each signature is completed.

Once these signatures are received your manuscript will move into the working queue. You will also receive a notice when this happens. To be considered for graduation in a particular semester, the defended and committee-approved thesis or dissertation should be submitted two weeks prior to the final date of the semester.

IMPORTANT: The manuscript submitted must adhere to the formatting guidelines in the thesis handbook in order to qualify as meeting the deadline. If manuscripts are submitted after the Format Approval target date (see the Calendar on The Graduate School website), they will be handled on a best-effort basis for graduation in that semester. Manuscripts are reviewed in the order in which they are received.

After notification by the Thesis Office that the submitted manuscript has been read, you may email your editor with any questions regarding any requested corrections. Once all corrections have been made, a Format Approval is issued.

After receiving Format Approval, the student will be given instructions for uploading a PDF file to ProQuest/UMI. The final manuscript should be uploaded no later than the Monday before the examination week (the final week of the semester; see final submission date listed in the Calendar on The Graduate School website). If the final manuscript is satisfactory, the dean of The Graduate School signs the Final Reading Approval form and a Thesis Release is issued. All the processing of the manuscript must be completed by the last day of the semester for graduation in the semester.

M.S. Graduate within four years of entering the program.

Ph.D. Graduate within seven years of entering the program.

Before leaving the university, properly dispose of chemicals and samples, give laboratory notebooks and other research products/samples to the thesis advisor, return keys and library books, and provide a forwarding address, a short biographical statement, and a recent photograph of yourself to the department office.

Program Requirements

Graduate Programs in Materials Science & Engineering and Metallurgical Engineering through the Department of Materials Science & Engineering

The Department of Materials Science and Engineering at the University of Utah offers three graduate degrees in Materials Science and Engineering: Master of Science (MS) Thesis and Non-Thesis Options, and Doctor of Philosophy (PhD). The M.S. Thesis option requires a Master's Thesis, the MS Non-Thesis option requires a Special Project, and the PhD degree requires a Doctoral Dissertation.

The Master of Science (MS) Thesis Option is a research and thesis degree.

The degree of Master of Science Non-Thesis Option recognizes achievement in which design is emphasized, in contrast to the typical MS degree that has emphasis on research. For students entering and accepted for an MS non-thesis degree and with adequate undergraduate preparation, an MS Non-Thesis degree should be completed within two years of full-time study.

The Department of Materials Science & Engineering also offers four graduate degrees in Metallurgical Engineering: M.S. (with thesis), M.S. (without thesis), M.E., and Ph.D. The decision on the type of a Master's degree should be made between the student and the faculty advisor.

Expected Learning Outcomes

Materials Science and Engineering M.S.

1. Advanced knowledge of core materials science and engineering principles and the selected area of research at the level that exceeds undergraduate expectations.
2. Ability to conduct supervised research and to make personal contributions towards the solution of posed problems.
3. Effective oral and written technical communication skills.
4. Ability to write technical reports and peer-reviewed papers.

Metallurgical Engineering M.S.

1. Advanced knowledge of core **metallurgical engineering principles** and the selected area of research at a level that exceeds undergraduate expectations.
2. Ability to conduct supervised research and to make personal contributions towards the solution of posed problems.
3. Effective oral and written technical communication skills
4. Ability to write technical reports and peer-reviewed papers

Ph.D. (METE and MSE)

1. Expertise in the selected area of research that is comparable or exceeds that of the advisor and members of the supervisory committee.
2. Ability to conduct independent research, generate novel ideas, design and execute a research program.

3. Scholarly contribution to the selected area of research as evidenced by the publication of at least two peer-reviewed papers in journals, transactions, or proceedings.
4. Ability to effectively communicate the results of their research.

Admission Requirements & Procedures

For information on admission to the graduate program in Materials Science & Engineering or Metallurgical Engineering, visit <https://mse.utah.edu/graduate/admissions/>.

Students wishing to do graduate work in the department must submit a completed application to the University of Utah, along with letters of recommendation, a Statement of Purpose, official or unofficial transcripts of all university or college courses completed at other institutions, and official or unofficial certification of degrees obtained. Official transcripts and certification are required to be submitted upon acceptance. Students should be sure to choose the degree they are seeking, Materials Science & Engineering OR Metallurgical Engineering, at the time of their application.

Graduate Record Examination (GRE) general test (verbal, quantitative, and analytical) scores are not required, but highly recommended. There is no minimum score requirement, and scores are used in conjunction with student background for assessment.

To be admitted, the applicants must meet the admissions requirements of the department, the Graduate School, and the university. Admissions requirements for the Graduate School can be found at <https://gradschool.utah.edu/graduate-catalog/admissions>, and for the University at <https://admissions.utah.edu/apply/graduate>.

The Admissions Office website is <https://admissions.utah.edu/>. The International Admissions Office website is <https://admissions.utah.edu/international/index.php>.

A beginning graduate student may receive counseling on academic issues from the departmental Graduate Academic Advisor or the Director of Graduate Studies.

Transfer Credits

Graduate credits may be transferred from other regionally-accredited institutions with department and advisor approval and applied toward the fulfillment of graduate degree requirements.

Up to 6 hours of transfer credit from graduate-level courses taken at other institutions may be applied towards the fulfillment of the master's degree requirements. For PhD students, up to 9 hours of transfer credits from courses taken at other institutions may be applied towards the fulfillment of the PhD degree course requirements. Course credits used for a Master's degree at the University of Utah may be used without limit to fulfill the course credit requirement for the Ph.D. degree. Transfer credit must be

- a. of high grade (B or higher), and
- b. recommended by the student's Supervisory Committee with approval by the Director of Graduate Studies.

Nonmatriculated Credits

Only nine semester hours of non-matriculated credit, taken no more than three years prior to approval, can be applied toward a graduate degree.

Research Advisor

If the graduate student has entered the program without an assigned thesis advisor, the Director of Graduate Studies may serve as or appoint another faculty member as a temporary thesis advisor. The graduate student should discuss possible research projects with all faculty members in the student's area of interest and select a topic and a thesis advisor. Graduate students are required to choose a research thesis topic before the end of their second semester of study.

International Students

A proof of English proficiency is required for international applicants. The minimum scores are 80 internet-based test (iBT) on the Test of English as a Foreign Language (TOEFL), a band score of 6.5 on the International English Language Testing System (IELTS), or a score of 105 on Duolingo. Scores are valid only for two years. The English proficiency requirement may be waived if the applicant is from an English-speaking country (see International Admissions for a list of accepted countries) or if the applicant is completing or has recently completed a degree from a university in the U.S. or another English-speaking country.

International students should familiarize themselves with the relevant visa requirements and compliance.

Program Coursework

The university confers graduate degrees upon candidates who meet the requirements designated by the appropriate graduate committees, the Graduate Council, and the faculty of the university. Credits toward a graduate degree are recognized only for those courses for which the student is registered or those credits that are transferred with the Department's approval.

Requirements for All Degrees

Graduate-Level Courses

All courses numbered 6000 or above are considered graduate-level courses. No 5000–level or lower courses are accepted for graduate credit without the prior written approval of the student's Supervisory Committee and the Director of Graduate Studies.

See The University of Utah General Catalog for a list of graduate courses:
<https://www.utah.edu/students/catalog.php>.

Graduate Seminar for Materials Science & Engineering and Metallurgical Engineering

The department offers a graduate seminar course each semester.

- MSE 7800/MET E 7800 - Graduate Seminar I (0.5 credits) Fall Semesters
- MSE 7801/MET E 7800 - Graduate Seminar II (0.5 credits) Spring Semesters

Masters students are required to take four semesters (0.5 credit hours each semester) of MSE/MET E Graduate Seminar. No more than two credits (four half credits) for graduate seminar may be applied towards the M.S. degree.

Doctoral students are required to take 6 semesters (0.5 credit hours each semester) of MSE/MET E Graduate Seminar. No more than three credits (six half credits) may be applied towards the Ph.D. degree.

If the student is unable to attend due to conflicts with other courses, employment, etc., the student should discuss this with the departmental Graduate Academic Advisor beforehand. Substitution may be available for conference attendance/presentations.

Each student is required to present a seminar at least once during his/her degree program.

Master of Science (Both Thesis and Non-Thesis Option), Both Programs

General Coursework and Study Requirements for the M.S.

Candidates for the Master of Science degree must earn a minimum of thirty semester hours in graduate courses and thesis research. A minimum of twenty semester hours must be in coursework in Metallurgical Engineering/Materials Science & Engineering or related technical subjects, with a minimum of ten semester hours in thesis research. The student is required to maintain at least a 3.0 grade point average (GPA). Faculty Consultation (MSE 6980/MET E 6980) does not count toward the fulfillment of degree requirements.

Specific Degree Requirements – Overview

Complete a minimum of 30 credit hours in courses level 6000 or above:

- 20 hours of MSE/MET E coursework (which include 2 hours of MSE/MET E Graduate Seminar MSE 7800/7801 or MET E 7800 and 12 out of the 20 hours must be MSE/MET E courses). Exceptions to this rule are at the discretion of the student's Supervisory Committee.
- A minimum of 10 hours of Thesis Research (MSE 6970/MET E 6970)

Students will also be required to complete the following requirements during the course of the program:

- Supervisory Committee
- Program of Study
- Thesis and Defense (Thesis Option) *OR* Project Presentation (Non-Thesis Option)

Required Courses for Masters Degree

Required Courses for Masters in Materials Science & Engineering. All entering MSE MS students are required to take the following MSE core courses within their first two semesters.* These courses will count towards the hours of MSE coursework hours.

- MSE 6001 - Engineering Materials (3 credits)
- MSE 6032 - Advanced Thermodynamics (3 credits)
- MSE 6034 - Kinetics (3 credits)*
- MSE 6011 - Advanced Materials Techniques: Experiment, Theory, and Characterization (3 credits)

The remaining credit hours of required MSE course work will be determined by a student's faculty advisor.

*EXCEPTION: Students who received a BS from the Department of Materials Science and Engineering at the University of Utah and received a B or better in the MSE 5034/6034

course will not be required to retake this course. These students are also allowed to substituted MSE 6001 and 6011 courses with any other 6000/7000 level MSE or MET E course.

Required Courses for Masters in Metallurgical Engineering. A series of core courses have been established for the graduate program in Metallurgical Engineering. The strongly recommended core courses are also shown below. Additional core courses are highly recommended and are considered basic for each discipline. See the departmental Graduate Academic Advisor for more information.

M.S. Program Core Courses for Different Focus Areas

Mineral Processing

MET E 6670 Mineral Processing I

MET E 6750 Transport and Rate Phenomena

Chemical Metallurgy

MET E 6700 Low Temperature Chemical Processing

MET E 6750 Transport and Rate Phenomena

MET E 6710 High-Temperature Chemical Processing

Physical Metallurgy

MET E 6260 Physical Metallurgy I

MET E 6450 Mechanical Metallurgy

MET E 6780 Metals Processing

Also see the section, “Additional Core Courses Recommended for M.S. & Ph.D. Programs in Metallurgical Engineering.”

Thesis or Special Project Hours for Materials Science & Engineering and Metallurgical Engineering

M.S. students must complete at least 10 hours of either Thesis Research: Master of Science (MSE 6970/MET E 6970) for the M.S. thesis option, or Special Project (MSE 6590) for the non-thesis option in Materials Science & Engineering. The candidate must also be regularly enrolled at the University and registered for at least one course during the semester in which the final oral examination (thesis defense) is taken or the project presented.

