Summary

The objective of the doctoral program is to promote advanced research and education in the areas of Mechanical Engineering and Materials Science (MEMS). Students are selected for admission by a competitive process, and they start in the fall semester. On arriving at Washington University in St. Louis (WUSTL), the student will be advised by a temporary advisor on all procedural issues. The student will choose a permanent advisor by the end of the first year of residency in the program.

The following is a brief summary of the requirements for doctoral students:
1. Pass the qualifying exams by the end of the first year of study.
2. Prepare and defend a research proposal by the end of the third year.
3. Write and successfully defend the doctoral dissertation.
4. Complete a minimum of 36 credits of coursework and a minimum of 24 credits of doctoral research; a total of 72 credits is required to earn the Ph.D. degree.
5. Complete the residency requirement of two full-time semesters at WUSTL.
6. Ph.D. candidates must satisfy the applicable mentored experience requirements of the Graduate School.

The purposes of this handbook are to provide guidance to doctoral students in MEMS and to inform students of department specific policies.

Degrees Offered

The MEMS department offers the following doctoral degrees:
• Ph.D. in Mechanical Engineering or Aerospace Engineering. Administered by the department through the Graduate School
• D.Sc. in Mechanical Engineering, Aerospace Engineering, or Materials Science Engineering. Administered by the department through the McKelvey School of Engineering
• A student may pursue a Ph.D. in Materials Science through the Institute for Materials Science and Engineering (IMSE) while working with professors in the MEMS department.

For more information: mems.wustl.edu/graduateprograms.

D.Sc. students follow the same academic performance reviews and timeline as the Ph.D. students with the following exceptions:
1. D.Sc. students are not required to fulfill any mentored experience responsibilities, as these are requirements specific to the Graduate School.
2. The rotation for a D.Sc. student will consist of doing research for the student's thesis advisor.
3. Only one rotation report will be required.
4. The qualifying exam may be delayed, but should be done no later than the semester after all course work has been completed.
5. The thesis proposal may be delayed, but should done be no later than two years after successful completion of the qualifying exam.
6. D.Sc. students may be enrolled part-time.
Requirements for Doctoral Degree

Academic Requirements
Candidates for this degree must complete a total of 72 credits beyond the bachelor's degree. Of these, a minimum of 36 credits must be graduate coursework, and a minimum of 24 credits must be doctoral thesis research. To be admitted to candidacy, students must have an overall GPA greater than 3.0 and pass the Qualifying Examination.

The normal load for full-time graduate students in engineering is nine units per semester, including research credits. The course content and load must be discussed with, and approved by, the student's advisor. D.Sc. students who are employed full time, either on or off campus, are limited to a maximum of six units per semester, except during their doctoral residency when they must register for nine or more for two consecutive semesters.

Transfer Credits: At most, 24 graduate credits in a master's program from another university may be counted as transfer credits toward the required 36 units of coursework. All transferred credit must be approved by the Director of Ph.D. Studies as appropriate engineering or science courses. Credits must not have been used to complete the B.S. degree of the student, and must be completed with a grade B or better.

Maximum Research Units per Semester: At most, nine units of research units may be taken in a semester.

Seminar Credits: Ph.D. students must take the zero-unit MEMS 501 seminar course every semester.

Independent Study Credits: At most, three units of coursework may be taken as graduate independent study. An independent study must be entirely separate from work done as part of the graduate thesis research or rotations. The student should prepare a proposed plan of study to be completed, and this plan must be described on the Independent Study Petition form approved by the independent study instructor, student's advisor, Director of Ph.D. Studies, and department chair for the independent study credits to count toward the 36 required units of coursework.

400-level Courses: A maximum of six units of 400-level courses are allowed, and these must be from courses not required for the B.S. degree.

Residency
Each student must spend at least one academic year registered for full-time study (9 credits in the fall followed by 9 in the spring) at WUSTL. Any exceptions to these requirements must be approved by the dean of the Graduate School. All Ph.D. programs prefer that students remain full time and in residence throughout their work toward the degree.

