

## Guideline for PhD Qualifying Exam (Transportation)

The following is a written guideline of the content and administration of the PhD qualifying exam in Transportation.

**Prerequisite:** Prior to taking the PhD exam, students must maintain an average GPA of 3.5 or above.

**Schedule:** The qualifying exam is administered once a year, normally during the week following the spring quarter. The format of the exam is take-home. The duration of the exam is five days: the students receive the exam by 9 am on Monday by email and must submit (email) the completed exam by 5 pm on Friday. Please note that each examinee must work independently. No communication on the exam topics is allowed during the exam period. Students shall not discuss the intent of the questions, their solutions, or the phrasing of their solutions with anyone. **Doing so shall result in dismissal from the PhD program.**

All PhD students must pass the exam within two years of beginning the PhD program. All students are encouraged to take the exam during their first year in the PhD program at the University of Washington. Students not passing the exam may be given a second chance.

**Content:** Each tenure-track faculty member will contribute one question to the exam. Questions from research faculty are also welcome. Students are required to answer four questions: one from each of the three areas (Planning, Operations, and Analytical Methods), and one optional. At least one of the four questions must be from the student's advisor.

Students taking the qualifying exam are encouraged to talk to each of the transportation faculty *prior* to taking the exam. Students are expected to master key concepts in each of the three areas. The list of courses listed under each area is provided below for information only. Key concepts in each course may be found on individual course websites or by talking to the faculty member who is teaching the course.

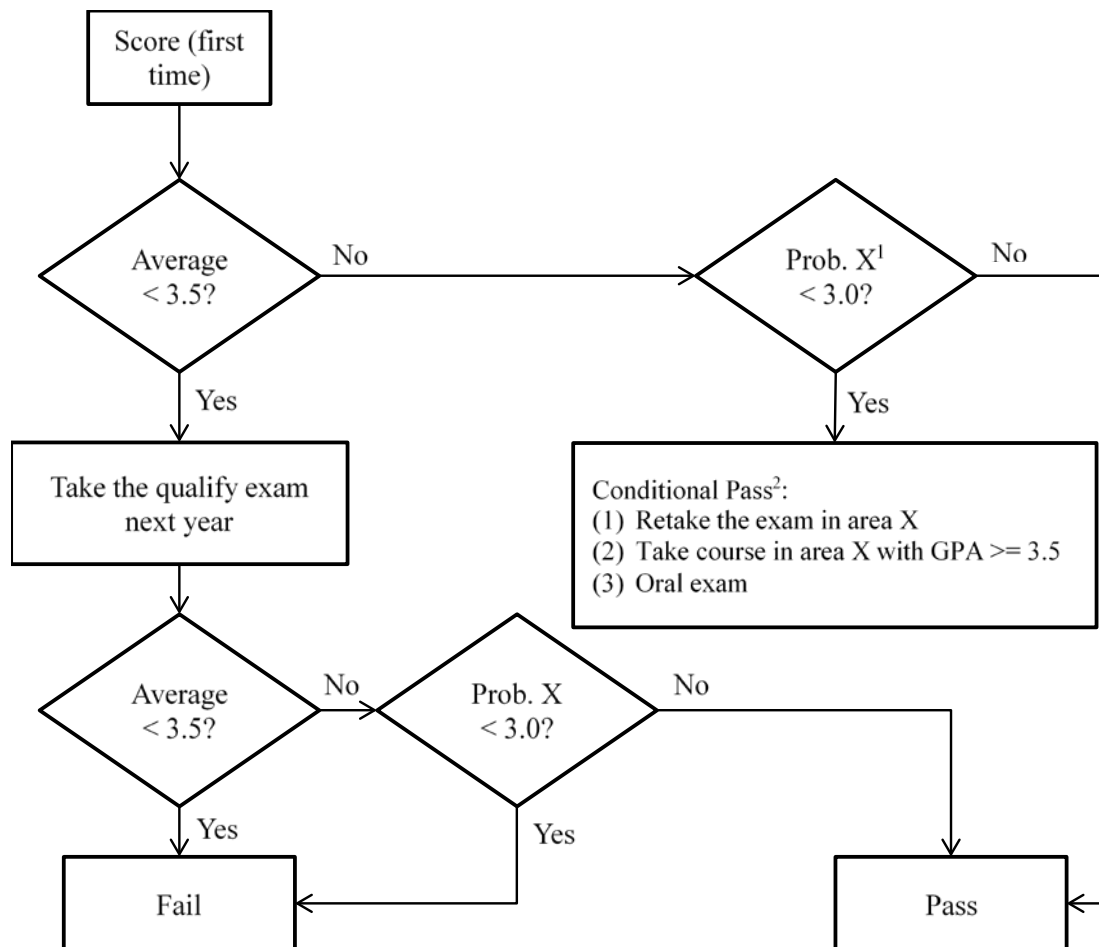
- **Planning**
  - CET 511 Planning for People and Freight (Goodchild)
  - CET 581 Travel Demand Forecasting (Chen)
  - CET 512 Transportation Data Collection (Chen)
  - CET 583 Transportation Energy & Sustainability (MacKenzie)
- **Operations**
  - CET 590 Traffic Systems Operations (Wang)
  - CET 591 Freight Transportation (Goodchild/McCormack)
  - CEE 410 Traffic Engineering Fundamentals (Wang/Avery)
- **Analytical Methods**
  - CET 513 Transportation Networks and Optimization (Ban)
  - CET 521 Inferential Data Analysis for Engineers (Boyle/MacKenzie)
  - CET 587 Global Trade, Management, and Logistics Management (Goodchild)
  - CET 522 Transportation Data Management and Visualization (Wang/Cui)
  - CET 593 Transportation Network Analysis (Ban)

**Grading:** Each question will be graded with a score between 1 and 5, where 1 is the lowest and 5 is the highest. Passing the exam requires that each question must be no less than 3.0 out of 5.0 and the mean must be no less than 3.5. There are a few consequences if a student did not pass the exam:

- A student who did not pass the exam for the first time with an average score lower than 3.5 may take the exam for the second time.

- A student who could not pass the exam the second time will be considered as failing the qualify exam.
- A student who did not pass the exam for the first time, with an average score higher than or equal to 3.5 but the score of one particular subject area lower than 3.0, is considered as conditional pass. The student must take one of the three options to pass the exam: (i) retake the exam question in that particular subject area; (ii) take a particular course in the subject area and the GPA must be 3.5 or higher; (iii) take an oral exam. The faculty will decide what is the most appropriate option for the student to pursue to satisfy his/her qualify exam requirement in this case. If this option cannot be satisfied, the student will be considered as failing the qualify exam.

The following flow chart shows the qualify exam outcomes.



Notes:

1: X is a subject area

2: The faculty advisor of the student and the subject area faculty will decide which option is the most appropriate for the student, with input from all faculty in the group. The student will be considered as failing the qualify exam if the specific option cannot be performed satisfactorily.

**Exam Administration and Past Exams:** Students can access example past exam questions. Students wishing to do so can request the example exam questions from Melanie Paredes of PacTrans. She also coordinates the administration of the exam.