

Modeling & Simulation Ph.D. Qualifying Examination Protocol

The Modeling and Simulation Ph.D. qualifying examination is the first major milestone in a student's pursuit of the doctoral degree, and the student must unanimously pass the examination before scheduling the candidacy examination, the second major milestone in the Modeling and Simulation Ph.D. program. The qualifying examination and the candidacy examination cannot occur during the same semester.

The objective of the Modeling and Simulation Ph.D. Qualifying Examination (ModSim QE) is to determine if a student has an adequate command of knowledge in the field of study and can organize and convey that knowledge.

The ModSim QE is a research-based examination that covers the student's major, and possible minor, topic areas of study. Students are expected to have expertise in their selected area(s) including a solid understanding of the literature in the field before they delve into solving a specific research problem(s) within the field. The examination is designed to assess a student's ability to synthesize and communicate in writing the theoretical, conceptual, and empirical knowledge base of the field. Furthermore, the examination provides the faculty with an opportunity to assess a student's competency, knowledge of the fundamentals, and their potential for independent scholarly research. The ModSim QE will allow the faculty to evaluate a student's presentation and communication skills as well as the student's level of confidence in the mastery of the discipline.

Eligibility:

A student is eligible for the ModSim QE after meeting the following criteria:

1. A Graduate Plan of Study (GPS) must be accepted by the Modeling and Simulation Graduate Program.
2. The GPS on file with the UCF College of Graduate Studies is up-to-date and correct.
3. All core coursework requirements are fulfilled.

BEST PRACTICE:

- Review your GPS with the Modeling and Simulation Graduate Program when you are scheduling the QE with your committee.

Committee:

The role of the committee is to evaluate the student's QE performance. The Evaluation Committee is composed of a committee chair and a minimum of two others, totaling three members. All members must be classified as UCF Graduate Faculty or Graduate Faculty Scholar (<http://catalog.ucf.edu/content.php?catoid=4&navoid=240>) in fields that support the student's research area.

BEST PRACTICES:

- Choose your committee members in consultation with your committee chair.
- Choose your QE committee with your dissertation committee in mind. Then, once the QE is completed successfully, these members can help you select your fourth member as well as guide you through your candidacy and dissertation.
- Consult your committee regarding a fourth member, and submit your "Doctoral and Thesis Advisory Committee" form to Graduate Studies (<https://graduate.ucf.edu/forms-and-references/>) upon completion of the qualifying examination.

Structure of the Qualifying Examination:

The Modeling and Simulation Qualifying Examination is comprised of two components: written and oral. The student is advised by the QE Committee Chair in the preparation of both.

Written Component

The written component must be a publication-quality manuscript. In other words, it should be of publishable quality but does not have to be submitted to an archival journal for publication. The topic of the paper must describe research that is related to the modeling and simulation field and indicate the student's readiness to do independent scholarly research. In lieu of preparing the written component for the qualifying examination as described, a student can submit a sole-authored or lead-authored journal or peer-reviewed conference publication as evidence of their scholarly and professional competence. In this instance, the student must be a significant contributor to the work and the paper.

The written component is a technically-written document that consists of the following 3 discussions:

1. The background, motivation and rationale of a topic, idea or concept worthy of a dissertation and in which the student could represent a significant contribution to the Modeling and Simulation discipline.
2. A thorough literature review, identifying research gaps that could lead to potential research questions and/or hypotheses. The review must describe, analyze and synthesize previous research on the topic and should not merely string together what other researchers have found. The ultimate goal is to determine what is and is not known about the topic.
3. A summary of a possible approach (or approaches) to address the gaps identified in the literature review. The student is expected to describe the rationale for using the approach (or approaches).

The complete document must be submitted to all QE Committee members for their careful review and evaluation **at least two weeks** in advance of the oral presentation.

Oral Component

The oral component is a professional conference-level presentation by the student to the QE Committee summarizing the written project. The student is expected to work with the QE Committee chair to develop a presentation using a format appropriate to the Modeling and Simulation disciplinary criteria. The oral examination must include a question-and-answer period in which the student defends research decisions and receives feedback from the QE Committee.

