UW LABORATORY MEDICINE
MASTER OF SCIENCE
PROGRAM HANDBOOK
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Welcome to the graduate program in the Department of Laboratory Medicine at the University of Washington. We look forward to working with you over the coming years. For all of us, graduate school is a fascinating period in the educational process. During this time, a scientist evolves from being a student gaining knowledge primarily through taking courses, to conducting, interpreting, and presenting your own data that contributes to the very knowledge based that you learned as a student.

You have been accepted to the Master of Science in Laboratory Medicine with the goal of becoming a leader in the field of clinical laboratory science. Dedication and persistence are needed to hone your creative and analytic abilities. During the Master of Science program, students experience the life of an academic through completion of a rigorous regimen of courses in Year 1 and the framing, implementation, and execution of a thesis project (Year 2). The completion of this project culminates in: 1) a thesis, published and cataloged at UW Health Sciences Library and 2) the Master of Science degree in Laboratory Medicine. Depending on the outcome of your thesis, you may also end up publishing manuscripts in peer-reviewed scientific journals.

You will make at least two presentations to the Department in LAB M 510 (Research Conference). The first, proposing your research project early in your studies, and the second (toward the end of your studies) will prepare you for critique and help develop or change your strategy to strengthen your thesis project. You will improve your communication skills and receive feedback from not only fellow Master of Science students, but also from Laboratory Medicine faculty, residents and fellows. This may sound daunting, but is actually an invaluable helpful tool in your development as a team member and a critical, independent thinker.

Remember that you can make a unique contribution most suited to your own interests regardless of which career path you choose. Both the requirements and the rewards of graduate school are substantial. We are committed to do our part in order to make your experience in the Master of Science in Laboratory Medicine a valuable one; we look forward to our joint efforts with you.

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Graduate school is a unique experience. Although you are still considered a student, your professional career in science has begun. Below are some expectations to help you succeed in the program.

**EXPECTATION #1: TAKE FULL OWNERSHIP OF YOUR LEARNING**

In graduate school, you are the one who must define your learning: you set the goals and determine standards of daily achievement, you decide on the correct combination of education and research, and you bear the ultimate responsibility for the outcome. Many people are available to help, but you are responsible for pulling it all together to meet both your current needs (coursework, research and teaching experience, etc.) and your plans for the future (a career in research, teaching, industry, etc.). This includes taking charge of regular meetings with your thesis mentor, thesis committee, program adviser, and program director.

**EXPECTATION #2: BE PERSISTENT**

Graduate school may test your self-confidence. The feeling that somehow a mistake was made in your admission or that you are inadequate to excel in the field is common among graduate students.

Learning to accept criticism is an essential and often difficult part of graduate school. You may find some people overly vigorous in their criticism, but do not take it personally. Never let criticism slow you down; it actually provides a great opportunity for learning. Take risks; be creative. The more ideas you have, the better the chance some will be good. Argue your ideas until you prove them right or understand where they are weak. Hone your ability to accept criticism by not avoiding it.

**EXPECTATION #3: BE PROACTIVE IN YOUR COMMUNICATION**

Taking full ownership of communication is essential for success in graduate school. Communication is the way to make your relationship with your thesis mentor work: you should always feel free to discuss your ideas and needs with your mentor. Communication with your thesis committee through regular committee meetings will also help you focus your research and complete your thesis in a timely manner. Finally, regular communication with program staff and students will help keep you on track and establish community within your graduate program.

**EXPECTATION #4: ENGAGE WITH OTHERS IN THE PROGRAM**

The people with whom you have the most in common are your fellow graduate students. Turn to them to discuss both science problems and personal issues. Talking with others—your committee, graduate program director, academic adviser, faculty members, fellow students, and Laboratory Medicine staff—can also provide a different, and often useful, perspective.

**A NOTE ON STUDENT CONDUCT**

Students are required to review the WA state Student Conduct Code and adhere to the policies outlined here:

MASTER’S DEGREE PROGRAM

The Master’s degree program consists of coursework and a thesis level Master of Science research project and presentation. Full-time students can complete the program within 24 months (eight quarters in residence). For a full-time student, the first year is generally spent on coursework, while the thesis research, committee meetings, and thesis write-up and defense is conducted in year 2. **The Master’s program cannot be completed in less than 2 years.** Part-time students have 6 years to complete the program. Full time students in the Combined Undergraduate/Graduate Program (CUG) (see page 9) usually complete the graduate part of the program in 24 months. Please note that this program is flexible and does allow for changing from full-time to part-time and back again each quarter.