Mentored Experience Requirement
All Ph.D. students must meet the Graduate School-wide Mentored Experience Requirement. They must enroll in LGS 600 (Mentored Teaching Experience) to signify their progression toward meeting this requirement. For MEMS, the Mentored Teaching Experience includes 14 hours of teaching at the basic level and 4 hours at the advanced level. The basic level can be accomplished in many ways, including giving a lecture in an undergraduate class; conducting discussion sections; introducing/interpreting laboratory exercises; or conducting formal help sessions and is usually fulfilled through teaching assistant responsibilities in the first year. Advanced level requirements can be met by presenting a paper at a conference or teaching one's research at a regularly scheduled colloquium or seminar that is attended by other graduate students and faculty.

Registration
All graduate students in the department must register each semester until all degree requirements are completed. Students newly admitted will receive their WUSTL Key from the university registrar. The WUSTL Key is used to register for courses online through WebSTAC every semester. Detailed instructions for registration plus necessary materials are emailed directly to all graduate students enrolled during the previous semester. All courses must be approved by the student's advisor.

Regular Enrollment
Ph.D. students must maintain full-time continuous enrollment throughout the length of their program. Expected length is four to six years. Maximum length is seven years. During those years, students will be considered full-time if they have one of the following statuses:

- They are registered for 9 or more course units; or
- They are registered in a zero-unit course (LGS 9000 Full-time Graduate Research/Study or LGS 9001 Full-time Graduate Study in Absentia) that indicates the student's full-time engagement in research or academic writing.

LGS 9000 is based on the recommendation from the advisor stating the student is making satisfactory progress toward the degree.

During a student's period of regular registration, they may have a need or opportunity to study away from WUSTL. Registration in absentia will be considered by the Graduate School on a case-by-case basis. If approved by the Graduate School, the student will be registered for LGS 9001 Full-time Graduate Study in Absentia. Students may be allowed to register for LGS 9001 for up to four consecutive or nonconsecutive fall/spring semesters. Semesters in which a student is registered in absentia are counted as part of the student's program length.

Enrollment Extension
Students may be permitted to register for one additional year beyond their program length. If approved by the Graduate School, these students will be registered in a zero-unit course LGS 9002 (Full-time Graduate Study Extension) that confers full-time enrollment status. Students registered for LGS 9002 will not receive Graduate School stipend support, but they are eligible to receive other benefits available to full-time Ph.D. students in the Graduate School, including health insurance and wellness fee subsidies. Students may be registered for LGS 9002 for a maximum of two semesters. There will be no exceptions to this limit. Students who do not complete their programs within this time limit must either withdraw from the program or be designated as Degree Candidacy Extended.
Degree Candidacy Extended
Upon the recommendation of their departments and the approval of the Graduate School, students who do not complete their Ph.D. degrees after the one-year enrollment extension may remain doctoral candidates for up to five years. Departmental recommendations and Graduate School approval are required for each year of extended degree candidacy. Extended degree candidates are not registered for any courses, have no enrollment status, and receive none of the benefits available to registered Washington University students, including student loan deferment.

Part-Time Students
Ph.D. candidates are not admitted as part-time students. Part-time status will be calculated strictly on the basis of registration in fewer than 9 course units without LGS 9000 registration and will be permitted only in extraordinary circumstances. D.Sc. candidates may be part-time students.

Advising
The Director of Ph.D. Studies will serve as a temporary advisor to Ph.D. students enrolling for the first time. The Director of Graduate Studies will serve as temporary advisor for all D.Sc. students enrolling for the first time. Full-time students should choose a research project and advisor for their thesis or dissertation within the first year of residency. The thesis advisor will then be the primary advisor for the student. The thesis advisor must be a primary or joint tenure or tenure-track faculty member in MEMS or within the MEMS Graduate Faculty Group. It is the joint responsibility of the student and his or her advisor to plan a coherent, complementary program of coursework and research and to ensure that satisfactory progress is made toward fulfillment of the appropriate degree requirements.

