

# Parks College of Engineering, Aviation and Technology

## Ph.D. Qualifying Exam Policy

### Purpose of the Qualifying Exam

All Ph.D. students must successfully pass a qualifying examination prior to submitting their dissertation proposal. Generally, the Qualifying Examination is intended to ascertain the students command of select domain areas related to a particular discipline and demonstrate his/her ability to perform graduate level research.

More precisely, the Qualifying Examination is used to:

- Verify the student's potential for doctoral research and assess the student's ability to use fundamental concepts in the pursuit of doctoral research
- Identify areas that may need to be strengthened for the student to be successful in doctoral research.

### Timeline

The Qualifying Exam will be administered according to the expectations of the academic discipline. For example, in engineering a qualifying exam may be administered relatively early in the doctoral studies. In aviation, the qualifying exam is structured to assess comprehensive knowledge of the discipline after all or nearly all of academic work has been completed and thus, it is administered closer to the completion of the degree. Consult with your academic department for additional information regarding the timing of the qualifying examination.

### Qualifying examination styles

The method for completing the Qualifying Examination process vary with each department. Generally, qualifying is accomplished by successful completion of one (or a combination of more than one) of the following:

1. Three Topic Exam Style Qualifying Exam.  
The student in consultation with their Ph.D. Advisor will identify three topics from which questions will be developed for the examination. *(See Appendix A for more details)(Topic areas are provided by each academic department)*
2. Qualification through Research Writing(s) and Oral Examination.  
The student will present their own research work(s) to the examination committee for evaluation on their scholarly merit. If the committee determines the work to be appropriately rigorous, an oral examination based on the three separate domain areas is conducted. *(See Appendix B for more details)*
3. Qualification through a Portfolio *(Aviation Ph.D. Only)*  
The Qualifying Portfolio is an organized, selective collection of artifacts gathered throughout the coursework phase of the doctoral program and is designed to facilitate and evaluate academic development in pursuit of doctoral research. When complete, the portfolio demonstrates the student's command of the academic discipline and ability to commence dissertation research. *(See Appendix C for more details)*

Petition forms and detailed instructions for arranging the exam and reporting the exam results can be found on the Forms and Petitions tab at [parks.slu.edu/grad](http://parks.slu.edu/grad).

## **Appendix A: Qualification through Three Topic Exam Style**

With regard to "Three Topic" qualification examination, this appendix describes exam format and timeline, selection of examiners, administration of the exam, and exam outcomes.

### Timeline

#### ***When to take the qualifying exam?***

Students are advised to pursue this qualifying examination before the end of their first academic year in the PhD program. Please, consult individual departments for program specific deadlines, examination dates and other recommendations.

#### ***When to schedule the qualifying exam?***

Students should submit the completed "Qualifying Exam Petition" form to graduate programs office at least 30 days prior to date of examination. The "Qualifying Exam Petition" form is available on the Forms and Petitions tab at [parks.slu.edu/grad](http://parks.slu.edu/grad).

#### ***When will the grade be given?***

Students will be notified in writing of the outcome of the PhD qualifying examination no later than two weeks of the exam date, and within two weeks of the submission of additional required work (if required).

### General Description

The intent of the "Three topic" examination format is to allow doctoral students to qualify for pursuit of doctoral studies by demonstrating their PhD-level knowledge in three topics related to their research. The students in consultation with their PhD Advisor will identify three topics from the examination topics list provided by their home department. Students may choose topics drawn from outside their home department with the approval of their home department chair. The faculty evaluator for each topic is suggested by the PhD Advisor and should be approved by the department chair. Upon identification of faculty evaluators, students should complete the qualifying examination petition form by following the steps outlined in "Parks College of Engineering, Aviation and Technology Ph.D. Qualifying Exam Policy". This includes determining time, date, and location of examination.

### Format of Exam

The test will be given in three, two hour blocks of time one topic during each two hours block. The student home department in consultation with the faculty evaluators will provide more information on each topical exam. This information should include list of topics or syllabus for each exam block, format of each block (e.g. open book, closed book), and list of suggested references for each topic. This information should be provided to students 30 days prior to date of examination.

