Program of Study Civil Engineering PhD Program Requirements

Total Credits Required:

78 Credits - students without an approved master's degree
48 credits - students with an approved master's degree

Core Course Requirements (4 credits):

- CGN 6311C 2 credits Introduction to Data Science for Civil Engineers
- CGN 6945 2 credits Graduate Research Methods
  (taken while preparing the dissertation proposal)

Concentration Requirements (15 credits):

Concentrations are offered in Engineering for International Development, Geotechnical, Materials, Structural, Transportation, Water Resources and Environmental Engineering. Please see below for concentration requirements for each area.

Electives (30 credit hours)

Graduate level electives are selected in consultation with the student's major professor and advisory committee:

- ≤9 credit hours of Independent Study may be applied to meet the coursework requirement.
- ≤6 credit hours of master's thesis may be applied to meet the coursework requirement.
- Directed research and/or dissertation credits may not be counted towards this requirement

Additional Credits (9 credit hours):

An additional 9 credits of coursework, directed research or dissertation.

Dissertation Credits (20 credit hours):

A minimum of 20 credits of dissertation, an approved PhD dissertation and a dissertation defense are required. Students may not sign up for dissertation credits until they have defended their proposal and advanced to candidacy.

Doctoral dissertation committee:

The PhD Committee consists of at least five members, three in the student's academic area, one who is a member of the College of Engineering outside Civil & Environmental Engineering, and one outside the College of Engineering. Note that student's must submit a CV for any proposed committee member who is not a member of the graduate faculty of USF. An Outside Chair is required for the dissertation defense.

Qualifying Exam:

Doctoral students must pass a qualifying exam no later than one semester following completion of 48 credits of coursework beyond a bachelor's degree. At minimum, the exam will include a written dissertation proposal and oral defense by the dissertation committee. A written exam in the area of concentration may also be required. Poor performance on the qualifying exam based on the judgment of the committee may result in the student failing the exam. If a student does not pass on the first attempt, he/she may request in writing to repeat the exam. Students who fail the second time will be dismissed by the program.

Publication Requirement:

The department requires that all doctoral students have a paper accepted to a peer reviewed journal or conference. Please discuss this with your advisor early as it can take six months or more to receive review comments back from a journal. Many faculty members in the department require their students to have more than one paper accepted.

Concentration Requirements

Engineering for International Development (EFD)

- ENV 6510 Sustainable Development Engineering (3)

1 course from the following applied anthropology courses:

- ANG 6766 Research Methods in Applied Anthropology (3)
- ANG 6730 Selected Topics in Medical Sciences: Socio-cultural Aspects of HIV/AIDS (3)
- ANG 6469 Health, Illness and Culture (3)

1 course from the following global public health courses:

- PHC 6764 Global Health Principles & Contemporary Issues (3)
- PHC 6761 Global Health Assessment Strategies (3)
- 6 Additional credit hours of graduate level coursework in EFD or closely related areas.

* Students must engage in full-time global training and service as part of the EFD concentration (e.g., in the U.S. Peace Corps, with a nongovernmental organization, UNESCO-IHE, or equivalent). This work must be incorporated into the student's dissertation. Note that student may register for CST 6990 for 0 credit hours while in their country of service.

Environmental Engineering (EVE)

- ENV 6002 Physical Chemical Principles of Environmental Engineering (3)
- EES 6107 Biological Principles of Environmental Engineering (3)
- ENV 6666 Aquatic Chemistry (3)

1 course from the following:

- ENV 6617 Green Engineering for Sustainability (3)
- ENV 6070 Resilient Infrastructure (3)
- ENV 6510 Sustainable Development Engineering (3)
- CGN 6933 ENVISION Sustainable Communities (3)
- 3 additional credit hours of coursework in Environmental Engineering

Geotechnical Engineering (GTL)

- CEG 5115 Foundation Engineering (3)
- CES 6118 Applied Finite Element Method (3)
- 9 additional credits of coursework in Geotechnical Engineering or related areas