Doctor of Philosophy (Ph.D.) Degree

The Ph.D. degree represents the highest scholarly achievement demonstrated by independent research and is not awarded simply for the fulfillment of resident or credit requirements.

General Coursework and Study Requirements for the Ph.D.

The student must complete three or more years of approved graduate study, including one year (that is, two consecutive semesters) in full-time, continuous residency at the University of Utah.

A minimum of fifty-four semester hours of credit is required for the degree, of which a

minimum of twenty-four must be course credits in Materials Science & Engineering/Metallurgical Engineering or related technical fields (for example chemical engineering, nuclear engineering, chemistry, etc.) and twenty-four are dissertation research credits. Faculty Consultation (MET E 7980) does not count toward the fulfillment of degree requirements.

Courses taken for a master's degree may be used to waive parts of the total credit hours required for the doctoral degree.

The student is strongly encouraged to take the Ph.D. core courses in a chosen area. Also, a student is encouraged to take the core courses from areas other than her/his own major area.

Specific Degree Requirements – Overview

Doctoral students must complete a minimum of 54 credit hours in level 6000 or above:

- 24 hours of course work (that include 3 hours of MSE Graduate Seminar MSE 7800/7801, and 12 out of the 24 hours must be MSE courses). Exceptions to this rule are at the discretion of the student's Supervisory Committee
- A minimum of 24 hours of Thesis Research (MSE 7970)
- The final 6 hours may be either course work or thesis research.

Students will also be required to complete the following requirements during the course of the program:

- Qualifying Examination
- Supervisory Committee
- Program of Study
- Dissertation Proposal
- Dissertation Defense

Required Courses for PhD

Required Courses for PhD in Materials Science & Engineering. All entering MSE PhD students are required to take the following MSE core courses within their first two semesters.* These courses will count towards the hours of MSE coursework hours.

MSE 6001 - Engineering Materials (3 credits)

MSE 6032 - Advanced Thermodynamics (3 credits)

MSE 6034 - Kinetics (3 credits)

MSE 6011 - Advanced Materials Techniques: Experiment, Theory, and Characterization (3 credits)

The remaining credit hours of required MSE course work will be determined by a student's faculty advisor.

*EXCEPTION: Students who received a B.S. or M.S. degree from the Department of Materials Science and Engineering at the University of Utah and received a B or better in MSE core courses (MSE 6032, MSE 5034/6034, 6011) will not be required to retake these courses.

Core Courses for Ph.D. Programs in Metallurgical Engineering. A series of core courses have been established for the graduate program in Metallurgical Engineering. The strongly recommended core courses are also shown below. Additional core courses are highly recommended and are considered basic for each discipline. See the departmental Graduate Academic Advisor for more information.

PhD Program Core Courses Strongly Encouraged for Different Focus Areas

Physical Metallurgy

MET E 6260 Physical Metallurgy I

MET E 6450 Mechanical Behavior

MET E 6780 Metals Processing

MET E 7270 Physical Metallurgy II

Chemical Metallurgy

MET E 6750 Transport and Rate Phenomena

MET E 6710 High Temperature Chemical Processing

MET E 6700 Low Temperature Chemical Processing

Minerals Processing

MET E 6670 Minerals Processing I

MET E 6690 Process Engineering Statistics

MET E 6680 Mineral Processing II

Also see the section, "Additional Core Courses Recommended for M.S. & Ph.D. Programs in Metallurgical Engineering."

Additional Core Courses Recommended for M.S. & Ph.D. Programs in Metallurgical Engineering

Mineral Processing

MET E 6730 Flotation Chemistry

MET E 6760 Process Design & Economics I

Chemical Metallurgy

MET E 6600 Corrosion Fundamentals and Minimization

MET E 6760 Process Design & Economics I

MET E 6765 Process Design & Economics II

CHEM E 6553 Chemical Reaction Engineering

Physical Metallurgy

MET E 6300 Alloy and Material Design

MET E 6800-011 Solid State Thermodynamics/ MSE 6032 Adv.

Thermodynamics

MET E 6240 Principles and Practice of Transmission Electron Microscopy

MET E 6250 X-ray Diffraction

MET E 6270 Powder Metallurgy

Thesis Hours for Materials Science & Engineering and Metallurgical Engineering

Doctoral students must complete at least **24 hours of Thesis Research** (MSE 7970/MET E 7970, Thesis Research: Ph.D.). The candidate must also be regularly enrolled at the University and **registered for at least one course** during the semester in which the final oral examination (dissertation defense) is taken.

Program of Study

It is suggested that the student find a thesis advisor as soon as possible, because the burden of convincing the Supervisory Committee of the course hours otherwise falls upon the student. Each semester the student must obtain the thesis advisor's approval of the classes for which s/he plans to register. Finally, the Supervisory Committee must also approve the student's coursework.

The student provides the necessary information, in writing, to the departmental Graduate Academic Advisor to enter the Program of Study in the online record. Subsequent changes must be approved by the Supervisory Committee and a new Program of Study submitted.

Mandatory Exams and Milestones

Admission to Candidacy for the M.S. Program

The requirement to take the Master's Comprehensive Examination is waived for M.S. students in Materials Science & Engineering and Metallurgical Engineering.

Admission to Candidacy for the Ph.D. Program — Qualifying Examination

OBJECTIVES:

1. To assess student's:
 - a. ability to conduct review and critical analysis of the literature,
 - b. ability to apply fundamental knowledge relevant and essential to the specific research topic,
 - c. ability to formulate hypothesis/idea and to configure a plan for possible research,
 - d. ability to logically organize ideas and present them in the proposal and oral presentation.
2. Provide student with valuable experience of basic tasks and activities essential for successful progress towards Ph.D.
3. Provide advisor with additional metric for evaluation of student suitability for completing a Ph.D. project under their guidance.

TIMING:

Student has the option of taking the QE in the Spring (normally May) of either their first

or second year in one of the department Ph.D. programs (MSE or MET E). If the student takes it in their first year and does not pass, the advisor, director of graduate studies, and department chair can jointly decide to allow the student a second chance in the Spring of the following year. Such an allowance will not necessarily be approved.

FORMAT:

Topic selection: Student, in consultation with their advisor and the department Director of Graduate Studies will choose a topic that does not overlap with existing proposals/projects of the advisor. It is assumed, that it is in the interest of all parties that the topic is selected such that the student will have sufficient opportunity to demonstrate *independent* thinking and ideas, yet it is not completely orthogonal to the research area of student specialization. Therefore, the efforts spent on the qualifying exam topic provide valuable background for the student future research or/and can be utilized by advisor's research group. The student is expected to write the report on their own without any editing from advisor.

REPORT

Student will have one month (typically May) from time of topic approval by the Director of Graduate Studies (DGS) to write the report/proposal and submit it to a 3-member committee that will evaluate the proposal. The report should include:

- literature overview
- summary of current state of the art in the selected research topic,
- challenges and possible opportunities for research,
- hypothesis for proposed research,
- plan and justification for possible research.

The report should be well-formatted, organized, include literature citations, etc. Student may use a format from a specific funding agency (e.g., NSF, DOE, ACS, etc.). Alternatively, they can use the following structure.

1. Introduction
 - a. Background
 - b. Literature survey
 - c. Hypothesis
2. Project Objectives
3. Proposed Research Scope
 - a. Describe your approach
 - b. Organize into tasks

4. Schedule and Milestones (Plan for 1-3 years)
5. References

Regardless of the proposal format, there is a strict 15-page limit for the report, and font can be no smaller than 11 pt.

If the student is advised by the DGS, approval will be sought from the Department Chair or another faculty member designated by the Department Chair.

Oral presentation:

Oral presentation should be concise, well-illustrated summary of the report/proposal. Student will have 20 to 30 minutes for presentation with additional time for questions from the committee up to 30 minutes. The committee will be asking questions related to the proposed research ideas as well as fundamental knowledge relevant and essential to the specific research topic.

EVALUATION

The committee will be comprised of three faculty members of MSE Department. Effort by the DGS should be made to include at least two members with expertise as close as possible to the subject area of student's research work or the chosen QE research topic (excluding student's advisor).

Committee will evaluate

- Fundamental knowledge (based on oral presentation, questions, and report content)
- Ability to summarize and present background for the topic (report and presentation)
- Ability to formulate hypothesis and present research plan (report and presentation)
- Report quality (flow, illustrations, formatting)
- Presentation style (flow, organization of slides, ability to answer questions, etc.)

Each evaluation category gets a score on 1-5 scale from each committee member. Scores are averaged for each category. The total combined of five average scores of 15.0 is required to pass.

If student has a subpar performance in some section(s), the committee can request additional actions (e.g., write up a new section, editing existing section, redo whole or partial

presentation, etc.). If the student does not pass, they can appeal to the DGS (or the Department Chair in the case that the DGS is also the student's advisor). Outcomes can include: (1) no change in decision, and student is reclassified as an M.S. student and given a reasonable amount of time to complete and defend a thesis; (2) decision may be changed, granting the student a pass; (3) student may be given a second and final chance to update their proposal and re-present to the committee (time frame to be agreed upon by Director of Graduate Studies, advisor, and student).

Supervisory Committee Formation

Chair

The faculty member directing the research becomes the student's faculty and thesis advisor and Supervisory Committee Chair. It is important to note that the thesis advisor and project selections usually require sponsored research funding unless the student is supported on a fellowship. Thus, project selections usually are restricted to externally funded projects.

Committee Selection

Appointments to Graduate Supervisory Committees of persons who do not have a regular, research, lecture, adjunct, clinical, or other instructional appointment in the university must be approved by action of the Graduate Council on the recommendation of the Supervisory Committee Chair and (for M.S. or Ph.D.) the Dean of the Graduate School. Members of the supervisory committee must hold a PhD degree in Materials Science & Engineering, Metallurgical Engineering or related discipline.

Once Supervisory Committee members have agreed to serve, the student requests the departmental Graduate Academic Advisor, in writing, to prepare the form "Request for Supervisory Committee." The student should provide the names of the prospective committee members and their affiliations. See the deadlines.

Master of Science

By the end of the second semester of a student's graduate work, the student, in consultation with his/her thesis advisor, forms a Supervisory Committee, which is approved by the Department. The Committee normally consists of three faculty members, including one faculty member from outside the major field. At least two members must be tenured or tenure-track faculty in the Department. Exceptions must be approved by the Director of Graduate Studies and by the Graduate School.

Doctor of Philosophy (Ph.D.)

After passing the Qualifying Examination, the student, in consultation with his/her thesis advisor, forms a Supervisory Committee, which is approved by the Supervisory Committee Chair. The Committee normally consists of five faculty members, including three tenure-track faculty members in the Department, one University of Utah faculty member from outside the Department, and one other faculty member or researcher either from within or outside the Department. The outside member is normally from another University of Utah department. However, the dean of The Graduate School may approve requests to appoint a committee member from another university where appropriate justification and supporting documentation is provided. Four of the five members must be tenured or tenure-track. An exception may be made when in the opinion of the Supervisory Committee Chair and the Director of Graduate Studies the work of the Committee is strengthened by a departure from this rule.

The supervisory committee is responsible for approving the student's academic program, approving the dissertation subject and final dissertation, and administering and judging the dissertation proposal and final oral examination (dissertation defense).

Master of Engineering

By the end of the second semester of a student's graduate work, the student, in consultation with his/her thesis advisor, forms a Supervisory Committee, which is approved by the Department. The Committee normally consists of three faculty members, including one member from outside the major field. Two of the three members must be tenured or tenure-track faculty.