### Exam Day

A proctor is appointed by the department to administer the qualification examination. Faculty evaluators provide the exam questions to the proctor at least one day prior to examination day. The proctor will return the student answers to the faculty evaluators for grading in twenty four hours after completion of the exam.

### Exam grading

Students are expected to provide the faculty evaluators with the Qualifying Exam Results Form. The steps for completing this form are explained on the Ph.D. Qualifying Exam Forms document at [parks.slu.edu/grad](http://parks.slu.edu/grad). The faculty evaluators will grade the exam in no later than two weeks and will

forward the exam results to the students PhD Advisor. The PhD advisor will notify the student the outcome of the PhD qualifying examination in writing within two weeks of the examination. The outcome for each examination topic will be reported as follows:

- Pass: indicating the student passed in the three topical area(s) selected.
- Conditional Pass: indicating the student did not pass in the selected topical area(s). The faculty evaluator in consultation with PhD Advisor will determine the additional work that should be completed by student to pass the topical exam.
- Fail: indicating the student failed one or more of the topical areas. In this case, based on the discretion of the student's PhD advisor, the examination committee, director of Parks graduate programs and the department chair, the student might be instructed to re-take the topic(s) or could be given a chance to proceed with a lower degree such as Master's.

If students receive conditional pass in any of the examination topics, they will be given an opportunity to mitigate the conditional pass by completing additional work determined by faculty evaluator and student PhD advisor. Additional required work due to a Conditional Pass will be documented through a conditional pass contract, which will include details of the additional work expected of the student, and an expected completion date. The faculty evaluator will review the additional work and will issue a pass or fail grade. In the case of fail grade the student should contact the director of Parks graduate programs and department chair. The steps for mitigating conditional pass grades are outlined in the Ph.D. Qualifying Exam Policy on the Forms and Petitions tab at [parks.slu.edu/grad](https://parks.slu.edu/grad).

Students must pass all the three topics in order to qualify for pursuit of their doctoral studies. Students who cannot pass the qualifying examination might be given an option for the award of lower degrees, such as MS, which may require additional work following the guidelines for these degrees.

## **Appendix B: Qualification through Research Writing(s) and oral examination**

With regard to this "Research Writing(s)" type of examination format, this appendix describes administration of the exam, selection of examiners, expectations regarding work submitted by the student, required oral examination, exam outcomes, and notification time frame.

### Timeline

#### **When to take the qualifying exam?**

Students are advised to pursue this Qualifying examination style after the end of their first summer in the program (to allow time for laboratory research) and before their PhD proposal examination. Please, consult individual departments for program specific deadlines or recommendations.

#### **When to schedule the qualifying exam?**

The research writing(s) that a student submits for consideration by the qualifying examination committee must be submitted together with the Qualifying Exam Request Form (see the Forms and Petitions tab at [parks.slu.edu/grad](http://parks.slu.edu/grad)) at least 30 days prior to the requested oral examination date.

#### **When will the grade be given?**

Students will be notified in writing of the outcome of the PhD qualifying examination no later than two weeks of the oral examination, and within two weeks of the submission of additional required work (if required).

### General Description

The intent of the "Research Writing(s)" examination format is to allow a doctoral student to qualify for pursuit of doctoral studies through evaluation of their research writing(s), and evaluation of their responses during a single oral exam conducted after review of the writing(s). To successfully qualify, students must demonstrate PhD-level knowledge in three identified topical area(s). Each topical area(s) selected by the student for consideration in this examination format must be related to the content of the research writing(s) submitted by the student. A list of approved topics is provided by each department. Students may request the addition of different disciplines to their oral exam related to their research area.

### The Research Writing

The research writing(s) submitted by the student should represent significant potential for scholarly research at the doctoral level.

#### Acceptable research writings

- 1.) One or more peer-reviewed journal articles that are related to the student's intended research focus. Such articles may be published, in-press, accepted, submitted, or in-preparation. Students should be cautioned, however, that a single article in-preparation, listing the student as a secondary author, would likely not present a strong case for PhD program qualification; and conversely, that one or more published journal articles, listing the student as primary author, are not a guarantee of qualification.
- 2.) A written pre-proposal report with one or more aims that are related to the student's research focus. The written pre-proposal report should be very similar to a peer-reviewed article in preparation, except that it may consist predominantly of preliminary data and detailed future work plans. The report should include the following sections: Background and Introduction, Materials and Methods, Preliminary Data and Data Analysis, Future Work, and Conclusions for one or more aims. To be considered for the Qualifying examination, the report should adhere to strict guidelines for technical writing and should give sufficient information to guide the examiners in determining what is the scope and feasibility of the project.