Graduate students normally spend the first year of graduate studies taking a sequence of courses in their specialized field within Laboratory Medicine and a series of core courses in the program. During their initial coursework, students often begin to develop their research project. As studies progress and exposure to the clinical laboratory and research expand, the project continues to develop and is compiled into a thesis.

ACADEMIC ADVISING

**Graduate Program Director/Coordinator and the Graduate Program Adviser:** During the student’s academic career in the program, they will have the graduate program director, the graduate program adviser, and the graduate program coordinator assist them with planning a schedule of courses, selecting a mentor, and reviewing student progress throughout the program.

**The Faculty Mentor:** The student should research prospective Laboratory Medicine graduate faculty members as potential mentors. Graduate program staff are available for advice. After the selection, the student meets with their mentor and discusses interest and research areas in which the mentor is currently working and would have immediate potential to provide a student with one or more focused projects.

**The Supervisory Committee:** As the student selects a mentor and a thesis project, it becomes necessary for the student to structure a supervisory committee, which can better address the particular research issue undertaken by the student. The mentor serves as the chairperson of the supervisory committee. The supervisory committee consists of a total of two to four members including the chairperson, at least half of whom must be members of the Laboratory Medicine graduate faculty. The graduate program director must approve the mentor and supervisory committee. **It is the student’s responsibility to see that a supervisory committee is formed as soon as possible, but no later than the start of the second year.**

The major guidance and evaluation is done by the student’s faculty mentor. Regularly scheduled meetings should be frequent and should include specific aspects of the student’s developing skills, research accomplishments, resource needs, and intellectual/scientific maturation. Feedback is essential in communicating expectations and effectiveness in the working relationship. It is the student’s responsibility to take full advantage of meetings with the mentor (and members of the supervisory committee, if appropriate) to obtain satisfactory direction and feedback and to ensure thorough, mutual understanding of goals and expectations.

At the onset of the project, the student, with advice from their mentor, should approach 1-3 other faculty members to act as the supervisory committee, evaluating the progress of the research and the final thesis. In anticipation of the culmination of the work the thesis is circulated to all committee members for evaluation and may take several weeks, so it is most expedient to advise the committee of their upcoming responsibility. It is the student’s responsibility to track the progress of the committee and to be prepared to act on their recommendations. At least half of the committee members must be present at the thesis presentation/defense.

DEGREE REQUIREMENTS

**UW GRADUATE SCHOOL REQUIREMENTS**

1. Students are responsible for completing a minimum of 38 quarter credits (29 course credits and a minimum of 9 credits of thesis). Required graded courses must be completed with a grade of 3.0 or higher (see list below).
2. At least 18 of the minimum 38-quarter credits must be completed in coursework at the 500 level or higher.
3. Numerical grades must be received in at least 18 quarter credits of coursework taken at the UW. The Graduate School accepts numerical grades (a) in approved 400-level courses accepted as part of the major, and (b) in all 500-level courses or higher. A minimum cumulative GPA of 3.00 is required for a graduate degree at the University.
4. A minimum of three full-time quarters of residence credit must be earned. Part-time quarters may be accumulated to meet this requirement.

5. Graded courses must be 2.7 and above or have a grade of Satisfactory or Credit (‘S” or “CR”) that are counted in the 38-credit total. No more than 6 graduate level quarter credits can be transferred from other academic institutions to count toward the 38-credit total. No more than 12 UW Graduate Non-matriculated credits can be applied to the 38-credit total. No more than 12 credits derived from any combination of UW Graduate Non-matriculated credits and transfer credits can be applied to the 38-credit total. If a student repeats a non-repeatable class, only one set of credits counts toward the 38-credit total.

6. A thesis, approved by the supervisory committee, must be submitted to the Graduate School. A student must register for a minimum of 9 credits of thesis (700). With the exception of summer, students are limited to a maximum of 10 credits per quarter of thesis (700).

7. The graduate student must maintain registration as a full-or part-time student at the University for the quarter in which the degree is conferred (see detailed information under Final Quarter Registration).

8. All work for the Master’s degree must be completed within six years. This includes quarters spent On-Leave or out of status and applicable work transferred from other institutions. See detailed information under Transfer Credit.