MEMS Graduate Faculty group:
Faculty members that do not have a primary or joint appointment in MEMS may be a thesis advisor for a MEMS student if they are members of the MEMS Graduate Faculty Group. To apply to the MEMS Graduate Faculty Group, the faculty member must send by email in one PDF to the Director of Ph.D. Studies:
1. Recommendation letter or supporting statement from the applicant’s department headchair that includes a statement of recognition that the student is able to provide full support.
2. Biosketch of the applicant (standard NIH or NSF format is fine).
3. Current and pending support of the applicant.
4. One page research statement highlighting connections to MEMS.
The graduate faculty committee in MEMS will evaluate the application packet and let the applicant know if they are accepted into the MEMS Graduate Faculty Group.

Research Rotations
All Ph.D. students must complete at least two research rotations during their first year of residency. For each rotation, students will register for 3 units of MEMS 597 Research Rotation under the chosen rotation advisor’s section number. Rotations count for course credit. Rotations can be performed in the laboratory of any MEMS primary or joint faculty in the MEMS Graduate Faculty Group. If a student is interested in doing a rotation with a faculty member not in these groups, the student should discuss their options with the Director of Ph.D. Studies.

The research rotations allow the student and the faculty member to determine if they are a suitable match for a dissertation or thesis project. Research rotations may be repeated in the same laboratory, if no additional exploration is necessary for the student to find a thesis advisor. A third rotation during the summer is possible for students that do not find a thesis advisor through the first two rotations. Because Ph.D. students do not register for courses in the summer, any rotation performed outside of the fall or spring semester is not taken for credit or as a course.

A rotation report is due at the end of each research rotation to the rotation mentor for review and signature, and then to the Director of Ph.D. Studies on the last day of finals for each semester or July 15 for a summer rotation. The student’s performance in the laboratory and the report are the primary basis for the course grade assigned by the rotation mentor. This report is a 5-10 page document (including figures, excluding references) with at least 11 font size, single-spaced paragraphs, and one inch page margins. The report should be organized around these sections – Abstract, Introduction, Materials & Methods, Results, Discussion, and Future Directions.

Qualifying Examination
The qualifying examination must be taken no later than end of the first year of the doctoral program. The examining committee consists of three tenured or tenure-track members of the MEMS Faculty (including joint faculty). Committee members will be suggested by the student, but will be chosen based on input from the Director of Ph.D. Studies for the chosen topic areas. The student’s prospective Ph.D. thesis advisor may attend the exam, but may not be a member of the exam committee. The exam consists of three parts:
1. A written report describing the background, methods, and results obtained from one research rotation experience.
   a. Note that this research report will likely be based on, may be different, from the semester-end research rotation reports.
   b. This research report should be 5-10 pages (including figures, excluding references) with a font size of at least 11 points, single-spaced paragraphs, and at least one-inch page margins in all directions.
   c. The report must be approved by the Ph.D. thesis advisor and sent to qualifying exam committee 1-2 weeks before the exam.
2. 20 minute oral presentation on the research report.
   Students are encouraged to consult with their Ph.D. thesis advisor in preparing the research report and the presentation.
3. An oral examination (approximately one hour) covering the presented work as well as the student’s knowledge in two fundamental areas of MEMS (see below) of the student’s choice.

Qualifying exam topics:
Fundamental areas that can be chosen for qualifying exam topics are listed below. The numbers in parentheses are undergraduate or graduate courses in MEMS that correspond with these topics. The course numbers are meant to show students what possible material may be covered on the exam, but do not guarantee that everything
on the exam will be covered in that course, or that they need to take all of these courses to pass the qualifying exam.