A project that is too narrow in scope (i.e. detailing research at the Master's level – e.g. simple screening of several parameters) or too broad (i.e. without a well-defined end-point – e.g.

development of cancer cure) would not be appropriate.

This written research report is meant as an avenue for a graduate student establishing a new project where research related to project feasibility and procedure development is needed before data collection could begin. Graduate students joining well-established projects could also choose to do this qualifying examination style; however, a larger amount of preliminary data would be expected.

#### The Examination Committee

The qualifying examination committee shall consist of three individuals, with at least one individual from the respective department(s) housing each selected exam topic. Examination committee members are suggested by the PhD advisor in consultation with the department chair. One examination committee member will ordinarily be the student's PhD advisor. In such cases wherein the student has not yet selected an advisor, another faculty member from the student's home department will be selected based on that department's recommendation.

#### Petition requirements

The research writing(s) that a student submits for consideration by the qualifying examination committee must be submitted together with the Qualifying Exam Request Form (available on the Forms and Petitions tab at [parks.slu.edu/grad](http://parks.slu.edu/grad)) to the examination committee. Prior to submitting the Qualifying Exam Request Form and research writing(s), students are strongly encouraged to consult with their research advisor, the chair of their home department, and/or the Director of Graduate Studies to ensure that the submitted research writings are reasonable and commensurate with the general expectations for this type of qualifying examination.

#### Assessment

Qualification will be assessed by the examination committee's overall evaluation of the student's PhD-level knowledge in the three topical areas selected. This will be accomplished through 1) evaluation of the quality and significance of the submitted research writing(s); 2) evaluation of how well the student responds to questions on fundamentals in three topical areas, where in all cases the questions will stem from concepts presented in the research paper(s); 3) evaluation of how well the submitted research writing(s) represent the PhD research topic to be pursued by the student; and 4) the student's ability to demonstrate both depth and breadth of knowledge in the topical areas in relation to the submitted research writing(s). The foregoing will be assessed by the examination committee through both a review of the submitted research writing(s) and a subsequent, required oral examination that is not to exceed 90 minutes in length.

#### Exam grading

The outcome for a PhD qualifying examination is determined by majority vote of the qualifying examination committee members, and leads to one of the following results:

- Pass: indicating the student passed in the three topical area(s) selected.
- Conditional Pass: indicating the student did not pass in the selected topical area(s). The student will receive a pass grade after successfully completing the additional work determined by the examination committee in consultation with the PhD advisor.
- Fail: indicating the student failed. The student will be directed to meet with the director of Parks graduate Programs and Department Chair to discuss future options, such as the award of lower degrees (e.g. MS). If this path is chosen, additional work might be required following the guidelines for these degrees.

Additional required work due to a "conditional pass" will be documented through a conditional pass

contract, which will include details of the additional work expected of the student, and an expected completion date (see the Forms and Petitions tab at [parks.slu.edu/grad](https://parks.slu.edu/grad)). The resulting additional work will be evaluated by the original examination committee.

## ***Appendix C: Qualification through Submission of a Portfolio and Oral Examination***

Note: The Qualifying Portfolio is unique to students seeking the PhD in Aviation

The Qualifying Portfolio is a gathering of work in the form of writing and/or project(s) intended to demonstrate the Aviation PhD student's mastery of ability to move forward with PhD level research.

### Timeline

#### **When to take the qualifying exam?**

Students are advised to pursue this Qualifying examination style near the end of their PhD academic program but prior to the PhD proposal examination. Please, consult the Aviation Science Department Chair for program specific deadlines or recommendations.

#### **When to schedule the qualifying exam?**

The Portfolio a student submits for consideration by the qualifying examination committee must be submitted together with the Qualifying Exam Request Form (<http://parks.slu.edu/academics/grad-programs/forms-and-petitions/>) at least 30 days prior to the requested oral examination date.