9. The UW Graduate School stipulates that in order to graduate, a student must maintain an overall GPA of 3.0 or higher.

Completion of the graduate program is dependent upon successfully identifying a pathway, completing required coursework while maintaining a GPA of at least 3.0, and writing, presenting, and defending a thesis. Full-time students are encouraged to meet with the academic adviser and their supervisory committee at least twice per academic year to ensure completion of Graduate School requirements. It is the responsibility of the graduate candidate to meet the Graduate School requirements in the following areas:

PATHWAYS

A student should identify a Pathway by the end of the first quarter of study. The requirement for depth in one area in Laboratory Medicine is a key intellectual component of the MS degree. Selection of a specific pathway helps focus the student in a specialty area. The following six pathways are available for in-depth study:

- Blood Bank / Transfusion Service
- Chemistry / Immunology
- Hematology / Coagulation
- Microbiology / Virology
- Genetics / Molecular Diagnostics
- Management / Informatics

REQUIRED COURSEWORK

- BIOST 511 Medical Biometry (4 credits)
- LAB M 502 Grand Rounds (3 credits total, one per quarter)
- LAB M 510 Research Conference (3 credits total, one per quarter)
- LAB M 520* Organization and Management in Laboratory Medicine (3 credits)
- LAB M 555 Critical Thinking and Research Design in Laboratory Medicine (2 credits)
- LAB M 601 Laboratory Medicine Teaching Internship (3 credits)
- LAB M 700 Thesis (9 credits minimum)

*LAB M 520 is currently only offered during spring quarter of odd-numbered academic years (e.g. 2021, 2023, 2025).

LAB M 502 GRAND ROUNDS

The primary purpose of Laboratory Medicine Grand Rounds is to provide up-to-date information on laboratory testing for diagnosis, prognosis and monitoring diseases. This Continuing Medical Education (CME) accredited series covers test ordering and interpretation as well as issues related to quality improvement in clinical laboratory services. The course also
encompasses current research and trends in laboratory medicine and in medicine more generally, and considers how these trends are likely to impact the future practice of medicine. Lastly, the course includes lectures on general topics in medicine that provide up-to-date information in areas where laboratory testing is of particular importance.

LAB M 510 RESEARCH CONFERENCE

This course is designed to develop the student’s presentation and critical thinking skills and to advance their thesis research through feedback and suggestions from Lab Med residents and fellows. The seminar course must be taken three times (3 credits total), one per quarter. The student is expected to present their thesis research twice in LAB M 510. These presentations will not take the place of a final thesis defense/presentation, therefore students need to plan accordingly to fit in all required presentations.

LAB M 555 CRITICAL THINKING AND RESEARCH DESIGN

The course aims to develop the students’ critical thinking skills in a relaxed and non-judgmental environment composed of Lab Med MS students, the Course Director, and a different Faculty Facilitator for each class.

THESIS

Presentation of research is a requirement for completing the degree program. A thesis is developed through advisory meetings with the student’s mentor, supervisory committee, and also attendance of LAB M 510 Research Conference. For more information about how to develop and write a thesis, students can refer to the instructions available on the Graduate School website at the following link:

https://grad.uw.edu/for-students-and-post-docs/thesisdissertation/

The entire supervisory committee must review and approve the final thesis. Ideally all committee members will attend the thesis defense, however only half of the members are required to attend in the case of scheduling conflicts. It is the student’s responsibility to coordinate a time and location for the defense that also accommodates the supervisory committee members’ schedules.

On the day of the defense, the student must present the following to the supervisory committee:

- Thesis Warrant, to be signed by all members of the supervisory committee. Students will need to inform the academic adviser when they have submitted Master’s Request online so that the Warrant can be printed.
- Master Supervisory Committee Approval Form

Once the defense is successfully completed, the student must present the following:

- Signed Warrant, given to the academic adviser
- An electronic copy of the Supervisory Committee Approval Form, submitted to the Graduate School
- An electronic copy of the thesis, submitted to the Graduate School

APPLICATION FOR THE MASTER’S DEGREE

Students must apply for the MS degree through the Graduate School within the first nine (9) weeks of the last quarter (first seven weeks during summer quarter). To file a Master’s Request visit this link: https://apps.grad.uw.edu/student/mastapp.aspx. The Graduate School will review the student’s record and current registration and will notify both the student and graduate program director whether or not the degree requirements will be satisfied by the end of the quarter. A degree application is valid only for one quarter. Thereafter, it is the responsibility of the student to file a new application to the Graduate School.