Required Meetings

The Supervisory Committee for an M.S. candidate meets during the student's thesis defense (Final Oral Examination).

The Supervisory Committee for a Ph.D. candidate meets during the student's proposal presentation and dissertation defense (Final Oral Examination).

The Supervisory Committee for an M.E. candidate meets during the student's report presentation.

Supervisory Committee Roles

The Supervisory Committee consults with the student in planning her/his degree program and thesis or dissertation research. The Committee is responsible for approval of the student's Program of Study; research proposal; thesis, dissertation, or final research report; and Final Oral Examination. If a Supervisory Committee finds a graduate student's preliminary work deficient, the student may be required to take supplementary graduate or undergraduate courses. Graduate credit is not allowed for the latter.

The faculty member who directs the thesis or dissertation work (the thesis advisor) usually serves as the Committee Chair of the Supervisory Committee.

Program of Study, All Degrees

Once the student has completed his/her coursework, but at least one semester before graduation, the student obtains approval of her/his coursework from the committee. The student provides, in writing, the necessary information on approved coursework to the departmental Graduate Academic Advisor to prepare the online "Program of Study" form. The Program of Study must also be approved by the supervisory committee and the Director of Graduate Studies. Subsequent changes must be approved by the student's Committee and a new Program of Study submitted.

Thesis/Dissertation/Project/Report

See <https://gradschool.utah.edu/thesis> for specifications and formatting requirements for theses and dissertations.

Resident tuition is charged if a student's total registration includes only Thesis Research (6970 or 7970) and/or Faculty Consultation (6980 or 7980).

Master of Engineering students in Metallurgical Engineering, must write a Final Report rather than a thesis or dissertation.

Requirements for All Degrees

Research Topic and Thesis Advisor

If the student is not assigned to a particular thesis advisor upon starting the program, the graduate student should discuss possible research projects with all faculty members in the student's area of graduate studies and select a topic and a thesis advisor. Graduate students are required to choose a research thesis topic before the end of their second semester of study.

Every person who works in the departmental laboratories must be either a registered student, an employee of the University, or an appointed visiting researcher or scholar.

Laboratory Notebook

All research should be recorded in a laboratory notebook, issued by the Department. Proper laboratory notebook usage should be followed under the guidance of the faculty thesis advisor.

Research Equipment

Some research equipment is used in common by all graduate students. A student must be trained and qualified in the use of a piece of equipment before using it. When using equipment, the use-time must be logged in.

If equipment is moved, the student is responsible to notify the department of its new location. The department must account for all equipment once a year.

For use of equipment under a research group, permission from the faculty in charge of the group is needed. For equipment under recharge centers, a project or activity number must be provided. If no project or activity to which the use can be charged is available, special permission for use must be obtained from the faculty in charge of the recharge center or from the Department Chair.

Research Proposal Requirements for Ph.D.

After advancing to candidacy, but before the end of the third year (6th semester) in the program, students must complete the written and oral portions of the Dissertation Proposal Exam. An exception can be granted by a student's Supervisory Committee Chair for extenuating circumstances.

The Dissertation Proposal must occur before the Dissertation Defense and the two may not be completed within the same semester. The Dissertation Proposal Exam (written, oral, or both parts) may be repeated once if a "Fail" or "Conditional Pass" is received the first time.

The student outlines the course of research to be pursued in collaboration with his/her research advisor. The proposed research plan is then presented to the Supervisory Committee for approval. In the proposal, the student should clearly state his/her research objectives and plan of attack and what s/he hopes to accomplish.

Written Proposal

The Research Proposal Examination is given by the student's Ph.D. Supervisory Committee. The examination consists of an oral defense of a written research proposal on a subject either on or not on the student's research topic, at the discretion of the Committee. It must be given to their Supervisory Committee at least **two weeks** prior to the date of the oral exam. Students must propose their own original research which will form the basis of their publications and PhD dissertation. The proposal should detail the prior work in the field, detail any results

already obtained by the student, and lay out the research objectives and plan for meeting those objectives before completing the dissertation.

The research proposal should be organized as follows:

1. Abstract
2. Introduction
3. Literature Survey
4. Proposed Research Program
5. Conclusions
6. Nomenclature
7. References

The proposal should be between fifteen and twenty typed pages of text plus tables, figures, and appendices.

Oral Presentation of Proposal

Students must arrange with their Supervisory Committee to present and defend their proposal. A common format is to prepare a talk lasting 40 minutes if uninterrupted based on the same ideas and research plan contained in the Written Proposal.

The committee will ask questions, evaluate the proposal, and give feedback and suggestions to the student on the proposed research. The committee will sign the Dissertation Proposal form, which has separate "Pass," "Conditional Pass" and "Fail" marks. Again, the committee may require remedial actions for "Conditional Pass" or "Fail" marks. If Committee finds the proposal and defense to be inadequate, the student should repeat the entire process. A maximum of two attempts is permitted.

Special Project, Master of Science (Non-Thesis Option)

Overview. The Special Project must be written in the form of a report that is submitted to the student's Supervisory Committee. Students are then required to present the results of their project in an oral presentation to the Supervisory Committee and other designated audience.

Both the report and presentation are required for completion of the M.S. Non-Thesis. A copy of the final written Special Project is provided to the Academic Advisor to be retained in the student's file, once it has been approved by the Supervisory Committee and been presented in the oral presentation.

To graduate, the "Report of the Final Examination for the Master's Degree" form needs to be completed and signed. This form is processed by the Materials Science and Engineering Academic Advisor after the completion of the oral presentation of the special project.

Registration. Students must be registered for at least 3 credit hours of **MSE/MET E 6590** during the semester of their presentation. International Students should check with the International Center once they have defended to make sure that they do not go out of status while completing requested rewrites.

Submission of Thesis or Dissertation

Upon the completion of his/her research, the student submits a typed draft of the thesis or

dissertation to her/his Supervisory Committee Chair and the final version to his/her Supervisory Committee.

Thesis or Dissertation Formatting

Formatting instructions are given in Handbook for Theses and Dissertations, available from the Thesis Office, either online or as a printed copy for a small deposit. The primary style guide for theses produced in our department is Handbook for Authors from American Chemical Society Publications, American Chemical Society. Alternative standards are suggested in the Handbook for Theses and Dissertations.

The style and format for the thesis (M.S.) or dissertation (Ph.D.) are determined by departmental policy and registered with the Thesis Editor, who approves individual theses in accordance with departmental and Graduate School policy. The approved style guides can be found on Thesis Office website, <http://gradschool.utah.edu/thesis/department-approved-style-guides-2/>.

Doctoral students in particular must submit a dissertation embodying the results of scientific or scholarly research. The dissertation must provide evidence of originality and the ability to do independent investigation and it must contribute to knowledge. The dissertation must show a mastery of the relevant literature and be presented in an acceptable style.

The draft or final document will serve as the written basis for the presentation. Students should discuss with their supervisor/advisor the expectation regarding timeliness of thesis or dissertation submission for their approval. After review, revision, and approval by the supervisor/advisor, the final draft should be sent to the supervisory committee. The defense should be scheduled no sooner than 2 weeks after the final version of the dissertation is sent to the supervisory committee.

The Supervisory Committee will examine in detail the contents, results, conclusions and contribution made by the student's research and written dissertation.

Final Oral Examination (Thesis or Dissertation Defense)

Upon acceptance of his/her thesis or dissertation by the Supervisory Committee Chair, the student is required to orally defend his/her thesis or dissertation before the Supervisory Committee.

The candidate must be regularly enrolled at the university for **three or more credit hours** of courses or for three credit hours of Thesis Research (MSE/MET E 6970 or 7970) **during the semester or term in which the Final Oral Examination is taken.**

The Final Oral Examination is given by the candidate's Supervisory Committee. The Committee Chair normally chairs the examination.

The student submits a draft of his/her thesis or dissertation to the Committee Chair at least three weeks before the Final Oral Examination and a typed copy to the Supervisory Committee at least two weeks before the examination.

Once the Final Oral Examination is scheduled, the student provides the departmental Graduate Academic Advisor with information on the date, time, and place of the examination, and the title of her/his thesis or dissertation. This should be done at least a week before the examination.

The student prepares the form “Report of the Final Oral Examination”, to be signed by the Supervisory Committee at or after the examination, indicating whether the student has passed the Final Oral Examination. The student submits the signed Report to the departmental Graduate Academic Advisor, who enters the date of the Final Oral Examination in the student’s online record.

The earlier in a given semester you defend, the more likely you are to be able to graduate that same semester. Check the Thesis Calendar (<http://gradschool.utah.edu/thesis/calendar/>) for the submission deadline. You need to defend far enough ahead of that deadline that you can make any changes to the text required by your committee and ensure that the manuscript adheres to your chosen style guide and Thesis Office requirements by the deadline.

Be aware that if you submit your manuscript on the deadline and there are any formatting errors you will not graduate that semester. The sooner you turn your manuscript in the more likely you are to graduate in that semester. ***As a general rule of thumb, plan to defend in the first two months of the semester if you want to graduate that semester.***

Thesis Correction, Approval, and Release

Following the defense, the student makes corrections in the thesis or dissertation as required by her/his Committee Chair and Committee.

If an international student does not receive thesis clearance the same semester as the Final Oral Examination, s/he needs to have obtained Optional Practical Training authorization to be effective immediately after the semester when he/she completed the Final Oral Examination. As immigration policies frequently change, please consult the International Student and Scholar Services office well in advance of your graduation to ensure that you are always in status.

After the Committee Chair signs the “Final Reading Approval,” the student submits an electronic copy of the thesis or dissertation to the Thesis Editor. The student makes corrections required by the Thesis Editor.

Following approval by the Thesis Editor, the student provides an electronic copy (pdf) of the thesis or dissertation to the Thesis Editor and to the department.

Ph.D. Dissertation Requirements

The dissertation must embody the result of independent research and constitute a contribution of knowledge in the student's field. The intellectual and creative matter presented in the dissertation must meet the standards of the particular college, department, and the student's Supervisory Committee. The dissertation may take the form of a manuscript or manuscripts to be submitted for publication in a scholarly journal, with the graduate student as senior author. See *The University of Utah General Catalog* for further details.

Applying for Graduation, All Degrees

All graduate students are required to complete a graduation application and submit it to the Office of the Registrar, Graduation Division the semester before they plan to graduate. This can be done online at <https://registrar.utah.edu/handbook/graduategraduation.php>. See the Registrar's website for more details.

The student should check with the departmental Graduate Academic Advisor that all necessary information has been entered in the online record. This includes Supervisory

Committee, Qualifying Examination (if applicable), Program of Study, and Final Oral Examination.

The following process is recommended to help students prepare for graduation:

- During the semester before your graduation date, students should check their Electronic Graduate Record File in CIS.
- If students have questions or issues surrounding graduation, they should make an appointment with the department Graduate Academic Advisor. It is important that you communicate with the Academic Advisor about your intended graduation date and progress.

In order to graduate, students must meet all of the University of Utah requirements as well as the department requirements for graduation.

For graduation deadlines and how to apply, see <http://www.sa.utah.edu/regist/graduation/applying.htm>.

Thesis Release

A student's semester of graduation is the semester in which the "Thesis Release" (Graduation Release) is signed, not necessarily the semester in which the student passes the Final Oral Examination. To graduate during a particular semester, the Thesis Release must be submitted to the Graduate Records Office before the Registrar's closing date for the semester (the last day of finals). See the Thesis Office website for details.