#### **When will the grade be given?**

Students will be notified in writing of the outcome of the PhD qualifying examination no later than two weeks of the oral examination, and within two weeks of the submission of additional required work (if required).

### General Description

The objectives of the qualifying examination experience include:

1. Verifying the student's potential for doctoral research.
2. Assessing the student's ability to use fundamental concepts in the pursuit of doctoral research.
3. Identifying areas that may need to be strengthened for the student to be successful in doctoral research.

The aforementioned objectives will be evaluated based on the following outcomes:

1. The student will demonstrate a graduate-level knowledge and understanding of the aviation domain.
2. The student will synthesize program of study content and leading issues surrounding the aviation domain.
3. The student will demonstrate the ability to conduct original research.

The portfolio should be assembled in the following manner:

1. Table of contents
2. A fully executed Program of Study Form
3. Curriculum Vitae
4. A summary of how the portfolio (abstract of professional paper):
  - a. Demonstrates a graduate-level knowledge and understanding of aviation.
  - b. Synthesizes program of study content and leading issues surrounding the aviation domain.
  - c. Demonstrates the ability to conduct original research.
5. Research papers or major written work from at least four (4) courses listed on the Program of Study
6. Any published material

7. A professional essay (See Professional Essay, below) of 15-20 pages, explaining the rationale for the selected research discipline.
  - a. How it complements prior academic work and professional experience, and,
  - b. The current discipline and what the doctoral student considers to be the leading research issues in the chosen field.

At the student's request and with subsequent approval from their advisor, the portfolio may contain additional items, if such items are found to be helpful as evidence of the students' preparation to pursue doctoral studies.

### The Professional Essay

The central part of the portfolio is the professional essay. It should be 15-20 pages long and represents the candidate's best writing. The essay should not be autobiographical, casual, or informal in tone. It should:

1. Offer an overview of the Program of Study, identify the field of study the candidate has chosen to pursue
2. Explain why those choices were made
3. Explain how the candidate's thinking about the discipline has changed with professional growth.
4. Identify the leading issues confronting particularly the major field today, the "big questions" that the field is debating, and the kinds of research and evidence gathering that dominate current research.
5. Provide a concise discussion of the candidate's long-term ambitions as a scholar.
6. Identify what is lacking or inadequately understood in the field now?
7. What interpretations need more evidence or more questioning?
8. What kind of "trajectory" (or long-term research strategy) does the candidate envision for his or her work, at the dissertation stage and beyond?
9. What research questions seem most important and significant to pursue in the intended field of research?
10. The essay should make a case for the value of the fields of study being pursued.
11. Identify the significance of the work?
12. Identify what non-specialists and the public expect to learn from the field, and why is that useful?

Furthermore, the candidate should indicate where he or she stands on those questions and venture appraisals or criticisms of key contemporary works in the field. Overall, the candidate should demonstrate a firm understanding of the most influential works and interpretations in the field.

### Assessment

Qualification will be assessed by the examination committee's overall evaluation of the student's PhD-level knowledge in the three topical areas selected. This will be accomplished through:

1. Evaluation of the quality and significance of the Portfolio
2. Evaluation of how well the student responds to questions on fundamentals in the three topical areas, where in all cases the questions will stem from concepts presented in the Portfolio
3. Evaluation of how well the Portfolio represents the PhD research topic to be pursued by the student
4. The student's ability to demonstrate both depth and breadth of knowledge in the topical areas in relation to the Portfolio



## The Process

1. In the final semester of coursework, students shall present the required paperwork and Portfolio to their Qualifying Examination Committee.
2. The presentation will last approximately one hour and will include a brief overview of the artifacts followed by a discussion of the work in light of the Program of Study
3. The outcome for a PhD qualifying examination is determined by majority vote of the qualifying examination committee members, and leads to one of the following results:
  - a. Pass: indicating the student passed in the topical area(s) selected.
  - b. Conditional Pass: indicating the student did not pass in the selected topical area(s). This recommendation will be accompanied with successful completion of additional required work by the student.
  - c. Fail: indicating that the student failed in the selected topical area(s). This recommendation comes with termination of the student from the doctoral program. In this case options will be given for the award of lower degrees, such as MS, which may require additional work following the guidelines for these degrees.