Students who do not make satisfactory progress toward their degree, and who fail to achieve goals and implement remedies recommended by their mentors and the department may be warned or placed on academic probation.
SUGGESTED ACADEMIC CALENDAR

The following is a suggested calendar of required coursework for a full-time graduate student on a two-year program track. Both full-time and part-time students are encouraged to regularly meet with the academic adviser to monitor their progress.

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>SECOND YEAR</th>
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</thead>
<tbody>
<tr>
<td>AUTUMN</td>
<td>AUTUMN</td>
</tr>
<tr>
<td>☐ Enroll in LAB M 502 Grand Rounds (1)</td>
<td>☐ Enroll in LAB M 510 Research Conference (1)</td>
</tr>
<tr>
<td>☐ Enroll in BIOST 511 Medical Biometry I (4)</td>
<td>☐ Enroll in LAB M 601 Teaching Internship (3)</td>
</tr>
<tr>
<td>☐ Enroll in other 500 level classes to fulfill degree requirements</td>
<td>☐ Enroll in other 500 level classes to fulfill degree requirements</td>
</tr>
<tr>
<td>☐ Identify a Pathway</td>
<td>☐ Meet w/Supervisory Committee</td>
</tr>
<tr>
<td>☐ Identify a Thesis w/Mentor</td>
<td></td>
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</table>

<table>
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<tr>
<th>WINTER</th>
<th>WINTER</th>
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<tbody>
<tr>
<td>☐ Enroll in LAB M 510 Research Conference (1)</td>
<td>☐ Enroll in LAB M 502 Grand Rounds (1)</td>
</tr>
<tr>
<td>☐ Enroll in LAB M 502 Grand Rounds (1)</td>
<td>☐ Meet w/Supervisory Committee</td>
</tr>
<tr>
<td>☐ Enroll in LAB M 555 Critical Thinking and Research Design (2)</td>
<td>☐ Meet w/Program Director &amp; Academic Adviser</td>
</tr>
<tr>
<td>☐ Enroll in other 500 level classes to fulfill degree requirements</td>
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<tr>
<td>☐ Identify a Supervisory Committee</td>
<td></td>
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<tr>
<td>☐ Meet w/Program Director &amp; Academic Adviser</td>
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<tr>
<th>SPRING</th>
<th>SPRING</th>
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</thead>
<tbody>
<tr>
<td>☐ Meet w/Supervisory Committee</td>
<td>☐ Apply for Degree</td>
</tr>
<tr>
<td>☐ Enroll in other 500 level classes to fulfill degree requirements</td>
<td>☐ Enroll in LAB M 510 Research Conference (1)</td>
</tr>
<tr>
<td>☐ Enroll in LAB M 520 Organization and Management (3) (if odd year)</td>
<td>☐ Enroll in LAB M 520 Organization and Management (3) (if not already fulfilled)</td>
</tr>
<tr>
<td></td>
<td>☐ Enroll in LAB M 700 Thesis (9) (ideally enroll in thesis credits throughout program)</td>
</tr>
<tr>
<td></td>
<td>☐ Defend Thesis</td>
</tr>
</tbody>
</table>

Options for ADDITIONAL classes to FULFILL the credit requirement for graduation can be found at the following links:

Chemistry/Immunology Pathway:
https://depts.washington.edu/labweb/Education/Master/pathway_chemImmu.htm

Hematology/Coagulation Pathway:
https://depts.washington.edu/labweb/Education/Master/pathway_hemaCoag.htm

Microbiology/Virology Pathway:
https://depts.washington.edu/labweb/Education/Master/pathway_microViro.htm

Molecular Diagnostics/Genetics Pathway:
https://depts.washington.edu/labweb/Education/Master/pathway_molecdxgen.htm

Management/Medical Informatics Pathway:
https://depts.washington.edu/labweb/Education/Master/pathway_mgmtmedinfo.htm

Transfusion Medicine/Blood Bank Pathway:
https://depts.washington.edu/labweb/Education/Master/pathway_transfusion.htm
TRANSFER CREDIT

A student working toward a Master’s degree may petition the dean of the Graduate School for permission to transfer to the UW the equivalent of a maximum of six quarter credits of graduate level coursework (earned as a graduate student in another recognized graduate school) to satisfy course requirements. Such credits do not reduce the residence requirement at the University of Washington, the 18-quarter credits of numerically graded coursework, and 18-quarter credits of 500-level-and-above coursework. The petition must be accompanied by a recommendation from the Lab Med graduate program director and an official transcript. The Department of Laboratory Medicine may accept or reject individual courses.