Graduation Ceremonies

The university holds graduation ceremonies once a year, after the Finals during Spring Semester. Commencement is for all graduating student in the university. Each college holds a Convocation for its own students. Students who graduated during the previous summer term or Fall Semester, or who expect to graduate during that Spring or Summer, are encouraged to participate. Students may also participate early if, for instance, they expect to finish during the Fall or the following Spring but anticipate they will have left the university before the end of the Spring semester or for other reasons.

Students can find information on the College Convocation Ceremony at <https://www.price.utah.edu/?s=convocation> and information on the Commencement Ceremony at <https://commencement.utah.edu/>

M.S. Advancing to Ph.D.

MS students that have successfully completed an M.S degree and would like to pursue a Ph.D. degree in the same program should petition the Materials Science and Engineering faculty for approval of advancement to the Ph.D. program. A letter from the Ph.D. advisor must accompany the petition from the student, committing the research project for this student. A copy of the thesis release for the MS must accompany the petition.

Students who have completed their M.S. degrees, but do not have a Ph.D. advisor, may not petition the faculty for advancement to Ph.D. until they have secured a project and advisor. Approved petitions will become part of the student's Ph.D. file. A Change of Graduate Classification will not be filed with The Graduate School until the petition has been approved by the faculty.

Doctoral Degree, Optional Practical Training for F-1 Students

Optional Practical Training (OPT) is the opportunity to apply knowledge gained in the classroom and/or research lab experience to a practical work experience off-campus after graduation. Optional Practical Training is authorized by Immigration Service. This authorization can take several months to obtain so students need to apply well in advance of graduation. The maximum amount of time granted to work in F-1 Optional Practical Training is 12 months.

Working before practical training has been authorized by the Immigration Service constitutes illegal employment that will jeopardize your legal status in the United States. So, it is important that students coordinate their OPT request with International Student and Scholar Services.

Leaving the Graduate Program

When graduating or leaving the graduate program, the student must prior to departure

1. Check in equipment and supply items, including computers.
2. Give laboratory notebooks and other research products/samples to the thesis advisor.
3. Properly dispose of any remaining chemicals and samples.
4. Return all borrowed books to their owners (e.g., your advisor or university libraries).
5. Return all keys to the department office and receive your deposit.
6. Provide to the department a forwarding address, a photograph, a short biographical statement, and information on current employment, if available.

Academic Requirements and Policies

Minimum GPA

The candidate is required to maintain a 3.0 or higher GPA in course work listed on the Program of Study for master's and doctorate degrees. **All courses must be passed with a B- or better.** A grade below C- is not accepted by the University toward a graduate degree.

Adding, Dropping, and Withdrawal Procedures (All Degrees)

Check the academic calendar for specific add, drop, and withdrawal dates.

Adding Classes

All classes must be added within two weeks of the beginning of the semester. Adding classes after the deadline is not permitted in the College of Engineering and requires a petition letter.

Dropping Classes

A drop implies that the student will not be held financially responsible and a "W" will not be listed on the transcript. Student may drop any class without penalty or permission during the first ten calendar days of the term.

Withdrawing from Classes

Withdrawal means that a "W" will appear on the student's transcript and tuition will be charged.

Withdrawal from Full Term Length

Beginning the eleventh calendar day and continuing through the midpoint of the term, students may withdraw from a class or the University without instructor/department permission. After midpoint of the term, students may petition the deadline for withdrawal if they have a nonacademic emergency. For more information about the petition process, please contact your Academic Advisor.

Course Fees

All students registered for laboratory courses in the department are assessed a fee to offset the cost of replacing reagents, glassware and other expendable materials used or damaged during the semester. Course fees may also be assessed for courses with field trips. Tuition Benefit does not cover course fees; it only covers mandatory fees.

Independent Study

Time spent on research preparation, bibliographic work, acquiring new mathematical or computer skills, or developing new instrumentation may be counted toward fulfilling an *Independent Study* (MSE 6980/MET E 7920) class requirement. Students may take up to three credit hours of Independent Study coursework total.

The instructor will typically be the student's research supervisor but may in special cases be another faculty member. A student needs an approval from her/his thesis advisor or an individual instructor before registering for *Independent Study*. Each faculty member's *Independent Study* class is identified by a section number in the course catalog.

Maximum Registration

No candidate for a graduate degree may register for more than sixteen credit hours in any

one semester. This includes evening resident credit and daytime classes. Teaching fellows and others employed approximately halftime are limited to a maximum registration of twelve credit hours. Tuition Benefit Program will only pay for 12 credits in ONE semester, with a limit of 24 credits in an academic year – fall, spring and summer combined.

Option for Credit/No-Credit Grading

A graduate student is granted the option, subject to the approval of his/her major department and a review by the Graduate Dean, to enroll in some courses in which s/he is graded on a credit/no credit (CR/NC) basis, rather than on a letter basis.

It is hoped that, with the CR/NC grades, a student will feel freer to extend her/his studies to areas outside his/her major or specialty and take classes which s/he might not if s/he had to compete with majors for a letter grade.

1. During her/his first year in the Graduate School of the University of Utah, the student may with the consent of the department register for one class each semester on a CR/NC basis.
2. The department has maximum flexibility to work out a satisfactory program with the student. In all cases, the choice of courses to be taken on a CR/NC basis is subject to the approval of his/her Supervisory Committee.
3. No student may elect to register for CR/NC courses in her/his major field.
4. All courses that are listed for one hour or less are graded on a simple CR/NC basis, unless the use of regular letter grades is approved by the Graduate Council.
5. A graduate student should earn a grade of “C” or better to be entitled to “credit” for those courses graded on a letter basis. Students who do not wish to register for credit, whether a letter grade or the CR/NC option, should merely audit the course.

See The University of Utah General Catalog for other details on this subject.

The graduate student is cautioned that it is important that s/he receive letter grades in order to build a graduate grade point average. This is especially important if the student applies for fellowships or traineeships on a competitive basis or later transfers to another institution.

Nonmatriculated or Correspondence Work

A student may count no more than 9 credit hours, with grades of B or better, of nonmatriculated work toward a graduate degree, unless the student's registration for additional credit is specifically approved in advance by the Supervisory Committee Chair. Courses taken by correspondence or home study are not eligible for graduate credits.

Residency

The terms *resident*, *residence*, or *residency* have two separate usages: state residency and study in residence. State residency is determined by where the student or the student's parents live. Study residency refers to whether the student takes classes on-campus and whether the student is full-time or part-time.

State Residency

Domestic students who are, or whose parents are, residents of the state of Utah pay resident or in-state tuition. All international students, or domestic students who are not and whose parents are not residents of the state of Utah, pay nonresident tuition.

Go to <https://admissions.utah.edu/apply/residency/> for details on how to qualify and how to apply for residency reclassifications.

Study Residency, M.S.

At least twenty-four credit hours must be in resident study at the university.

Study Residency, Ph.D.

At least one year (that is, two consecutive semesters) of the doctoral program must be in full-time academic work at the university. For the purpose of fulfilling the residency requirement, a full load is nine hours. When a student proceeds directly from a master's degree to a Ph.D. degree with no break in the Program of Study (except for authorized leaves of absence), the residency requirement may be fulfilled at any time during the course of study.

Full-Time Status

For full time-status, graduate students at the University of Utah must register for 9 credit hours and up to 12 credit hours of approved graduate study courses. Some of these credit hours may be thesis research for PhD (MSE/MET E 7970) or MS Thesis students (MSE/MET E 6970), or special project (MSE/MET E 6590) for MS Non-thesis students.

Part-Time Status

Domestic graduate students are allowed to attend graduate school on a part-time basis; however, it is necessary that a part-time student be registered for a minimum of 3 credit hours each semester. A letter must be submitted to the Materials Science and Engineering Administrative Office and must be received at the beginning of the student's first semester advising the Academic Advisor that the student will be part-time. This student will remain a part-time student until the Materials Science and Engineering Administrative Office is notified otherwise. Part-time students still need to satisfy the residency requirement for their perspective degrees.

Continuous Registration

Every graduate student must register for every fall and spring semester until s/he completes all requirements for her/his degree including the defense of the project, thesis, or dissertation, unless granted an official leave of absence. Students should be registered for graduate-level courses (5000-6000 level for masters; 6000-7000 level for doctoral).

Ph.D. students completing research or dissertation writing and no longer taking courses yet requiring consultation with faculty or otherwise using University facilities (e.g., the library) are required to take at least three credit hours each semester.

During any semester when a student is off-campus and does not enroll in regular courses, seminars, independent study, or thesis research, and yet requires consultation with the faculty, or otherwise uses University facilities, s/he must register for three credit hours of Faculty Consultation (MET E 6980 or 7980).

A domestic student for whom a Supervisory Committee has been appointed and who is

not registered as indicated above and will not be using any university research facilities or offices may meet the continuous registration requirement by registering for Continuing Registration (MET E 7990) and paying the Continuing Registration charge. International students are not eligible for this option. Students may register for no more than four semesters of Continuing Registration.

Students not on campus and not using University facilities are not expected to register for summer term. However, if students are on campus during the summer, using University facilities, working in the lab etc., should be registered for 3 credits of Thesis Research (MSE/MET E 6970 or 7970).

Any student who takes the Final Oral Examination during the Summer term **must** be registered during that Summer term.

Full-time status is described in The University of Utah General Catalog. For international graduate students, compliance with the current U.S. Immigration and Customs Enforcement (ICE) regulations requires that they maintain full-time student status. International students need to check with International Student and Scholar Services (ISSS) if exceptions are needed to avoid potential difficulties with Immigration.

If a student does not comply with this continuous registration policy and does not obtain an official leave of absence, s/he will be automatically discontinued from graduate study. In this case, the student will be required to reapply for admission to the University through Graduate Admissions upon approval of the home department.

MSE/MET E 7990 *Continuing Registration: PhD* is only allowed if the student is not using faculty time or University facilities except the library. Upon successfully defending the PhD dissertation, students no longer are required to register; however, those who wish to check out books from the library must register for MSE/MET E 7990. MSE/MET E 7990 **is not allowed to fulfill degree requirements** and is limited to four (4) semesters. Students are still responsible for the tuition and fees for MSEMET E 7990.

Vacations and Leaves

Vacations and Leaves (within a Semester)

While the department does not specify the number of vacation days permitted, it is understood that students demonstrating quality performance may arrange with their thesis advisor for time off. It is the responsibility of the student to plan all leaves and vacations with his/her thesis advisor. Leaves necessary for the presentation of research work, a job interview, etc. should also be planned in advance. Any absences not approved in advance by the thesis advisor may not be compensated for if the student is funded through a sponsored project.

As a general guideline, research assistants should be allowed at least two weeks of vacation each year. If the thesis advisor does not allow this time off, the student may appeal to the director of graduate studies and/or the department chair. If on the Tuition Benefit program, and time will be taken beyond the two weeks without pay, check with the Administrative Manager to see if a way can be found so that any unpaid leave does not drop earnings below the amount necessary to qualify for the program.

Family & Medical Leave

The Department supports graduate students seeking family medical leave and/or

reasonable accommodation as outlined generally under *Policy 5-200 Leaves of Absence (health related)* of the University of Utah Regulations that cover family medical leave and/or reasonable accommodation for conditions such as illness, pregnancy leave, military leave, foster care, adoption, hardship leave, care for elderly parents, or care for children.

Graduate students in the MSE/MET E graduate programs and employed by the MSE Department as either an R.A. or T.A. are entitled to up to 12 weeks for a family medical leave of absence beginning within the time of employment. A leave will not extend beyond the time of the thesis defense or other final date marking the completion of examinations needed for the program.