Vibrations (405, 4310, 5301, 5302)
Heat transfer (305, 3420, 5402, 5403, 5422)
Thermodynamics and energy (301, 412, 5401, 5422, 5423, 5424, 5705)
Fluid dynamics (305, 3410, 3411, 5410, 5411, 5412, 5413)
Solid mechanics (350, 5500, 5501, 5502, 5504, 5515)
Biomechanics (350, 5506, 5560, 5564)
Mechanics of materials (205, 253, 5601, 5602, 5605)
Materials characterization (205, 3610, 5603, 5604)
Polymers and nanomaterials (463, 5606, 5607, 5608)
Aerodynamics (4302, 5700, 5701, 5703, 5704, 5705)

At the end of the exam, a “Pass”, “Retake”, or “Provisional pass” grade may be awarded. The students with “Retake” grade have one more chance to take the exam, which must be completed within one semester. The requirements of the “Provisional pass” must be completed within one semester as well. If a student fails the exam after the second attempt, the case will be referred to the Doctoral Progress Assessment Committee (DPAC) for a final decision.

Examinees should provide the following information to the Director of Ph.D. Studies by email:
1. Thesis advisor;
2. Research report topic
3. Two fundamental areas for examination
4. Three proposed tenured or tenure-track MEMS faculty members for the committee (may be subject to change by the Director of Ph.D. Studies).

The Director of Ph.D. Studies will approve the examining committee. The student will then schedule the exam date, time, and location with the committee.

Thesis Committee and Proposal
The thesis proposal should be completed within two years of the qualifying exam (end of the third year of the Ph.D. program). The student will choose a thesis committee that consists of five members, including the thesis mentor, all with doctoral degrees:

- 4 of the members must be tenured or tenure-track faculty from WUSTL. 3 of these must be from MEMS and 1 must be from outside MEMS.
- 1 of the members must have a doctoral degree and an active research program, whether at WUSTL, or another university, government, or industry.

The committee must be approved by the Director of Ph.D. Studies and the student must fill out the Title, Scope, and Procedure form for the Graduate School and obtain all necessary signatures. The Title, Scope and Procedure form must be filed at the latest in the fifth year or at least 6 months before graduation.

The student will submit a comprehensive written research proposal to his or her thesis committee 1-2 weeks before a presentation of the proposal to the committee. The proposal and presentation will include a thorough survey of the field, a discussion of those areas in need of further research and a tentative but clear definition of the problem on which the student intends to focus the dissertation. Following the presentation, the committee will examine the student on his or her understanding of the foundation of the particular field of research and will evaluate the scope and merit of the proposed research.

After the thesis proposal, the student will meet with the thesis committee at least once per year to update them on their progress toward the doctoral degree. More frequent meetings may be appropriate in some cases. Every year, or more often in the case of unsatisfactory progress, the committee will send a report on the student’s progress to the Director of Ph.D. Studies.

Dissertation
The candidate must submit a satisfactory dissertation that involves independent, creative work in an area of specialization and that demonstrates ability for critical and constructive thinking. It must constitute a definite contribution to knowledge in some field of engineering or applied science. The research used as the subject of the dissertation must have been performed under the supervision of a member of the faculty of WUSTL.

A Doctoral Dissertation Guide and a Template, which give instructions regarding the format of the dissertation, are available on the Graduate School’s website; both should be read carefully at every stage of dissertation preparation. The dissertation must be sent to the thesis committee 2 weeks before the dissertation defense.

The dissertation defense includes the committee members and is open to the public. The student will present their dissertation research and the public will be allowed to ask questions. The public will then be dismissed and the student will be examined by the thesis committee.

After the defense, the student must submit an electronic copy of the dissertation online to the Graduate School. The submission website requires students to choose among publishing and copyrighting services offered by ProQuest’s ETD Administrator, but the university permits students to make whichever choices they prefer. Students are asked to submit the Survey of Earned Doctorates separately. The student is responsible for delivering the final approval form, signed by the committee members at the defense and then by the program chair or director, to the Graduate School. Students who defend their dissertations successfully have not completed their Ph.D. requirements; they finish earning the degree only when their dissertation submission has been accepted by the Graduate School.

