QERM milestones and expectations
Updated: February 2021

Background
One of the main comments we received in our 10-year review is that students are taking too long to finish their degrees. We have since evaluated the timing when students achieve programmatic milestones and noted that most students complete milestones between 1 – 4 quarters after current requirements. One potential reason is that the expectations for the milestones are not clear and are too high. Another is that they are too difficult to achieve.

Two previous drafts have already been shared and comments received (in Autumn 2019 and Winter 2020). This proposal incorporates comments based on those initial drafts.

1. Milestones, Purpose and Expectations

Students completing the QERM degree must meet two kinds of milestones: programmatic and research. Programmatic milestones are the sequences of academic tasks that must be completed by the quarters specified below. Research milestones are the sequences of research tasks that must be completed to complete the thesis or dissertation. The latter will be specific to each student based on their research project, developed by the student and their advisory committee.

1.1 Programmatic Milestones and Expectations

1.1.1 M.S. Degree
A. Confirm advisor and funding plan.
   3rd Quarter
B. Form Committee and hold first meeting:
   5th Quarter.
   The purpose is to identify individuals that will assist you in developing and then implementing your thesis / dissertation research. It is acceptable to form a committee if the research plan is in flux. In fact, that is probably an ideal time to get feedback from a broad group.

   Expectation:
   Prepare a briefing paper laying out draft research agenda to committee, share with committee 2 weeks before meeting. Meeting should include a short presentation that reviews this research agenda (e.g. a short presentation). Use this time to plan for coursework (see Plan of Study).

C. Plan of Study
   5th Quarter
   The purpose is to obtain guidance from advisory committee on courses which you should take during your degree. This guidance is based largely on your research, other interests, and your long term career goals.
D. M.S. Thesis Proposal

6th Quarter

The expectation is to (1) review the relevant literature on the field to justify your research (2) lay out specific research questions / hypotheses (3) detail a research plan to address those questions / hypotheses (4) highlight the significance of the work to the broader community. In general, M.S. thesis proposals should be between 5 – 7 pages, and should not ever exceed 10 pages.

M.S. Thesis

The expectation is that the work completed in a M.S. thesis is comparable to a peer reviewed journal article in a scientific journal. Exceptional theses will contain two potential publications, but this will normally be the case when one is deemed to be a relatively small contribution to the field.

The student and committee should plan to complete the M.S. thesis in the 8th or 9th quarter. However, failure to meet these target will not automatically trigger programmatic action as described below because the pace of research progress is difficult to predict and can be delayed by many factors that cannot be controlled by the student.

1.1.2 Ph.D. Degree

A. Confirm advisor and funding plan.

3rd Quarter

- CURRENTLY: Qualifying Exam End of Third Quarter
  Expectation is to test your general knowledge of mathematics, statistics, and optimization. Most commonly, the exam will be done over the span of several days, with the specific format decided by the qualifying exam committee. Outcomes of the individual components of the qualifying exam are rated as “High Pass”, “Pass”, “Marginal Pass”, “Fail”. Overall success of the exam is determined by the committee based on results of all components. The committee may recommend re-examination of a single component of the exam or the full exam. Students are permitted a single opportunity to re-take and pass portions of the exam that they have failed. In the event that a passing outcome is not obtained, the student will be not be permitted to continue in the Ph.D. track.

B. Form Committee and hold first meeting:

5th Quarter.

The purpose is to identify individuals that will assist you in developing and then implementing your thesis / dissertation research. It is acceptable to form a committee if the research plan is in flux. In fact, that is probably an ideal time to get feedback from a broad group.

Expectation:
Prepare a briefing paper laying out draft research agenda to committee, share with committee 2 weeks before meeting. Meeting should include a short presentation that
reviews this research agenda (e.g. a short presentation). Use this time to plan for coursework (see Plan of Study)

C. Plan of Study

5th Quarter
The purpose is to obtain guidance from advisory committee on courses which you should take during your degree. This guidance is based largely on your research, other interests, and your long term career goals.