University policy prohibits discrimination against sex/gender which includes pregnant and parenting students and employees. State and federal laws, including Title IX of the Education Act, also prohibit discrimination based upon sex, including pregnancy and pregnancy-related conditions. If you believe you have been subject to discrimination, including having been denied an accommodation for a pregnancy or pregnancy-related condition, please discuss this with the Director of Graduate Studies and/or the Deputy Title IX Coordinator for your college. You may file a complaint with the OEO/AA, <https://oee.utah.edu/>.

Note that individual fellowships, such as the NSF Graduate Fellowships, may require a sponsor approval for extended leaves of absence. Specific guidelines should be consulted.

During this period, students may postpone course assignments, examinations, and other academic requirements but remain active full-time students, with access to Department facilities and to faculty and staff. While students will continue to be fully funded off any existing funding sources (e.g., fellowship, assistantship) during the leave period, they will be excused from regular teaching or research duties. However, it is the student's professional responsibility to work with her/his advisor or faculty member to prepare for the absence in advance of the leave. This includes reviewing the status and continuation of research projects, adequately preparing those who will assume the teaching responsibilities during the student's absence, and arranging for a smooth transition in any other responsibilities.

Leave of Absence, Domestic Students

A domestic student who wishes to discontinue his/her studies for one or more semesters (other than summer term) must complete a Request for Leave of Absence Form. The form must be approved and signed by the supervisory committee chair and department chair and then forwarded to the Registrar's Office for processing.

Leaves of absence may be granted for up to one year for circumstances related to:

- a serious health condition of the student or family member,
- parental leave to care for a newborn or newly adopted child,
- a call to serve in military service, or
- other compelling reasons that the student's department believes is in the best interests of both the student and the University.

The form requesting a leave of absence for a current semester must be completed and received in The Office of the Registrar by the last day of classes of that semester. Leaves of absence are not granted retroactively. Students must officially withdraw from classes in any

semester for which a leave is granted; failure to formally withdraw results in the reporting of E or EU grades for all classes. For more information about official withdrawal, see Grading Policies in the Undergraduate Information section of the Catalog.

The period during which a leave of absence is granted does not count toward the period allowed to complete the degree. Leaves are granted for a maximum of one year at a time, and may be renewed by submitting a new form to The Office of the Registrar. The leave of absence is void if a student registers for classes in a semester for which a leave was granted.

Leaving the Program Early

IMPORTANT: Students adding and/or dropping courses after the semester's published add/drop deadlines are responsible for any and all charges incurred, including withdrawals. Tuition benefit will not pay for withdrawn credit hours, and if registration falls below nine credit hours at any time during the semester, a student becomes ineligible for TBP participation and will be billed the full tuition for that semester.

Prior to departure the student must

1. Check in equipment and supply items, including computers.
2. Give laboratory notebooks and other research products/samples to the thesis advisor.
3. Properly dispose of any remaining chemicals and samples.
4. Return all borrowed books to their owners (e.g., your advisor, or university libraries).
5. Return all keys to the department office and receive your deposit.
6. Provide to the department a forwarding address, a photograph, a short biographical statement, and information on current employment, if available.

Changing Committee Chair & Committee Members

When a member of the student's Supervisory Committee becomes unavailable, the student should file a new Request for Supervisory Committee to replace her/him.

See the section on Student and Faculty Code for conflict resolution resources provided by the University.

A student who wants to leave a research group or change to a new research group is obligated to give the thesis advisor, the Department and the Director of Graduate Studies 30 days' written, signed, and dated notice outlining the reasons for leaving the group.

During the 30 days, the research task(s) should be brought to a point where it could be easily passed on to a new person. All notebooks, computer files, and data should be returned to the thesis advisor before the student is put on another faculty member's payroll. It is the student's responsibility to identify a new thesis advisor if the student wishes to continue in the Program. Failure to identify a new advisor by the end of the 30-day period may result in dismissal from the Program. Failure to obtain written approval from the supervisory committee within six months of switching advisors may result in dismissal from the Program.

The student should also reconstitute her/his supervisory committee. If the student has

already presented a research proposal to the initial supervisory committee, the student must prepare a new research proposal outlining the new thesis project within five months of joining the new research group and present it to the new supervisory committee.

As discussed elsewhere in this graduate student handbook, the regular review of student progress shall be via a performance review with the student's thesis advisor at the beginning of each semester.

IMPORTANT: Students adding and/or dropping courses after the semester's published add/drop deadlines are responsible for any and all charges incurred, including withdrawals. Tuition benefit will not pay for withdrawn credit hours, and if registration falls below nine credit hours at any time during the semester, a student becomes ineligible for TBP participation and will be billed the full tuition for that semester.

Time Limit to Degree

All work offered for the Master's Degree must be completed within four consecutive calendar years from matriculation. This includes transfer credits. The department may modify or waive this requirement in meritorious cases on recommendation from the student's Supervisory Committee.

All work offered for the Ph.D. Degree must be completed within seven consecutive calendar years from matriculation. The department may modify or waive this requirement in meritorious cases on recommendation from the student's Supervisory Committee.

All work offered for the Master of Engineering Degree must be completed within four consecutive calendar years unless an extension is granted by the dean of the college.

If a student exceeds the time limit and is not granted a modification or waiver, the department has the option to discontinue the student. Students whose studies have been interrupted for long periods of time and who have been granted extended time to complete their degrees may be required to complete additional courses, pass examinations, or otherwise demonstrate that they are current in their field.

Petitioning the Time Limits

A petition for an extension of a Graduate student career beyond the established time limits shall consist of a formal letter of request to the Graduate Dean. The letter shall demonstrate that the student is in good standing. Good standing requires that the student has a satisfactory GPA for graduation, formed a supervisory committee, that a program of study has been completed and approved by the faculty and directors of graduate studies/department chair, and that they have taken all required preliminary exams and thesis proposal exams required by the department. These must be fully updated in Grad Tracking.

The letter must demonstrate a firm commitment by the department, research supervisor, and the student to complete the agreement, including any commitments for financial support, and must demonstrate that the proposed path to graduation is feasible. The letter will be accompanied by a written completion plan that is signed by the student, the research supervisor, and the director of graduate studies or department chair.

The completion plan lays out specific milestones leading to completion, and dates for the completion of the milestones. The milestones must include formal evaluation meetings with the supervisory committee at least once per semester (if a thesis defense does not occur within the

semester). Failure to complete the milestones by the specified deadline may result in the dismissal from the program (the supervisory committee will review such a situation and make a recommendation).

The petition may request either a one-semester or two-semester extension. Further extensions will be considered for single semester extensions only, and any such request must provide a written update and a revised completion plan with updated milestones, dates, and signatures.

Formal letters of petition should be sent to <mailto:dean@gradschool.utah.edu>.

Dismissal Policies & Procedures

Sometimes it becomes necessary to terminate a research relationship between a graduate student and his/her thesis advisor or to dismiss a graduate student from the program. In some cases, a student may not satisfy the requirements and expectations of the MSE/MET E Ph.D. program, triggering an assessment of the student's status in the program.

These include reasonable rate of progress towards completing the requirements of the degree program. See the sections on Requirements and on Expectations of Participation. The student's supervisory committee (or a majority thereof) will be the deciding body.

The maximum sanction for unacceptable academic performance is dismissal from the Program (see *Student Code, University Policy 6-400*; <http://www.regulations.utah.edu/academics/6-400.html>). In cases requiring dismissal from the Program, a "Recommendation for Change of Graduate Classification" form will be filed with the Graduate Records Office. The student may appeal the decision, following the procedure outline in the Student Code (*University Policy 6-400*).

Termination of a Graduate Student/Thesis Advisor Relationship

When a faculty thesis advisor is dissatisfied with the research effort of a student, the thesis advisor should communicate to the student the concerns he/she has regarding research quality, productivity or professional conduct not meeting expectations. If the deficiencies persist, the thesis advisor must communicate to the student in writing the unsatisfactory aspects of the student's research performance, inform the student that he/she is being placed on probation, and allow the student a reasonable time (at least 30 days) to correct the deficiencies. The letter should include recommendations for corrective actions and desired improvements, and should indicate a date by which improvement is expected. A copy of this letter should be sent to the Chair of the Department and to the Director of Graduate Studies. A copy of the letter will be placed in the student's file.

If the deficiencies still persist at the end of the probationary period, it is the prerogative of the thesis advisor to terminate the student/thesis advisor relationship. The following procedure is used:

- a. Notify the student in writing, giving reasons for the termination, indicating a formal termination date at least 15 days after the date of the letter (the "Termination Date"). Send a copy of the letter to the Chair of the Department and Director of Graduate Studies.

If the student is being paid as a Research Assistant, the student should be kept on the payroll for 15 days after the date of the notification letter to

allow him/her time to obtain a new thesis advisor, unless a new thesis advisor puts the student on a payroll before the end of the 15 days. As a matter of policy, the department does not provide stipend support beyond 15 days for students as they seek a new thesis lab. The student may lose tuition benefit if the total stipend support received for the semester does not meet the current minimum as specified under the tuition benefit program.

- b. If a student cannot find a new thesis advisor by the Termination Date or if the student moves to a different department or position, he/she will be dismissed from the graduate program.
- c. If the student is being paid as a Teaching Assistant, the Department will continue the current T.A. support until the end of the termination semester, contingent on the T.A. duties being carried out properly.

It is the student's obligation to turn over all data and notebooks arranged in a manner that will allow the thesis advisor to continue the work. If these materials are not turned over by the Termination Date, a hold will be placed on the student's academic records pending return of the materials, and the student may be referred to the University's Dean of Students for disciplinary action. The student is ultimately responsible for ensuring all Graduate School and departmental requirements are met and forms are submitted for the transition. The final outcome of the process shall be documented and placed in the student's file.

Policy on Dismissal from the Program

The following are situations where a student will be considered to not be in good academic standing and may be subject to dismissal from the program. Action on such dismissal will be decided by an ad hoc committee consisting of the department chair, director of graduate studies, and thesis advisor.

- Failure to pass all courses with a grade of B- or better. If a grade lower than B- is earned, the student will be placed on probation for a semester. Earning another grade lower than B- in the probationary semester is grounds for dismissal.
- GPA (either cumulatively or in a particular semester) of less than 3.0. If a student's GPA drops below 3.0, the student will be placed on probation and allowed one semester to raise his or her GPA to at least 3.0.
- Unsatisfactory completion of laboratory rotation or research performance.
- Failure to pass the Ph.D. qualifying exam.
- Failure to make timely progress toward completion of the doctoral degree as determined by the student's supervisory committee.

If concerns arise due to behavioral misconduct, these issues are adjudicated through the Dean of Student's Office. In any such event, the procedures outlined in the "Code of Student Rights and Responsibilities" shall be followed (<http://regulations.utah.edu/academics/6-400.php>).

If a student is dismissed from the Ph.D. program based on a performance issue but has

completed a body of work and completed coursework needed to satisfy the requirements for an M.S. degree, the student will be given the opportunity to defend his or her thesis and apply for graduation with an M.S. degree. The student may not necessarily receive stipend or tuition benefit during the period needed to write and defend the M.S. thesis.

Dismissal of a student from the program will be carried out in compliance with “Code of Student Rights and Responsibilities”.

Expectations for Participation

Seminar

Each graduate student must present at least one graduate seminar during her/his graduate residency. The student is expected to present his/her work in a clear and concise manner, although the research may still be in progress. Presentations should follow good technical procedures and include objective, background, experimental results, and discussion. Equipment is available to supplement the talk with appropriate visual aids. Visual aids should be simple, avoiding too much information on one screen.