Graduation Information
Students are responsible for filing an Intent to Graduate form in order to have each earned degree conferred. The Intent to Graduate is available online through WebSTAC. Deadlines for filing an Intent to Graduate are listed on the Graduate School’s website. No degree will be awarded if this form has not been filed. Students who do not complete their degree requirements by their intended graduation date must refile for the next graduation date.
Financial Assistance

Fully funded, full-time Ph.D. students registered within their program length and making satisfactory academic progress will receive stipend; tuition remission; and the health insurance, dental insurance and wellness fee subsidies. Tuition each semester will be calculated based on the number of registered course units.

Funding is usually in the form of a research assistantship, or departmental fellowship in the first year, and through a research assistantship in subsequent years from the advisor, or through independent fellowships. Students are expected to consider their financial aid needs before finalizing their choice of an advisor, as research support is generally provided by grants and contracts to a specific faculty member. Academic achievements and satisfactory performance in research and other assignments while at WUSTL are the primary factors governing continuation of financial aid. Students who are placed on academic suspension will automatically have their financial assistance canceled, effective with the date of suspension.

Independent Fellowships
Independent fellowships are grants to the student generally providing full tuition plus a stipend. Usually no duties are required in return for the duration of the fellowship. Fellowships may be awarded for one to three years with renewability contingent upon performance. Fellowship funds may derive from government or private sources and be administered by the department, or they may be awarded directly to the student by an external agency, e.g., the National Science Foundation.

Departmental Fellowships
Departmental fellowships are funded from the department budget. They are normally awarded to first-year Ph.D. students. Teaching duties of departmentally-funded students usually include the grading of papers and/or laboratory supervision in undergraduate courses. The duties may be assigned in the first year of residency, or any year thereafter. Normally, two semesters of teaching duties are required.
Assignments are made by the Director of Undergraduate Studies. Departmental fellows with teaching responsibilities report to the professors in charge of the various courses and laboratories. The expected time commitment for teaching responsibilities is 10-12 hours per week. The Ph.D. student is expected to continue to fulfill commitments to research, research rotations, and coursework during the period of the Fellowship. Departmental Fellowships provide tuition remission for nine hours of graduate credit per semester and are only awarded to Ph.D. students. For long-term support consistent with a doctoral research program, students should find a funded research assistant position by the end of their first year.

Research Assistants
Research assistantships are funded directly from grants and contracts. They are normally awarded to students who have made a commitment to a particular research area and who, by virtue of their academic background and record, will contribute significantly to the research project. The department strives to place all full-time students on research projects as early as possible. For this reason, students must choose a research area and a research advisor before the end of their first year of residence. Research assistants are paid a regular monthly stipend. During the academic year, a research assistant is considered to be employed half-time on a research project and, as such, is normally not permitted to register for more than nine hours of graduate credit per semester after the first year. A minimum of 20 hours of work per week is required on the research project. However, research assistants are typically expected to devote more than this minimum effort to research; the student's diligence and productivity are important factors in renewal of research assistantships. The research advisor may terminate a research assistantship for unsatisfactory performance. Research assistantships are continued during the summer and are renewable for the next year at the discretion of the research advisor. Summer appointments are paid at the same rate as during the academic year, but full-time effort (minimum of 40 hours per week) is expected.

Tax Liability
The taxability of the various types of awards described above is determined by current policy of the U.S. Internal Revenue Service (IRS). It is prudent to assume that all stipends are fully taxable and that tax will be withheld. Questions concerning any individual's tax liability must be referred to the IRS.

Outside Employment
Holders of fellowships, traineeships and assistantships are required to devote full-time effort to graduate studies. They are not permitted to engage in any outside employment without permission of the advisor and department chair.

Time Off
Graduate students receiving financial support are expected to commit themselves fully to their studies and research. Intersession periods listed in the University Academic Calendar denote times when classes are not in session, and graduate students are expected to devote themselves full-time to their research during these periods. Students on full support are permitted to take off a maximum of two weeks during the calendar year for vacation, interview trips, etc. Additional time off can be arranged in discussion with the research advisor, but it may result in a reduction of the student's stipend. During the first year in the program when students do not have a permanent advisor, they should consult their first year advisor to schedule any time off. Vacation or personal time off for research assistants must be scheduled so as not to impede the progress of an ongoing research project and should be approved by the research advisor. Full-time summer appointments do not include paid vacation. An appointment may be prepared for periods of less than three months in the summer to allow for planned vacations.