Materials Engineering and Science (MTL)

2 courses from the following:

- CGN 6933 Advanced Construction Materials (3)
- CGN 6720 Electrochemical Diagnostic Techniques (3)
- CES 6010 Structural Life Prediction (3)
- EMA 5326 Corrosion of Materials (3)
- EMA 6510 Characterization of Materials (3)
- 9 additional credits of coursework in Materials Engineering or related areas

Structural Engineering (STR)

1 course from the following list:

- CES 6706 Advanced Concrete Design (3)
- CES 6835 Design of Masonry Structures (3)
- CES 5715C Pre-stressed Concrete (3)

1 course from the following list:

- CES 6118 Applied Finite Elements (3)
- CES 6230 Advanced Structural Mechanics (3)
- CES 6144 Advanced Structural Analysis (3)

- CES 5209 Structural Dynamics (3)
- EGN 6333 Continuum Mechanics
- 9 additional credits of coursework in Structural Engineering or related area

Transportation Engineering (TPT)

- TTE 5205 Traffic Systems Engineering (3)
- TTE 5501 Transportation Planning and Economics (3)
- TTE 6507 Travel Demand Modeling (3) **OR** TTE 6307 Statistical and Econ. Methods I (3)
- 6 additional credits of coursework in Transportation Engineering or related areas

Water Resources Engineering (WRS)

4 courses (12 credits) from the following list:

- CWR 6235 Free Surface Flow (3)
- CWR 6239 Waves and Beach Protection (3)
- CWR 6305 Urban Hydrology (3)
- CWR 6534 Coastal and Estuary Modeling (3)
- CWR 6535 Hydrologic Models (3)
- CWR 6105 Vadose Zone Hydrology (3)
- CWR 6933 Groundwater Hydraulics (3)
- CWR 6820 Coastal Waves and Structures (3)
- CGN 6933 Advanced Computational Fluid Mechanics (3)
- CWR 6538 Advanced Hydrologic Structures (3)
- CGN 6933 Advanced Numerical Methods (3)
- CGN 6933 Global Water Sustainability (3)
- CWR 6625 Ecological Engineering (3)
- 3 additional credits in WR engineering or related areas

Civil Engineering PhD

Curriculum Program of Study Form (updated 4/19)

Name:		**Term of Entry:**	
USF ID #			
Email:		**Phone:**	
Advisor:			
Area of Concentration	◉ **Engineering for International Development** ○ **Environmental** ○ **Geotechnical** ○ **Materials** ○ **Structures** ○ **Transportation** ○ **Water Resources**		

Master's Degree (If applicable)	**Year**	**Institution**	**Department or Area**

Core courses requirements (*Not required who entered before the new catalog <FALL19)*

Course Title	Number	Credits	Semester	Taken @ USF?	Grade
Intro Data Science Civil Engineers	CGN 6311C	2			
Graduate Research Methods	CGN 6945	2			

15 credits of coursework in the area of concentration (can include courses taken for the master's degree)

Course Title	Number	Credits	Semester	Taken @ USF?	Grade

Electives 30 credits of graduate level coursework (*33credits <F19*), (can include courses taken for master's degree). Includes a maximum of 9 credits Independent Study and 6 credits thesis. No Directed Research.

Course Title	Number	Credits	Semester	Taken @ USF?	Grade

9 additional credits of coursework, directed research or independent study (*10 credits <Fall 19)*					
Course Title	**Number**	**Credits**	**Semester**	**Taken @ USF?**	**Grade**
20 credits of dissertation.					
Course Title	**Number**	**Credits**	**Semester**	**Taken @ USF?**	**Grade**
*** <Fall 19= Students who entered the Program prior to Fall 2019**			**Total credits of coursework**		
			Total credits (78 required)		

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Student: Print or Type Name, Signature and Date

_____

Major Professor: Print or Type Name, Signature and Date

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Graduate Program Coordinator: Signature and Date