The student is evaluated by the faculty and by other students on her/his presentation.

Professional Society Meetings and Conferences

Students are encouraged to attend professional society conferences and to present their research at them. While expectations for scholarly output and rate thereof are left to the judgement of the advisor and supervisory committee, a general guideline is that PhD students in the MSE department are encouraged to **present at conferences and workshops** and should have **three first-authored papers accepted to reputable peer-reviewed journals** before graduation, and **multiple conference presentations and papers**.

Student Input

The Department will regularly receive and review student input.

Professional Development

Students are encouraged to participate in the local chapter of professional societies, particularly the Material Advantage joint student chapter. Students may receive career coaching through the Career & Professional Development Center, <https://utah.craniumcafe.com/group/graduate-student-career-coaching>.

Financial Support, Employment, Tuition Benefit, and Awards

Graduate students in most cases do not receive financial support unless working on a research project (as a Research Assistant) or having been awarded a fellowship. Supplemental salary is provided to students who also work as a teaching assistant/grader.

International students on a student visa are not permitted to work off-campus unless they have been approved for a CPT (Curricular Practical Training). Contact ISSS for more details.

Students on research assistantships, teaching assistantships, scholarships, or fellowships are not permitted to engage in regular outside employment without a special permission from their Principal Investigator or Supervisory Committee Chair. Permission is granted only in hardship cases or when the outside activity would have no impact on the student's RA or TA responsibilities.

Teaching Assistant Responsibilities & Policies

Teaching assistantships involve teaching responsibilities such as grading papers, leading discussions, or serving as an instructor or laboratory supervisor. Teaching assistantships are available in the Department for selected students. The instructor for each course selects the students. If you are interested in teaching a particular course, you should meet with the instructor at least a month prior to the start of the semester.

Research Assistant Responsibilities & Policies

Research assistants include all graduate students assigned directly to funded research projects. Research assistants are normally selected by the Principal Investigator of the project. See your thesis advisor for what may be available.

Tuition Waivers

Qualifying for the Tuition Benefit

Teaching assistants, research assistants, and graduate fellows who meet minimum financial support requirements through the university for the academic year receive tuition benefit support from the university. Please see the department office for the current amounts and for the availability of tuition benefit support for Summer term. The Tuition Benefit does not cover the International Student Fee or any class/lab fees.

Students receiving a full tuition benefit are required to work on their funded project for twenty hours per week in order to receive the benefit. Additional work hours each week are typically needed in order for the student to meet the objectives of their thesis research.

The tuition benefit is not provided to students compensated for their work through organizations other than the University, such as internships or fellowships paid directly through another institution or agency.

All students receiving the tuition benefit from the University must be full-time matriculated graduate students. The full-time status for this purpose is defined as registration for at least nine credit hours per semester during the regular academic year or 3 credits of Thesis Research ONLY. Benefits are valid for a minimum of nine and a maximum as specified by the tuition benefit guidelines. Students whose necessary coursework is less than nine hours should make up the nine hours by registering for Thesis Research (MET E/MSE 6970 or 7970).

Students who drop and/or add courses after the published university deadline are

responsible for paying any fees incurred, including the tuition charges for the dropped classes. Students are responsible for paying late fees.

If a student withdraws from courses and falls below the required nine hours, receives less than the minimum required compensation for a semester, fails to provide evidence of acceptable SPEAK test scores as applicable, or in any way fails to meet the requirements and restrictions associated with any of the supported graduate student roles or Graduate School policy, the tuition benefit will be revoked and the student billed at the end of a semester for the full tuition for that semester at the applicable resident or nonresident rate. A petition for an exception for a personal emergency such as illness may be made to the Dean of the Graduate School with a letter of support from the student's Department Chair.

Current minimum financial support requirements can be found at <https://gradschool.utah.edu/tbp/tuition-benefit-program-guidelines/#financial-support-requirements>. If your stipend is below these amounts, you should immediately discuss with your thesis advisor, director of graduate studies, and/or department chair.

For more information, see the webpage for the Tuition Benefit Program at <https://gradschool.utah.edu/tbp/>.

Tuition Benefit Limits

Teaching assistants, research assistants, and graduate fellows who meet minimum financial support requirements through the university for the academic year receive tuition benefit support from the university. Please see the department office for the current amounts and for the availability of tuition benefit support for Summer term. The Tuition Benefit does not cover course fees.

Students who enter their graduate programs with a baccalaureate degree are limited to two years (or four semesters) of tuition benefit support for the completion of the master's degree, to five years (or ten semesters) for the completion of the doctorate if bypassing the master's, and to five years (or ten semesters) if continuing in the doctoral program after receiving a Master's degree from the University of Utah (two years for a master's degree plus three additional years for a doctorate).

Students who enter a doctoral program holding a master's degree may receive up to four years (or eight semesters) of tuition benefit support.

These restrictions do not limit the number of years or semesters that a program, department, or college may choose to support a student in addition to this tuition benefit program. Since this benefit is provided by the University rather than the department, semesters used in a previous major at the University count against the total. A student who receives more semesters of tuition benefit than s/he is eligible for will be billed for the tuition retroactively.

Student Health Insurance

Graduate students that receive a 100% tuition benefit may be eligible for the University of Utah's Graduate Subsidized Health Insurance Program (GSHIP). GSHIP includes health insurance through United HealthCare Student Resources, and dental and vision insurance through Educators Mutual. Coverage for dependents is not subsidized. The Graduate School pays 100% of the premium for Student Health Insurance for all students that enroll. See <https://gradschool.utah.edu/tbp/insurance-information>.

Residency

To maintain TBP eligibility, all domestic nonresident students must apply for Utah residency upon completion of forty graduate-level semester credit hours at the University of Utah. Domestic out-of-state graduate students who receive the tuition benefit must apply for state residency at the end of their first year of study.

Go to www.admissions.utah.edu for details on how to qualify and how to apply for residency reclassifications.

Other Financial Support

College/University Fellowships and Awards

A list of the graduate school awards can be found at <http://gradschool.utah.edu/tpb>. You can check the eligibility and application instructions in the graduate school website. You can also check about Union Scholarships/Awards at <https://union.utah.edu/union-scholarships>, as many of these are applicable to graduate students,

University of Utah Graduate Research Fellowships are granted to select graduate students in all colleges and departments of the University that offer an advanced degree. For the entire University, about fifteen research fellowships are available annually.

University Research Committee Fellowships are administered by the Research Committee Office. Persons interested in the fellowships should contact the department.

Student Loans

Student loans are approved on the basis of merit and need. The student's scholastic standing, credit record, and ability to repay the loan within the specified time are considered. Information on and applications for loan programs may be obtained from the Financial Aids and Scholarships Office (105 Student Services Building).

External Fellowship & Award Opportunities

NSF Graduate Fellowships are offered for study or work leading to advanced degrees in the mathematical, physical, medical, biological and engineering sciences or in the departments of anthropology, economics, geography, history and/or philosophy of science, linguistics, political science, psychology and sociology. Graduate Fellows are selected by the National Science Foundation on the basis of ability from among persons who are citizens or nationals of the United States.

Applicants request application cards from the Graduate Fellowship Office in October, complete the cards, and send them directly to the National Science Foundation. NSF sends each applicant an application to be completed and returned to NSF by the first week in December (exact date set by NSF each year). The Graduate Record Examination is required.

Other graduate research fellowship opportunities through various foundations and federal agencies are also available. Please see the Graduate School website at <https://gradschool.utah.edu/tpb/external-opportunities>. Pivot, a tool for finding foundation funding, is available at <https://osp.utah.edu/news/pivot.php>.

Student Travel Assistance

Conference travel assistance may be available through the department, college, ASUU, the Graduate Student Travel Assistance Award (GSTAA), and the Early Career Professional Development Program (ECPDP). More information on these awards is at

<https://gradschool.utah.edu/current-students/graduate-student-travel-assistance-award>.

Student Awards and Honors

The Department of Materials Science & Engineering gives an annual award for Outstanding MS and PhD Students from each program as well as one Outstanding Dissertation Award at the annual banquet.

Employment and Support Resources

Employment

Paychecks & Direct Deposit: <https://www.hr.utah.edu/payroll/paycheck.php>

Tuition

Residency for in-state tuition: <https://admissions.utah.edu/apply/residency/>

Tuition Benefit Program: <https://gradschool.utah.edu/tbp/>

TBP support requirements: <https://gradschool.utah.edu/tbp/tuition-benefit-program-guidelines/#financial-support-requirements>.

Student insurance through TBP: <https://gradschool.utah.edu/tbp/insurance-information>.

Support, Awards & Fellowships

Graduate Fellowship Opportunities: <https://gradschool.utah.edu/tbp/graduate-fellowship-opportunities>

Graduate research fellowship: <https://gradschool.utah.edu/tbp/external-opportunities>.

Thesis & Dissertation Awards: <https://gradschool.utah.edu/funding/fellowships-scholarships-awards/grad-school-administered/index.php#thesis>

Union Scholarships/Awards at <https://union.utah.edu/union-scholarships>

Travel Assistance Awards

Graduate Student Travel Assistance Award: <https://gradschool.utah.edu/funding/travel-assistance/travel-assistance-award.php>

Early Career Professional Development Program: <https://gradschool.utah.edu/funding/travel-assistance/career-dev-program.php>

ASUU travel funding: <https://www.asuu.utah.edu/travel-funding/>

Financial Resources

Personal Money Management Center: <https://personal-money-management.utah.edu>

Pivot: <https://osp.utah.edu/news/pivot.php>

Feed-U Pantry: <https://union.utah.edu/resources-spaces/feed-u-pantry/hours-about-us>

Student & Faculty Code

Graduate School Code of Conduct

See <http://regulations.utah.edu/academics/6-400.php> for the University's Code of Student Rights and Responsibilities

The Graduate School is committed to fostering excellence in our community of scholars and leaders. We recognize that diverse and inclusive teams are most likely to produce creative and impactful scholarship and are eager to ensure that each member of our academic community is respected and valued for their unique contributions. This Code of Conduct upholds the Graduate School's commitment to conduct graduate and postdoctoral education according to the highest ethical and professional standard in compliance with all applicable University, State, and Federal regulations.

The Graduate School is committed to providing a safe, harassment-free and discrimination-free environment for everyone. Harassment includes offensive comments or denigrating jokes related to nationality, gender, sexual orientation, disability, age, physical appearance, body size, race, religion, or veteran status, sexual images in public spaces, deliberate intimidation, stalking, following, harassing photography or recording, inappropriate physical contact, unwelcome sexual attention, and harassment through social media.

All University faculty, staff, and students are expected to comply with the applicable anti-harassment, anti-discrimination, and scientific and professional ethics laws and policies in effect at the University of Utah and at the institutions where they may be visiting.

Members of the University of Utah community who wish to report a violation of this Code of Conduct are encouraged to speak to or contact the appropriate administrator or Dean, including the Department Chair or Director of Graduate Studies of their academic program, the Dean of the Graduate School and/or Associate/Assistant Deans of the Graduate School, or the University's Title IX coordinator. See the Student Resources section for contact information.

Visitors, including participants at any University or Graduate School sponsored events, are expected to comply with these same standards, as well as to policies at their place of employment. In addition to any applicable reporting requirements at their home site, visitors are encouraged to report violations here as above.

Informal Dispute Resolution

Students are encouraged to go to the departmental Director of Graduate Studies for conflict resolution, if appropriate. Students are also welcome to make an appointment with one of the Graduate School deans to voice complaints or concerns. This can be requested through info@gradschool.utah.edu or by calling 801.585.5529.