D. Potentially new Qualifying Exam *

7th quarter
There will be a broader conversation about the qualifying exam later this AY. This is just a placeholder

E. Dissertation Proposal

8th Quarter *
Generally, the dissertation proposal should succinctly articulate the body of research in the field, the current frontier of knowledge, and how the dissertation work is expanding that frontier. Typically, dissertation proposals will be between 10 – 12 pages, and should not exceed 15 pages.

F. General Exam

9th Quarter *
The general exam is a requirement of the UW graduate school. The expectations are to demonstrate mastery of the field in which the research is being conducted, and to show working knowledge of relevant quantitative fields.

Dissertation and final exam

The expectations of the dissertation are defined by the UW graduate school. The work must be “a significant contribution to knowledge and clearly indicates training in research”. Typically, dissertations result in 3 publications in peer review journals. Exceptional dissertations may have additional publications (but no more than 5). Commonly, students publish some portions of their dissertation before the full dissertation is completed. In those cases, students should gain approval of the advisory committee prior to submitting to journals.

The student and committee should plan to complete the dissertation in the 16th quarter. However, failure to meet these target will not automatically trigger programmatic action as described below because the pace of research progress is difficult to predict and can be delayed by many factors that cannot be controlled by the student.

1.1.3 Modifications for Ph.D. bypass
Students must be up-to-date on M.S. milestones to apply for Ph.D bypass. The following programmatic milestone dates are based on quarters after beginning the Ph.D. track:

A. Revised Plan of Study  
   1st Quarter after bypass  
B. Form Dissertation Committee and hold committee meeting  
   1st Quarter after bypass  
C. Dissertation Proposal  
   4th Quarter after bypass  
D. General Exam  
   5th Quarter after bypass

1.2 Research Milestones

The student’s advisory committee will have primary responsibility for judging whether the student is making satisfactory progress towards completion of their thesis or dissertation research. It is the student’s responsibility to update the committee on progress on research milestones, identify obstacles that have prevented achievement of research milestones, and plans to overcome them.

The student and academic committee will produce a research timeline with specific research milestones for each academic year. This will be done by completing annual reviews and research planning, which is comprised of the following steps:

A. The student will complete an annual activity report and self-evaluation each year in Autumn quarter.
B. The committee chair will evaluate the student’s research progress, and make a recommendation regarding the student’s research progress. (Satisfactory, Satisfactory but with reservations, not satisfactory).
C. The advisor and student will review these evaluations and agree to a research plan with milestones for the next academic year.
D. The advisor’s recommended evaluation of student progress will be shared with the advisory committee for approval. Approval can be done over e-mail or via an in-person meeting.
E. The outcome of the student-advisor / student–committee meeting will be shared with the QERM director. The QERM director and student will meet by the end of Autumn quarter to review plan and annual progress, and resolve disputes as necessary.

2. Consequences for falling behind on programmatic or research milestones

2.1 Students must be up to date on programmatic milestones and make satisfactory progress towards to be eligible for QERM travel funding, QERM bridge funding, and will be granted priority for QSCI TA positions.

2.2 When a student fails to meet programmatic milestones or the academic committee concludes that the student is not making satisfactory progress towards their thesis / dissertation,
QERM will initiate the UW graduate school process for students not making satisfactory academic progress. This process begins with a warning letter sent to the student the quarter after milestones are not met, or the quarter after the committee concludes that the student is not making satisfactory progress. The warning letter must list specific conditions (accomplishments and deadlines) to avoid going on academic probation. If by the conditions are not met, the student will be placed on academic probation. Failure to meet conditions / milestones in subsequent quarters will result in students being first placed on final academic probation, and then dropped from the program. More information on the UW graduate school probation policy can be found at XXXXX.

2.3. The student and advisor can to petition for a waiver on programmatic milestones based on circumstances beyond student control.