Other Policies

Seminars
Each year the department sponsor or participates in a series of seminars by visiting lecturers and WUSTL faculty and students. All full-time graduate students are required to enroll in MEMS 501 - Graduate Seminar, which is a pass/fail course carrying 0 units. A passing grade is required for each semester for all full-time students and is earned by regular attendance at these events.

Secretarial Service
Department staff will help students with payroll, purchases, keys and allocation of space issues. They do not generally provide clerical services to graduate students except in connection with support of scheduled courses and sponsored research projects.
Instructions for Domestic Travel

Form Needed:
Travel report will be completed by the MEMS Grant & Accounting Coordinator. You will need to provide your name, trip start and end dates, destination, purpose of the trip, and professor who approved your travel.

Meals:
You must provide all original receipts in order to be reimbursed for meals unless you choose to be reimbursed using the per diem method. You will not be reimbursed for alcohol. If there is alcohol on a meal receipt you must subtract it from the meal total.

Airfare & Baggage Fees:
All original receipts for airfare and checked bags are required for reimbursement.

Automobile Rental/Gas:
If you are sharing a car with other WUSTL students, faculty or staff members you must provide their names and affiliation to WUSTL. Note: If you are renting a car for university business while in the U.S., you should not take out the rental car insurance that is offered by the rental car company because you are automatically covered under the university’s insurance plan. You will need to decline any insurance through the rental car company.

Mileage:
Students will only be reimbursed for mileage to and from the St. Louis airport if they drive their own car. If you do this, please provide a mileage printout from MapQuest.com or another mileage tracker website. Note: Sometimes it is cheaper to drive than fly if the trip is to a bordering state or if several students are sharing a trip. If this is the case and you are driving your personal car and not renting one, you will need to provide a quote from the airline carrier and a MapQuest printout of the mileage for your trip if traveling alone. The airline quote must be the cheapest available airfare and must show the date that it was printed to ensure the quote is at least four weeks from the date of travel. The university pays for whichever is cheaper. If you are driving your personal car and you have more than one WUSTL student with you, please note who rode with you for the trip and their affiliation to the university.

Registration:
Original registration receipt is required for reimbursement.

Hotel/Lodging:
You will not be reimbursed for Pay-Per-View movies, channels, or mini bar in your hotel room. If you share a room with a WUSTL student, faculty or staff member, you must list their names and affiliation and what amount of the room you paid. If you did not pay for the room, but shared it with a WUSTL student, faculty or staff member, you too must list the name of the person who paid for the room.

Instructions for International Travel

Form Needed:
Travel report will be completed by the MEMS Grant & Accounting Coordinator. You will need to provide your name, trip start and end dates, destination, purpose of the trip, and professor who approved your travel.

Automobile Rental/Gas:
If you are renting a car while in a foreign country, you are allowed to take out the rental car insurance.

Visas:
Sometimes when traveling to a foreign country, visa fees are accrued. Original receipts for any visa fees are required for reimbursement.

Tours:
Original receipts are required for any fees associated with tours, such as museums.

If you purchase this type of expense for a fellow WUSTL student, faculty or staff member, please list their names as well.

Interdepartmental Invoices (IDs)

An interdepartmental invoice (ID) is issued when any school or department of the university bills another school or department for services or materials. This happens when core facilities are used, food is charged to the department at a university- affiliated restaurant such as Whittemore House, or maintenance performs repairs and builds things for departments, etc. If you use a service at the university, you must have a professor’s approval to do so. You must provide your name and contact information on the receipt so the department knows which advisor to contact for payment. All invoices and/or receipts are required. Failure to provide proper information for billing will result in not being able to charge IDs.