The University Ombudsman's Office provides dispute resolution, resources, and the potential for mediation. For more information, see <https://academic-affairs.utah.edu/office-for-faculty/facultyombudsman>.

Formal Dispute Resolution

Policy 6-400 covers the process of Academic Appeal (<https://regulations.utah.edu/academics/6-400.php>).

If a student believes that an academic action is arbitrary or capricious, he/she should

discuss the action with the involved faculty member and attempt to resolve. If unable to resolve, the student may appeal the action in accordance with the following procedure.

1. Appeal to the Department Chair (in writing) within 40 working days; chairs must notify student of a decision with 15 days. If the faculty member or student disagrees with decision then,
2. Appeal to Academic Committee; see II Section D, Code of Student Rights and Responsibilities for details on Academic Appeal Committee hearing.

Equal Opportunity, Affirmative Action, and Title IX

The Office of Equal Opportunity and Affirmative Action (OEO/AA) is dedicated to providing a fair and equitable environment for all to pursue their academic and professional endeavors and to equally access University programs. You may contact the Title IX Coordinator for the University at <https://oeo.utah.edu/contact-us>. Information on Title IX can be found at <https://sexualassault.utah.edu/reporting/title-ix-on-campus-reporting>.

Americans with Disabilities Act

The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in classes, reasonable prior notice needs to be given to the instructor and to the Center for Disability and Access.

Student Safety and Well-Being

Your safety is our top priority. In an emergency, dial 911 or seek a nearby emergency phone (throughout campus). Report any crimes or suspicious people to 801-585-COPS; this number will get you to a dispatch officer at the University of Utah Department of Public Safety (DPS; dps.utah.edu). If at any time, you would like to be escorted by a security officer to or from areas on campus, DPS will help — just give a call.

The University of Utah seeks to provide a safe and healthy experience for students, employees, and others who make use of campus facilities. In support of this goal, the University has established confidential resources and support services to assist students who may have been affected by harassment, abusive relationships, or sexual misconduct.

A detailed listing of University Resources for campus safety can be found at <https://registrar.utah.edu/handbook/campussafety.php>

Your well-being is key to your personal safety. If you are in crisis, call 801-587-3000; help is close.

The university has additional excellent resources to promote emotional and physical wellness, including the Counseling Center (<https://counselingcenter.utah.edu/>), the Wellness Center (<https://wellness.utah.edu>), and the Women’s Resource Center (<https://womenscenter.utah.edu>). Counselors and advocates in these centers can help guide you to other resources to address a range of issues, including substance abuse and addiction.

Laboratory Safety and Work-Related Injuries

Anyone working in a university laboratory must take Chemical Hygiene Training annually. Chemical Hygiene Training: <https://attheu.utah.edu/facultystaff/safe-sound-62/>

The preferred provider for work-related injuries is

Monday through Friday 8:00 a.m. to 5:00 p.m.

OccMed Clinic at Redwood Health Center

1525 West 2100

South Salt Lake City UT 84119

(801) 213-9777

After hours:

Urgent Care at the Redwood Health Center (801) 213-9700

or University of Utah Emergency (801) 581-2291

Occupational Safety

The Office of Environmental Health & Safety is responsible for environmental health and safety on the U’s campus. Please see <https://oehs.utah.edu> for policies and procedures.

Radiation Safety

Information on radiation safety is at <https://rso.utah.edu>.

Reporting Safety Issues

Report safety issues in laboratories and offices to your faculty advisor or to the Safety Chair for the department, Dr. Huiwen Ji. Information on reporting issues of personal safety or maintenance anywhere on campus is available at <https://safeu.utah.edu/how-do-i-report/>.

Safety Resources

University of Utah Department of Public Safety (DPS), a.k.a. University Police:
<https://dps.utah.edu>

Phone: 911 or 801-585-COPS (801.585.2677)

Escort by a security officer to or from areas on campus is provided upon request.

Campus safety resources: <https://safeu.utah.edu/>

A comprehensive website for all safety-related information, reporting and support resources, training and more at the University of Utah

Chemical Hygiene Training: <https://attheu.utah.edu/facultystaff/safe-sound-62/>

Office of Environmental Health & Safety: <https://oehs.utah.edu>

College of Mines and Earth Sciences Safety Committee, <https://cmes.utah.edu/safety/>

Price College of Engineering Safety Committee email, coe-lab-safety@lists.utah.edu

Campus safety resources: <https://registrar.utah.edu/handbook/campussafety.php>

The Office of the Dean of Students: <http://deanofstudents.utah.edu>

Room 270, Olpin Union Building

Health, Wellness, and Recreation Services

Student Health Center: <https://studenthealth.utah.edu>

Madsen Health Center, 555 Foothill Drive, Phone: 801.581.6431

Workplace Injury: <https://www.hr.utah.edu/absenceMgt/workerscomp.php>

Center for Student Wellness: <https://wellness.utah.edu>

University Counseling Center (including Mindfulness Center):
<https://counselingcenter.utah.edu>;

Room 246, Student Services Building (SSB), Phone: 801.581.6826

Campus Recreation Services: <https://campusrec.utah.edu>

Crisis or Emergency Services

Crisis Line (24/7): <https://healthcare.utah.edu/uni/programs/crisis-diversion.php>

Phone: 801.587.300

For crisis intervention, emotional support, and mental health needs

Suicide Prevention Hotline – Utah: <http://www.suicide.org/hotlines/utah-suicide-hotlines.html>

Crisis Prevention – SafeUT Smartphone App: <https://www.uofuhealth.org/safeut>

Free 24/7 access to counselors for crisis prevention and emotional support

Sexual misconduct or assault. Crisis, reporting, counseling, medical resources, or definitions: <https://sexualassault.utah.edu/>

Title IX: <https://sexualassault.utah.edu/reporting/title-ix-on-campus-reporting>.

Sexual Assault Victim Advocacy: <https://advocate.wellness.utah.edu>

Room 328, Student Services Building (SSB), Phone: 801.581.7779

Women's Resource Center: <https://womenscenter.utah.edu>

Room 411, Olpin Union Building.

Research Policies & Training

See the section on Student Safety and Well-Being for information on laboratory safety.

Student Access to Physical Resources

See <https://mse.utah.edu/building-access-key-requisition/> for information on acquiring keys or card access to laboratories, offices, and buildings. Upon entering the department, a student is entitled to a key or card entry to her/his laboratory space and to a key or card entry to the building entrance. Access to other laboratory spaces may be obtained as the student's research necessitates. The student is required to pay a deposit with the first request. If the laboratory you are assigned has a keypad lock, see your advisor for the combination.

Lending keys is grounds for termination from the University. Keys may be transferred to another person; see the Department office to do this.

Prior to leaving the University, keys must be returned to the Department office. The deposit is refunded when the keys are returned. A hold may be placed if keys are not returned.

RATS Courses

The University provides Research Administration Training Series on a variety of research subjects which may be of interest or important to students. Information about RATS courses can be found at <https://fbs.admin.utah.edu/news/2005/08/01/research-administration-training-series/>.

Institutional Review Board

The Institutional Review Board (IRB) is charged with the review of all research projects that involve humans to ensure compliance with local, state, and federal laws as well as the high ethical standards set forth in University policy. If students work with human subjects in their research, they should be familiar with and compliant to IRB rules. More information is available at <https://irb.utah.edu/>.

Export Controls

A number of United States export laws directly affect University research, specifically:

- The Export Administration Regulations (EAR), controlled by the Department of Commerce,
- The International Traffic in Arms Regulations (ITAR), managed by the State Department, and
- The sanction regulations governing the transfer of assets governed by the U.S. Department of Treasury through its Office of Foreign Assets Control (OFAC).

If research involves biological, chemical and military-related technologies, the government may exert control and supervision of the research and require the University to obtain a license or find and record an exception to the law before allowing foreign nationals to participate in the research, before partnering with a foreign company, or before sharing research results in any manner (including by publication or presentation at conferences) with persons who are not U.S. citizens or permanent resident aliens. Licenses are not easily obtained and require careful preparation and an inordinate amount of lead-time.

See <https://osp.utah.edu/policies/export-controls.php>.

Research Misconduct

The Office of Sponsored Projects provides a handbook on research policies at <https://osp.utah.edu/policies/handbook/>. See <https://regulations.utah.edu/research/7-001.php> for parameters and consequences of research misconduct.

Intellectual Property Policies

See <https://legal.utah.edu/university-legal-services/intellectual-property.php> for intellectual property policies guiding student work and ethical behavior.

Student Access to Physical Resources

Departmental Resources

The departmental website, <http://www.mse.utah.edu>, offers much necessary information.

University Resources

University ID Card

University card information: <https://ucard.utah.edu>

TRAX Pass

UTA University pass: <https://commuterservices.utah.edu/mass-transit>

TRAX Schedules & Maps: <https://www.rideuta.com/Rider-Tools/Schedules-and-Maps>

Wireless Connections

Onboard to Utah wireless: https://onboard.utah.edu/enroll/uofu/prod_3/process

Software

Grammarly Access: <https://gradschool.utah.edu/grammarly>

New Student Guide to Digital Resources:
https://it.utah.edu/help/it_guides/new_student_guide.php

Hardware

University Bookstore: <https://www.campusstore.utah.edu/utah/home>

Surplus & Salvage: <https://fbs.admin.utah.edu/surplus/>

Paychecks & Direct Deposit

HR Paycheck Information: <https://www.hr.utah.edu/payroll/paycheck.php>

Housing

Graduate Student Housing Resources & Options:
<https://housingoptions.utah.edu/graduate-housing/>

Meals & Food

Utah Meal Plans: <https://housing.utah.edu/dining>

Student Resources: General

Graduate School Resources

Graduate School: http://www.utah.edu/graduate_school/

Communication Resources

All university students are assigned a university email in the form *unid@utah.edu*.

This account will be used for all official university and departmental business. The student should get in a habit of checking it regularly.

A student may set up a more easily remembered pseudonym address for the account in the form *given name dot last name @ utah.edu*, and/or set the account to forward to a personal account.

The student may wish to be on informational listservs such as notices of utility shutdowns affecting the student's laboratory.

Computing Resources

The student will receive card access to the Department's computer laboratory at 412 WBB, which has a printer. Special software used in particular classes may be available on the lab computers. The student may also have access to a computer and printer in his/her lab.

A copier/scanner is available for use in 412A WBB and just outside the Department office CME 304. These offices are normally open during office hours.

Wireless Connections

Onboard to Utah wireless: https://onboard.utah.edu/enroll/uofu/prod_3/process

Software

New Student Guide to Digital Resources:

https://it.utah.edu/help/it_guides/new_student_guide.php

Hardware

Surplus & Salvage: <https://fbs.admin.utah.edu/surplus/>

Events, Arts, Entertainment and Recreation

On-Campus Event & Workshop Calendar: <https://gradschool.utah.edu/thesis/events.php>

Events & Workshops Description: <https://gradschool.utah.edu/funding/fellowships-scholarships-awards/nationally-competitive/nsf-grfp/workshops.php>

Arts Pass: <https://www.finearts.utah.edu/arts-pass>

Campus Recreation Services: <https://campusrec.utah.edu>

Student Resources: Academic

Admissions

Graduate School admission requirements: <https://gradschool.utah.edu/future-students/admissions.php>

University admission requirements: <https://admissions.utah.edu/apply/graduate-admissions/>

Admissions Office: <https://admissions.utah.edu/apply/international/>

The International Admissions Office: <https://admissions.utah.edu/international/index.php>

Administrative & Records

Electronic Graduate Record File: <https://gradschool.utah.edu/current-students/electronic-graduate-record-file-tutorial>

The University of Utah General Catalog: <https://www.utah.edu/students/catalog.php>

Thesis Office: <https://gradschool.utah.edu/thesis>.