FOREIGN LANGUAGE PROFICIENCY

For non-native English speakers, English language proficiency is required by the Master’s program and is deemed crucial to writing a scholarly thesis or dissertation. Additionally, a minimum score on the TOEFL of 80 iBT or 580 pBT (ELP is satisfied) is required for admission to Graduate School and for the teaching component of Lab M 601, Laboratory Medicine Internship in Teaching. If a student scores 80-91 on the TOEFL iBT or 500-579 on the TOEFL pBT, re-testing or completion of a UW-approved English preparatory program is required. Please see this link for details: https://grad.uw.edu/policies-procedures/graduate-school-memoranda-memo-8-graduate-school-english-language-proficiency-requirements/

REGISTRATION AND SCHEDULING

Registration at the University of Washington is accomplished by going to MyUW at https://myuw.washington.edu.

The academic adviser can provide Lab M add codes.

A minimum of 10 credits and no more than 18 (without a petition) must be taken each quarter to maintain full-time status. It is important for the student to discuss his/her schedule with the mentor or graduate program director prior to registration. Entering graduate students also learn quickly that more senior students may have strong opinions about courses they have taken and can be a persuasive source of advice.

For UW staff who are at least 50% full time effort (FTE) and who are accepted into the MS program, the UW provides tuition exemption for up to 6 credits per year. Please see details here:

https://registrar.washington.edu/course-registration/state-employee-tuition-exemption/

GRIEVANCES AND DIFFICULTIES

If you believe that you have been unjustly treated by the University system or a member of the faculty, staff or student body, you have several options. First, we encourage you to define the problem and attempt to resolve it informally with the individual involved. If this is unsuccessful, perhaps it can be solved within the Department. The graduate program director is available to listen, advise, counsel, hopefully assist in resolution, and assure confidentiality.

If the issue cannot be solved informally within the Laboratory Medicine or the School of Medicine, depending on the nature of the complaint, more formal grievance procedures can be initiated through the Human Rights Office (3-7217), the University Ombudsman Office (3-6028), or the Graduate School (3-5900). These offices and the GPSS (3-8576) and UW Student Legal Services (3-6486) are also available to advise you and explain various avenues and procedures. Information on grievance issues and procedures can be found here: https://grad.uw.edu/policies-procedures/graduate-school-memoranda-memo-33-academic-grievance-procedure/

COMPLIANCE ISSUES

HIPAA Compliance:

The graduate program students in Laboratory Medicine may complete their clinical training in facilities, including the University of Washington Medical Center and Harborview Medical Center, which are subject to HIPAA regulations. Students are provided appropriate HIPAA training enabling them to adhere to policies governing the privacy of patient health information.
PROGRAM DESCRIPTION

The University of Washington Graduate School approved the Combined Undergraduate/Graduate (CUG) program for undergraduate/graduate students for the autumn quarter of 2012. The CUG program allows talented undergraduate students to pursue the field of Laboratory Medicine (Medical Laboratory Science [MLS]) and receive both a BS in MLS and a MS in Laboratory Medicine. The student first enters a rigorous two-year course in the Department’s MLS program. Towards the end of their second year the student plans for graduate work, finding a potential mentor and research project. They would normally use their studies in the MLS program to initiate their future research as a graduate student. When they enter the graduate school phase of the program, the student starts their thesis research and completes the required graduate school courses in another 12 to 18 months.

The CUG program also allows talented students who have a BS degree in fields other than MLS to pursue the field of Laboratory Medicine and to receive both a second BS in MLS, and an MS in Laboratory Medicine. They also will enter a rigorous two-year course in the Department’s MLS program. These students should plan for graduate work immediately, finding a potential mentor and research project. Then, during their MLS program studies, they initiate their future research as a graduate student. These students, upon entering the graduate school phase of the program, start their thesis research and complete the required graduate school courses in another 12 to 18 months.

ASCP CERTIFICATION FOR MS STUDENTS

CUG students who have completed their undergraduate coursework and clinical rotations should then be able to take the ASCP board exam. These students will matriculate into the graduate program upon successfully completing the undergraduate coursework and clinical rotations, as long as they have maintained a 3.0 or better GPA.