Purchase Orders (POs)

All purchase orders must be completed in Marketplace. Marketplace POs will route to the professor for approval. POs will not be processed without a professor’s approval. All orders will be shipped to the MEMS department office. Once the order has been received, please turn in the delivery ticket/packing slip. Invoices will not be paid until proof of delivery has been received. Please leave ALL purchase orders/packing slips in the assigned mailbox.

Processing Check Requests

Check requests are used when a person is not traveling but has local purchases such as meals, meetings, lab supplies, social expenses, etc. and needs to be reimbursed.

Form needed:
• Check Request Forms are available in the MEMS department office.
• Please provide your name, address, student ID or employee ID number.
• Please fill in the amount to be reimbursed and the purpose of the reimbursement. Sign your name in the section titled “Requested By” and have your advisor sign the section titled “Approved By”.
• You must include all original receipts with this form – copies are not allowed.
• If you are being reimbursed for a meal or for food purchased from a store and you have paid for other people on the meal, you need to provide the list the names of the people who attended the party, their affiliations and the reason for the meal. If there are more than 12 attendees, you only need to submit the number of attendees.

**Note to Faculty & Advisors:** If a reimbursement is paid using sponsored project funds, a justification must be provided.

**Federal Express Use**
To send a package via Federal Express, an authorization form and packing slip must be filled out. Both the form and slip can be obtained in the MEMS department office. The authorization form must be signed by your advisor and include the packing slip tracking number. You will receive a copy of the packing slip for your records.

<table>
<thead>
<tr>
<th>Date</th>
<th>Task</th>
<th>Submit to</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of 1st week of classes, fall</td>
<td>Determine 1st research rotation</td>
<td>Email Director of Ph.D. Studies your choice and Register on Webstac.</td>
</tr>
<tr>
<td>semester</td>
<td>1st research rotation report.</td>
<td>Rotation mentor for review and signature, then electronic or hard copy to Director of Ph.D. Studies</td>
</tr>
<tr>
<td>Last day of finals, fall semester</td>
<td>Determine 2nd research rotation</td>
<td>Email Director of Ph.D. Studies your choice and Register on Webstac. If you are staying in the same lab, the advisor must confirm that they are willing to accept you for the duration of your graduate studies.</td>
</tr>
<tr>
<td>End of 1st week of classes, spring</td>
<td>2nd research rotation report.</td>
<td>Rotation mentor for review and signature, then electronic or hard copy to Director of Ph.D. Studies</td>
</tr>
<tr>
<td>semester</td>
<td>3rd research rotation report (if applicable)</td>
<td>Director of Ph.D. Studies by email</td>
</tr>
<tr>
<td>July 15</td>
<td>3rd research rotation report (if applicable)</td>
<td>Rotation mentor for review and signature, then hard copy to Director of Ph.D. Studies</td>
</tr>
<tr>
<td>June 1 (2 rotations) or July 15 (3</td>
<td>Determine thesis mentor</td>
<td>Director of Ph.D. Studies by email. Advisor must confirm that they are willing to accept you for the duration of your graduate studies.</td>
</tr>
<tr>
<td>rotations)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>July 1</td>
<td>Submit qualifying exam plan for approval</td>
<td>Director of Ph.D. Studies by email</td>
</tr>
<tr>
<td>1-2 weeks before exam</td>
<td>Research report to exam committee</td>
<td>Qualifying exam committee by email</td>
</tr>
<tr>
<td>August 31</td>
<td>Complete qualifying exam</td>
<td>Signed qualifying exam form to Director of Ph.D. Studies</td>
</tr>
<tr>
<td>End of 3rd year of residency</td>
<td>Complete proposal</td>
<td>Signed proposal form to Director of Ph.D. Studies</td>
</tr>
<tr>
<td>Annual review</td>
<td>Yearly after proposal</td>
<td>Signed summary of progress to Director of Ph.D. Studies</td>
</tr>
<tr>
<td>Dissertation</td>
<td>Within 7 years</td>
<td>Signed dissertation form to Director of Ph.D. Studies</td>
</tr>
</tbody>
</table>