

INEG PhD Qualifying Exam Information

Approved: April 29th, 2019 by the INEG faculty

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PhD Qualifying Exam Objective

The objective of the INEG PhD Qualifying Exam is to assess both general and specialized knowledge in the student's area of study.

PhD Qualifying Exam Structure

All PhD students are required to complete a qualifying exam. The *exam* consists of 3 individual *tests* aligned with graduate courses offered in the Department of Industrial Engineering. Each student must choose exactly one of the following 3 exams. The first test listed under each exam option is referred to as the student's *Major Area Test*. For example, INEG 6323 is the Major Area Test for Exam B:

Tests in Exam A

INEG 6823 - Systems Simulation II¹

INEG 5613 – Introduction to Optimization Theory

INEG 5263 – Engineering Statistics

Tests in Exam B

INEG 6323 – Advanced Stochastic Processes

INEG 5613 – Introduction to Optimization Theory

INEG 5263 – Engineering Statistics

Tests in Exam C

INEG 6113 – Linear Optimization

INEG 5323 – Engineering Applications of Stochastic Processes

INEG 5263 – Engineering Statistics

PhD Qualifying Exam Schedule

Full-time² PhD students admitted with a master's degree must attempt the qualifying exam before the beginning of their third³ long semester. Full-time PhD students admitted without a master's degree (direct admits) must attempt the exam before the beginning of their fifth⁴ long semester. The exam will take place over three consecutive days starting the Monday one week before the first day of Fall classes. Each test will begin at 8:30 am on the day it is scheduled.

¹ Beginning Aug. 2021, INEG 6823 – Systems Simulation II replaced INEG 5823 as the Major Area Test for Exam A

² Part-time PhD students must work with the graduate coordinator to determine the appropriate year the PhD Qualifying Exam should be taken.

³ Students admitted in the Spring that have already earned a master's degree must attempt the exam before their fourth long semester.

⁴ Direct admit students admitted in the Spring must attempt the exam before their sixth long semester.

Table 1: Schedule of Tests

Day 1 Monday	Day 2 Tuesday	Day 3 Wednesday
Engineering Statistics	Systems Simulation II Advanced Stochastic Processes Linear Optimization	Introduction to Optimization Theory Engineering Applications of Stochastic Processes

Selecting Exam

Each student must turn in the *Qualifying Exam Selection Form* to the graduate coordinator no later than the day May Intersession classes begin in the year they are required to take the exam. This form requires a signature of approval from the student’s advisor indicated in UA Connect.

Exam Format

Each test will be written by a *faculty team* of at least two Department of Industrial Engineering faculty. All students taking a particular test as part of their qualifying exam will take the same version of that test. However, new tests will be created each time the qualifying exam is offered. Resources (e.g. notes, computers) allowed, test format and test duration (between 4 and 8 hours per test) will be dictated by the faculty team in charge of administering an individual test. Each faculty team will submit a list of test topics, resources allowed, test format and duration and any supplementary information (e.g. additional textbooks) to the graduate coordinator no later than the day May Intersession classes begin. This information will be posted on the department website no later than the end of the first week of May intersession.

Exam Assessment

Each individual test taken by a student will be assessed separately by the same faculty team that created the test. The assessment process for each test is double-blind. Faculty teams will not be known to the students and the name of a student will be withheld from the faculty team evaluating a test. The faculty team will prepare and complete a rubric before the test is administered to be used as part of their assessment and will provide a score of pass or fail for each student. The faculty team’s pass/fail decision will be the final authority in determining whether a student is successful on an individual test. Students who pass all three tests during their first qualifying exam attempt will be said to have passed the qualifying exam. Students who fail one or more tests during their first exam attempt may retake the failed tests no more than once (see “Exam Retake”); however, students may not change exams after their initial attempt.

The graduate coordinator will inform each student of the exam results in writing no later than the Friday before Fall classes begin.

Exam Retake

A student will be given a single retake attempt for each individual test that they fail. Any passed test does not need to be retaken. Students must retake failed tests at the earliest opportunity presented to them. The retake tests will take place over three consecutive days starting the Monday one week before the first day of Spring classes. The graduate coordinator will inform each student of the exam retake results in writing no later than the day Spring classes begin.

Students who pass all tests being retaken have passed the qualifying exam. If at least one of the retaken tests is failed, the student has failed the qualifying exam. Students who have failed the qualifying exam will be dismissed from the PhD program.