During the oral presentation, the committee members will question the student on the information presented in both components of the examination. The committee may address the following topics:

- the fundamentals of modeling and simulation
- the student's major and minor topic area(s)
- global research awareness and understanding as it relates to the modeling and simulation field
- analytical thinking and research potential
- communication skills (oral and written)

The presentation must take place during an academic term (fall, spring, or summer) in which the student is enrolled. The oral component of the examination must take place on campus. If a student wishes to present

during a semester break and/or at another UCF campus or affiliated property, the student must acquire approval from the Modeling and Simulation Graduate Program before final scheduling.

The oral examination must be scheduled so that all committee members are physically present. If necessary, no more than one member (not the QE Committee chair nor the student) shall participate in the oral presentation remotely via web conferencing technology. If this is the case, the student must report the remote participation to the Modeling and Simulation Graduate Program so they can assist with resources to ensure the member's ability to engage in the discussion and evaluation.

The student must notify the Modeling and Simulation Graduate Program of the qualifying examination, including the written component of the examination, **at least two weeks in advance**. A sample announcement is attached. If the presentation is cancelled or rescheduled, the student will inform the ModSim Graduate Program immediately.

BEST PRACTICE:

- Treat the oral component of the qualifying examination as a trial run for the candidacy exam and dissertation defense.

QE Evaluation and Reporting:

After the oral presentation, each committee member will assess the written and oral components of the qualifying examination. Then, the committee will deliberate and arrive at a consensus regarding the student's ability to do independent scholarly research. The grading outcome of the QE will be one of the following three outcomes and reflect the student's readiness for doctoral study:

- **Pass:** The student has successfully completed the QE requirement and is advanced to the next level of their doctoral research.
- **Fail:** The student did not meet the requirements for the qualifying examination and will be required to retake the qualifying examination in a future semester. The student has one more opportunity to complete the QE successfully.

After deliberation, the QE Committee will complete the QE assessment form (each member doing their portion), review their assessment and result with the student, and provide the document to the Modeling and Simulation Graduate Program for university reporting and inclusion with the student's doctoral file.

Attachments:

Sample qualifying examination announcement
Qualifying Examination Assessment form

From: student
Sent: Thursday, October 11, 2018 12:26 PM
To: ModSim Program Director; ModSim Academic Coordinator
Subject: Qualifying Examination Announcement: [INSERT STUDENT'S NAME HERE]

The qualifying examination for [INSERT STUDENT'S NAME HERE] has been scheduled.

Date: [insert date of QE]
Time: [insert time of QE]
Room: [insert location]

EXAMINATION TOPIC: [Insert title of QE research presentation here]

[provide a short synopsis of QE research presentation here]

QE Committee:

[insert chair's name here], Chair, [insert UCF department affiliation here]

[insert member's name here], [insert UCF department affiliation here]

[insert member's name here], [insert UCF department affiliation here]

A copy of the written component of the examination is attached to this message and was delivered to each committee member on [insert date of delivery here].

Approved for submission by [insert chair's name here], Committee Chair, on [insert date of approval here].



Candidate Name _____
(Please Print):

Program Admit _____
Term:

Date of _____
Assessment:

Outcome _____
(Pass/Fail):

Assess the candidate listed above according to the following outcomes and measures.
Performance rating scale: 1-Poor, 2-Fair, 3-Good, 4-Excellent, 5-Outstanding
Committee chair should average scores of all evaluators and enter the value in the appropriate field below.

Outcome	Measure	Member #1 (name): _____	Member #2 (name): _____	Chair (name): _____	Overall Assessment (average)
Core Competencies & Interdisciplinarity	Understands fundamentals of M&S as an interdisciplinary field				
	Demonstrates knowledge of major and minor topic area(s) of work				
Communication	Writing & organization quality				
	Oral presentation quality				
Research Potential & Performance	Demonstrates sufficient awareness of relevant literature				
	Demonstrates sufficient analytical thinking and research skills				
Ability & Preparedness	Prepared for employment				

Additional Comments:
(Include strengths, areas for improvement, and suggestions for growth in any of the assessment categories above)

Signature

Printed Name

Candidate: _____

Committee Chair: _____

Committee Member: _____

Committee Member: _____

Program Director: _____