

**Civil & Environmental Engineering
Transportation and Construction Division - *Transportation Specialty*
Ph.D. Degree Requirements - 2016**

1. Degree requirements:

Credits from Master's Degree	30 +
Additional Coursework	24 (54 total required - can include 3 seminar and 3 CEE 600 credits)
CEE 800 Dissertation	27 minimum
Total	90

2. Notes and General Requirements

- The PhD program plan must be approved by your faculty advisor and submitted to the CEE Graduate Advising Office before the end of your first academic quarter.
- Students without a master's degree from the UW CEE department must meet the seminar credit requirement for the transportation master's degree. The current requirement is as follows: 2 credits CEE 500 Transportation Seminar (AUT, WIN) and 1 credit CEE 500 Departmental Seminar (SPR).
- INDE 315 or STAT 390 (or equivalent statistics class) is required. This requirement may be met if taken previously. 300 level courses do not count toward the PhD credit requirement.
- CEE 327 Introduction to Transportation (WIN, SPR) (or equivalent) is required, which can be completed concurrently while in the program. This course does not count toward a graduate degree.
- CEE 584 – Analytical Methods in Transportation is required. This requirement may be satisfied with a similar quantitative course that fits your research needs better and approved by the transportation faculty group. Below is a list of alternative courses to CEE 584 that have been approved by the transportation faculty group:
 - ECON 482 Economic Methods
 - GEOG 426 Advanced Quantitative Methods
 - INDE 424 Simulation
 - INDE 521 Quality Control in Manufacturing
 - STAT 421 Applied Statistics and Experimental Design
 - STAT 423 Applied Regression and Analysis of Variance
 - STAT 486 Experimental Design
- One course minimum from each of the following key areas:
 - Planning: CEE 580 Urban Transportation Planning
CEE 581 Travel Demand Forecasting
 - Operations and ITS: CEE 590 Traffic Systems Operations or
CEE 599 Transportation Data Management and Analysis
 - Freight and Logistics: CEE 591 Freight Transportation or
CEE 587 Freight Transportation and Logistics

3. Additional Requirements

- Minimum 18 coursework credits must be at the 500 level.
- Minimum 18 credits numerically graded.
- All CEE courses must be numerically graded.
- Students should have taken classes that provide advanced breadth of knowledge beyond their primary research area, to be approved by the general exam committee.
- See CEE PhD Requirements form for additional department requirements (see link at bottom of this page).

4. PhD Qualifying Exam

The purpose of the **qualifying exam** is to assess the student's readiness to create new knowledge through doctoral level research. Refer to the Transportation Qualifying Exam Guidelines available on our website at: <http://www.ce.washington.edu/students/phd.html>. Through the qualifying exam, the faculty will evaluate the student's ability to:

1. Understand and apply the foundational facts, concepts, and procedures of transportation engineering
2. Analyze problems and evaluate solutions by:
 - a. integrating and utilizing the knowledge and skills critical for independent and creative research
 - b. synthesizing ideas and concepts at an advanced level of proficiency in areas being examined
 - c. evaluating, checking, and critiquing work by constructing critical arguments and presenting them in a direct and coherent manner.

5. PhD General Exam

The purpose of the **general exam** is for the student to demonstrate:

1. The ability to formulate a research question that is academically challenging, useful, and tractable
2. Mastery of the state of the art in their field. This includes a literature review, to show how your topic has been addressed in the past, and important related concepts. Why is the work that has already been done not sufficient?
3. A clear research plan to answer the research question. How are you planning to do the research and why your plan is the best? Have you identified and justified appropriate methods and data sources?
4. The expected contributions that their research plan will generate. Why does your research matter?

6. PhD Final Examination

The purpose of the final exam is for the student to demonstrate to his or her committee satisfactory command of all aspects of the work presented and other related subjects.

Refer to the CEE PhD Requirements and Procedures forms for deadlines and procedures, available on the CEE website at: <http://www.ce.washington.edu/students/phd.html>.

7. Typical Courses taken by Quarter

Total courses shown by Quarter exceed the minimum needed to meet degree requirements. This list of courses is not guaranteed and may be subject to change. Please refer to the UW Time Schedule as it becomes available.

Autumn 2016		
IND E 315 or STAT 390	Probability and Statistics	3/4
CEE 424	GIS for Civil Engineers	3
CEE 500	CEE Seminar	1
CEE 580/416	Urban Transportation Planning and Design	4
CEE 582	Intelligent Transportation Systems	3
CEE 588	Energy Infrastructure and the Environment	3
CEE 590	Traffic Systems Operations	3
CEE 591	Freight Transportation	3
Winter 2017		
CEE 404	Infrastructure Construction	3
CEE 410*	Traffic Engineering Fundamentals	3
CEE 498	Roadway Geometric Design	4
CEE 500	CEE Seminar	1
CEE 584	Analytical Methods in Transportation I	3
CEE 599/412	Trans Data Management and Analysis	3
CEE 600**	Independent Study (Non-thesis option)	3
Spring 2017		
CEE 420	Engineering with Developing Communities	3
CEE 421	Pavement Design	3
CEE 422	Energy and Transportation	3
CEE 441	Transportation/Construction Capstone	4
CEE 498	Traffic Simulation	3
CEE 500	CEE Seminar	1
CEE 581	Travel Demand Forecasting	4
CEE 583	Transportation, Energy and Sustainability	3
CEE 585	Analytical Methods in Transportation II	3
CEE 586	Pedestrian Travel, Land Use, and Urban Form	3
CEE 587	Transportation Logistics	4
CEE 589	Transit Systems Planning	3

*CEE 327 (or equivalent) is a prerequisite for CEE 410. Graduate students who wish to enroll in CEE 410 who do not meet this requirement must enroll in CEE 327 Winter Quarter. CEE 327 fulfills the prerequisite requirement but does not count toward degree requirements.