Graduation

General: <https://registrar.utah.edu/handbook/graduategraduation.php>

Graduation Division, Office of the Registrar:
<http://www.sa.utah.edu/regist/graduation/applying.htm>

Professional Development

Career & Professional Development Center Graduate Student Career Coaching:
<https://careers.utah.edu/>

Training & Workshop Programs

International Teaching Assistant Program (ITAP): <https://gradschool.utah.edu/ita>

Three Minute Thesis Training & Competition:
<https://gradschool.utah.edu/resources-hub/communication-outreach/three-minute-thesis/index.php>

Past Workshops & Trainings:

<https://lib.utah.edu/collections/book-arts/past-workshops.php>

Writing & Manuscript Editing

Thesis Office: <https://gradschool.utah.edu/thesis>

Grammarly:

<https://gradschool.utah.edu/resources-hub/grammarly/index.php>

Graduate Writing Center & Graduate Student Reading Room

Reading Room: <https://writingcenter.utah.edu/grad-student-services.php>. The Graduate Writing Center is located in the Marriott Library in the Graduate Student Reading Room. To access the Reading Room, students must fill out a Graduate Resources Access Form, found at

<https://lib.utah.edu/services/education/gradstudents.php>.

eTutoring for Graduate Writing is also available. Students can sign up for this service at <https://writingcenter.utah.edu/graduate-services/e-tutoring.php>

University Libraries

In addition to research offerings, the Marriott Library has events and programs specifically for graduate students. Check <https://lib.utah.edu/services/education/gradstudents.php> for schedules and more information.

Student Resources: Code of Conduct, Dispute Resolution, Diversity, Support Groups, and Leadership

“Code of Student Rights and Responsibilities”: <http://regulations.utah.edu/academics/6-400.php>

Dean of Students Office: <https://deanofstudents.utah.edu>

Graduate School: <https://gradschool.utah.edu/about/contact-us.php>

Advocacy and Dispute Resolution

The University Ombudsman’s Office: <https://academic-affairs.utah.edu/office-for-faculty/facultyombudsman>. *Provides dispute resolution, resources, and the potential for mediation*

Office of Equal Opportunity and Affirmative Action, phone (801) 581-8365 or oeo@utah.edu.

Academic Appeal, Policy 6-400: <https://www.price.utah.edu/students/academic-affairs/academic-appeals>

Graduate School Dean: dean@gradschool.utah.edu

Title IX Compliance

The Office of Equal Opportunity and Affirmative Action (OEO/AA) provides consultation concerning issues of possible discrimination, sexual misconduct, harassment or retaliation and investigation of complaints of discrimination, sexual misconduct (which includes sexual assault or sexual violence), harassment and/or retaliation. See <https://oeo.utah.edu/>.

Diversity, Equal Opportunity, Affirmative Action, and Title IX; Support Groups and Services

International Student & Scholar Services: <https://ic.utah.edu>

The Office of Equal Opportunity and Affirmative Action (OEO/AA): <https://oeo.utah.edu/>

Title IX: <https://sexualassault.utah.edu/reporting/title-ix-on-campus-reporting> .

Center for Disability & Access: <https://disability.utah.edu>

Request for disability, religious, or pregnancy accommodation: <https://oeo.utah.edu/resources/forms.php>

Veteran’s Support Center: <https://veteranscenter.utah.edu>

Resources for International Students

The Department of Materials Science and Engineering values the global community we enjoy, and we welcome students from all countries. We recognize that there are unique advantages and challenges to being an international student, especially as you adjust to your studies alongside a new country and new culture. We encourage all our international students to make use of the resources available to them, particularly International Student and Scholar Services (ISSS), and to seek involvement in departmental, campus, and civic communities.

International Student and Scholar Services

The offices of the International Student and Scholar Services are at 410 Olpin Union, 200 S. Central Campus Dr., Salt Lake City, UT 84112. Their phone number is 801-581-8876.

For general questions, contact ISSS at international@utah.edu.

If you would like to schedule a phone or Zoom appointment to speak with an ISSS advisor, please send an email to Appointment@utah.edu with the following information:

Your full, official name

Your uNID

Your US phone number

Your specific availability (date and time, between 9:00 AM and 4:00 PM Mountain Time, Mon-Fri).

A description of what you wish to discuss (the more detail you provide, the better we can assist you)

Admission

Proof of English proficiency is required for international applicants.

Tuition and State Residency

All international students pay nonresident tuition.

Continuous Registration and Full-Time Status

International students are not eligible to meet the continuous registration requirement by registering for Continuing Registration (MSE/MET E 7990).

Full-time status is described in The University of Utah General Catalog. For international graduate students, compliance with current U.S. Immigration and Customs Enforcement (ICE) regulations requires that they maintain full-time student status. International students need to check with International Student and Scholar Services (ISSS) if exceptions are needed to avoid potential difficulties with Immigration.

All International students are automatically on a vacation semester each summer (that is, a semester in which the student is not required to be enrolled). They are not allowed to take a vacation semester during the fall or spring semesters. They are not required to take any courses in the summer, unless they are defending their Dissertation during the summer.

For more information, please visit the International Student & Scholar Services website <http://iss.utah.edu/news.php>.

Leave of Absence

International students are not eligible to take a leave of absence or a vacation semester during Fall and Spring Semesters. All international students are on a vacation semester during the summer.

Employment

International students on a student visa are not permitted to work off-campus unless they are on an official CPT (Curricular Practical Training) only approved through ISSS.

Research Restrictions

If research involves biological, chemical and military-related technologies, the government may exert control and supervision of the research and require the University to obtain a license or find and record an exception to the law before allowing foreign nationals to participate in the research.

After Defense and/or during the Semester of Graduation

If an international student does not receive thesis clearance during the same semester as the Final Oral Examination, s/he needs to have obtained Optional Practical Training authorization to be effective immediately after the semester when he/she completed the Final Oral Examination. As immigration policies frequently change, please consult the International Student and Scholar Services office well in advance of your graduation to ensure that you are always in status.

Resources for International Students

The International Admissions Office: <https://admissions.utah.edu/international/index.php>.

International Teaching Assistant Program (ITAP): <https://gradschool.utah.edu/ita>

International Teaching Program deadlines:

<https://gradschool.utah.edu/ita/important-dates-and-deadlines.php>

Important Forms

MSE department forms: <https://mse.utah.edu/forms-resources/>

Research and Other Forms

University Travel – Concur Training: <https://mse.utah.edu/utavel-concur>

Key Request: <https://mse.utah.edu/department-key-request>

Request for Disability, Religious, or Pregnancy Accommodation
<https://oeo.utah.edu/resources/forms.php>

Glossary

Definitions of various terms used in this manual appear in the text when first used and are also provided below. Pages referenced in the subject index provide more details.

Associated Students of the University of Utah: A union of all students attending the University of Utah.

ASUU: An acronym for Associated Students of the University of Utah

Continuous registration: A student must register for every fall and spring semester until s/he completes all requirements for her/his degree.

Defense: Defense of thesis or dissertation, also known as the Final Oral Examination.

Differential tuition: An additional tuition charged for courses offered through the College of Engineering and some other organizations; not covered by the Tuition Benefit Program, but now covered by faculty advisor.

Director of Graduate Studies: A faculty member in the department whose approval is required (in addition to that of the thesis advisor or Supervisory Committee) for various things.

Thesis advisor: A faculty member who advises the student on coursework specific to the student's Program of Study and supervises the student's thesis research.

Faculty Consultation: Course MET E 6980 or 7980, to be registered for during any semester when a student is off-campus and does not enroll in regular courses, seminars, independent study, or thesis research, and yet requires consultation with the faculty, or otherwise uses University facilities.

Final Oral Examination: The student defends her/his thesis or dissertation research work before the Supervisory Committee.

Final Reading Approval: An electronic, indicating that all corrections requested by the thesis advisor or the Supervisory Committee have been made.

Departmental Graduate Academic Advisor: A staff member in the department who advises all graduate students in the department on general program requirements; usually not the student's thesis advisor.

Graduate-level course: A course that is numbered 6000 or above.

Graduation release: Approval by the Thesis Editor that the thesis or dissertation meets all University requirements, also known as thesis release.

Independent study: The course MET E 7920 *Independent Study*, consisting of time spent on research preparation, bibliographic work, acquiring new mathematical or computer skills, or developing new instrumentation.

International Student Fee: A fee charged, on top of tuition, to international students.

International Students and Scholars Service (ISSS): University department that ensures that the University of Utah complies with immigration regulations pertaining to international students and scholars; experts in the immigration regulations pertaining to non-immigrant F and J visa holders.

ISSS: An acronym for International Students and Scholars Service.

Leave of absence: Officially admitted domestic graduate students who have registered for and completed university credit class(es) may request a leave of absence to postpone their studies for up to one (1) year. The request must be approved by the student's supervisory committee and/or the Department Chair/Director of Graduate Studies.

International Students on a F1 or J1 visa taking a vacation semester or a medically necessary reduced course load of zero (0) credits must obtain permission from the International Student & Scholar Services (ISSS) prior to submitting a Leave of Absence. Vacation Semesters for international students will only be approved for one semester. Medically necessary reduced course loads are approved for one semester at a time, and may be extended through the International Student & Scholar Services for an additional semester to a maximum of three (3) semester (one (1) academic year). <https://registrar.utah.edu/handbook/leave.php>

Ph.D. Qualifying Examination: An examination, usually oral, covering undergraduate-level subjects in Metallurgical Engineering, which a student must pass, usually in the first year of study, in order to be accepted as a candidate for the Ph.D. degree.

Request for Supervisory Committee: A form needed to set up the student's Supervisory Committee.

SAC: An acronym for Student Advisory Committee.

Seminar: The course MET E 7800 *Graduate Seminar*.

Student Advisory Committee (SAC): Student group in the department, responsible for acting as liaison between students and the department; advising on faculty hiring, retention, tenure, and promotion; and organizing student events.

Supervisory committee: Consults with the student in planning her/his degree program and thesis or dissertation research and approves the student's Program of Study; research proposal; thesis, dissertation, or final research report; and Final Oral Examination.

Supervisory committee chair: The faculty member who chairs a student's Supervisory Committee, usually the thesis or dissertation director.

Supervisory Committee Approval: An electronic form signed by the student's Supervisory Committee at or after the Final Oral Examination, documenting that the thesis is satisfactory.

Thesis Editor: A person in the Thesis Office of the Graduate School who edits theses and dissertations for grammar, spelling, and formatting.

Thesis Office: A division of the Graduate School which supervises approval of theses and dissertations.

Tuition Benefit Program: Research assistants, teaching assistants, and graduate fellows supported through the University at or above a minimum level have the resident tuition portion of tuition paid by the Graduate School, while the nonresident portion is waived. The TBP does not cover Differential Tuition, the International Student Fee, or other nonmandatory fees. The Faculty Advisor covers the Differential Tuition.

Undergraduate-level course: A course numbered 1000 through 5999 and intended for undergraduate students.

Unid: University identification number

Vacation semester: All students on an F-1 visa are automatically on a vacation semester (that is, a semester during which they are not required to be enrolled) during summer. No official approval is needed to go below full time in summer vacation semester.