



## Doctoral Qualifying Examination (Effective Autumn 2017)

The purpose of the Doctoral Qualifying Examination is to evaluate a student's overall academic preparation for the PhD program, including:

- Understanding of and ability to apply fundamental concepts of the discipline,
- Capacity for independent thought, critical analysis, and creative problem solving,
- Ability to communicate orally including responding to questions and comments, and
- Overall readiness to engage in independent research and complete the PhD program.

### Timeline & Eligibility

Students are expected to take the Qualifying Exam during their second year in the PhD program. Doctoral students who do not pass the qualifying exam by the end of their third year of graduate study will be subject to unsatisfactory progress policies.

The doctoral Qualifying Examination is held twice a year, during the Spring and Autumn Quarters.

To be eligible to take the Qualifying Exam, a student must:

- Be enrolled in the PhD program,
- Have a minimum cumulative GPA of 3.4, and
- Identify a faculty member who has agreed to serve as their doctoral supervisor.

Taking the Qualifying Exam does not preclude a PhD student from later completing an MSAA en route to the PhD.

### Continuing to PhD from MSAA

Students admitted to the MSAA program are eligible to take the qualifying exam only *after* completing the MSAA and meeting all other eligibility requirements. MSAA students seeking to continue toward the PhD are expected to take the qualifying exam during the first examination cycle following completion of the MSAA. MSAA students will only be promoted into the PhD program after receiving their MSAA degree and passing the qualifying exam.

## **Examination Committee**

Qualifying Exam Committees include four members of the UW Graduate Faculty – three “core area” members and one “breadth” member. The Committee Chair and at least two other committee members must hold appointments in the Aeronautics & Astronautics Department.

It is the student’s responsibility to identify all committee members (in consultation with the Committee Chair). Students will submit their full committee membership when they submit their request to take the exam.

## **Examination Format**

The Qualifying Exam consists of two parts – written and oral.

### **Written Exam**

On the second Friday of the quarter, the Exam Committee will assign the student one or more journal articles.<sup>1</sup> The student has four weeks (plus one additional weekend) to analyze and respond to the article, including additional literature review. Students must work entirely independently during the written portion of the exam.

On the fifth Monday following the delivery of the written assignment, the student must submit a written report approximately 7-10 pages in length. The report will be submitted electronically to the entire committee and cc’d to the staff Graduate Adviser.

Reports will be assessed on the demonstration of technical knowledge, critical analysis, and the quality of the writing – all of which should convey consistently strong, graduate-level work. A complete report will demonstrate the student’s understanding of the article’s content and its relevance to the broader field. This includes:

- A brief summary of the article,
- A discussion of the relevance and impact of the article’s findings,
- A discussion of potential future directions, and
- Any appropriate criticism.

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<sup>1</sup> Best practices recommend against assigning tutorial or review articles for the written exam since they can limit the student’s opportunity to independently determine context. Additionally, in order to avoid any conflict of interest, no one on the students’ committees shall have authored, co-authored, or otherwise been involved with the research reported in the article(s).

Within two weeks (14 days) the Committee Chair will notify the student of the outcome of the written exam. There are three possible outcomes to the written exam.

PASS: Student proceeds to Oral Exam

REVISE: Student has ten days to revise and resubmit the written exam in response to committee feedback.

REEXAMINE: Student may not proceed to oral exam. Student is advised to retake the exam, beginning with the written exam, during the next examination cycle. Only one reexamination will be permitted.

### Oral Exam

After successfully passing the written exam, students must proceed to the oral exam.

In preparation for the oral exam, all members of the Exam Committee will provide the student with a list of UW courses (undergraduate and graduate) that cover the material they expect the student to be able to address during the oral exam. The examiners are not strictly limited to asking questions based on this list, but the list should provide an effective guide to preparing for oral questioning. It is the Committee Chair's responsibility to collect and deliver this list of courses to the student at the same time the student is notified they have passed the written exam.

Unlike the written portion of the exam, students are permitted and encouraged to prepare for the oral examination collaboratively with other student. This may include practice presentations as well as practice Q&A sessions with peers.

Oral examinations should be completed on/before the last day of instruction of the current quarter (no later than the last day of finals). It is the student's responsibility to identify a time/date for the exam and submit that information to the staff Graduate Adviser. All members of the Exam Committee are expected to attend the oral exam. However, an exam may proceed with three members – including the Chair and the Breadth member. Oral Exams are open to all members of the Aeronautics & Astronautics faculty.

Oral exams last two hours, maximum. This includes:

- Opening Presentation (30 mins maximum)
- General Questions (60 mins maximum)
- Discussion (30 mins, committee and student only)

The oral exam will begin with the student providing a brief presentation of their written exam. This presentation and the related questioning/discussion period are strictly limited to 30 minutes total. To ensure this time limit is observed, one member of the committee (other than the Committee Chair) must be designated as the Time Keeper.

The general questions portion of the exam will move beyond the specific topics discussed in the presentation. Committee members will pose questions to evaluate the student's academic preparation for the PhD program. Other members of the faculty may pose questions as well. The student will be expected to respond to these questions orally and demonstrate their work at the board. The Time Keeper is responsible for ensuring that general questioning does not exceed one hour (60 minutes)<sup>2</sup>.

Immediately following the general questioning, the committee may take an additional 30 minutes for closed discussion. The student may be asked to stay for part of the discussion if desired by the committee. During discussion, the committee will assess the student's exam performance and their readiness for continued doctoral study.

Students will be evaluated on:

- Overall quality of the written report,
- Command of disciplinary fundamentals,
- Ability to communicate clearly when presenting technical content and responding to questions,
- Ability to establish context and connections to other discipline areas.

The committee will notify the student of the outcome of the oral exam immediately following its discussion. There are three possible outcomes following the oral exam.

PASS: Student may proceed with doctoral studies, including the formation of a Doctoral Supervisory Committee. Students are expected to form the Doctoral Supervisory Committee within six months of passing the qualifying exam.

REEXAMINE: Student may retake the oral portion of the qualifying exam during the next exam cycle. Reexamination follows the same format as the first exam, including the opening presentation. However, the only possible recommendations from a second exam are: PASS or NOT PASS. Multiple reexaminations will not be permitted.

NOT PASS: If the Exam Committee returns a "not pass" outcome, the student will not be eligible to continue in the doctoral program. Students who do not pass the qualifying exam are eligible to complete an MSAA, in which case the student will be formally transferred to the MSAA program.

A student may appeal a "not pass" outcome and request permission for reexamination. Petitions must be submitted in writing and must include a formal letter of support from the student's faculty adviser. The Graduate Committee will review and take final action on petitions. The Graduate Committee will consider only one such petition per student.

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<sup>2</sup> A best practice is to provide each committee member 15 minutes to conduct their general questioning.