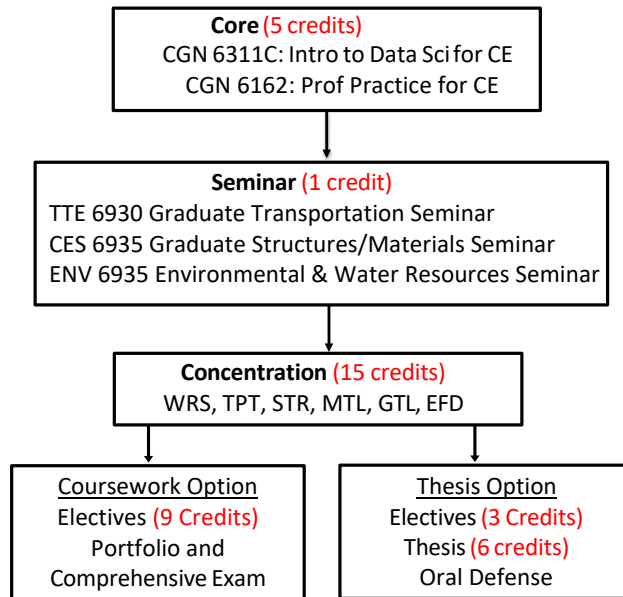


MSCE Course Registration Guide and Program of Study Forms

In the CEE department at USF, graduate students are expected to know their program requirements and register themselves for classes using Oasis. The staff class search feature will help you to search for open classes (<https://usfweb.usf.edu/DSS/StaffScheduleSearch>). When using this tool, be sure to enter the correct Term, Department, Level (e.g., graduate/undergraduate), and Status (open). The following graphic shows the structure of the MSCE program for Thesis and Non-Thesis (coursework only) students:



Core Courses (5 credits) - These courses are required for every MSCE student who entered the program Fall 2019 or later. Note that Intro to Data Science is normally taught both fall and spring and Professional Practice is normally taught only in the spring.

- CGN 6311C Introduction to Data Science for Civil Engineers (3 credits)
- CGN 6162 Professional Practice of Civil Engineering (2 credits)

Seminar (1 credit) – A seminar course is required for every MSCE student who entered the program Fall 2024 or later. Students in the transportation concentration who entered the program Fall 2021 are also required to take Seminar. Select one from the following:

- TTE 6930 Graduate Transportation Seminar (1 credit)
- CES 6935 Graduate Structures/Materials Seminar (1 credit)
- ENV 6935 Environmental & Water Resources Seminar (1 credits)

Concentration Requirements (15 credits) - Concentrations are offered in Structural, Geotechnical, Transportation, Materials, Engineering for International Development and Water Resources Engineering. Requirements for each concentration are shown on the next page. Each concentration allows for some credits of coursework in the area of concentration or closely related areas that you are free to select on your own. Note that it is possible to select two concentrations (e.g., Water Resources and Engineering for International Development) but this will take careful planning. It is also possible to graduate with a MSCE degree with no concentration.

Electives (3 credits Thesis Option/9 credits Non-thesis) - Electives are grad level classes that you are free to select based on your interests and career goals. You may select additional courses in your concentration area, CEE courses outside your concentration area (e.g., Transportation students can take Water Resources classes) or classes in another department (e.g., GIS, Engineering Management, Geosciences, Public Health).

Independent Study (up to 6 credits) - Up to 6 credits of Independent Study (IS) may be taken to meet concentration or elective requirements. IS credits may be used for the following: 1) students sit in on an undergraduate course and receive graduate credit by doing additional work, 2) a student or group of students can study a topic under the direction of a faculty member, 3) students may work on a project with a faculty member and write a report (this is similar to a thesis but normally not as extensive). Students must write a proposal and submit a [registration form](#) to sign up for IS credits.

Thesis (6 credits Thesis Option Students only) - A MS thesis allows students to make a contribution to the field of study by carrying out research, presenting and defending their work in a public forum and publishing a thesis. The research is guided by a 3- member committee that is led by a major professor or two co-major professors. It is the student's responsibility to find their major professor(s) within the first semester of the graduate program. Although the thesis is only 6 credits, typically the level of effort required is much greater than the work required for 6 credits of coursework. A thesis typically take 1.5 to 2 years to complete and there are [very strict format requirements](#) for the final publication. Note that students must submit a proposal and [registration form](#) to sign up for thesis credits. Students may take thesis credits at any time but 2 credits of thesis must be taken during the semester of graduation.

Comprehensive Exam - All non-thesis MSCE students must submit a portfolio to at least two Graduate Committee members in the student's area of study for review. The portfolio consists of the following components: 1) A writing sample, 2) A report showing the solution of a complex engineering problem, 3) an oral presentation on the complex problem submitted in item #2, 4) an oral comprehensive exam where you will be asked to answer questions about the problem addressed, methodology used and to defend your findings and conclusions. More details on the comprehensive exam can be found [here](#).

Concentration Requirements (15 credit hours minimum)

Engineering for International Development

Students must engage in full-time global training and service as part of the concentration (e.g., in the U.S. Peace Corps, with a non-governmental organization, UNESCO-IHE, or equivalent). This work must be incorporated into the student's thesis. Students may register for CST 6990 for 0 credit hours while in their country of service. Note that this concentration is available to thesis option students only.

- ENV 6510 Sustainable Development Engineering Credit Hours: 3

A minimum of 1 course from the following applied anthropology courses: (3 Credit Hours)

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

A minimum of one course from the following global public health courses: (3 Credit Hours)

- PHC 6764 Global Health Principles and Contemporary Issues
- PHC 6761 Global Health Assessment Strategies

6 additional graduate level credit hours of coursework in international development engineering or closely related areas.

Geotechnical Engineering

- CEG 5115 Foundation Engineering
- CES 6118 Applied Finite Elements

9 additional credit hours of coursework in Geotechnical engineering or closely related areas.

Materials Engineering

At least 2 courses from the following list:

- CGN 6933 Special Topics in CEE: Advanced Construction Materials
- CGN 6720 Electrochemical Diagnostic Techniques
- EMA 5326 Corrosion Control
- EMA 6510 Characterization of Materials

9 additional credit hours of coursework in Materials Engineering and Science or closely related areas.

Structural Engineering

- CES 6144 Advanced Structural Analysis

At least 1 course from the following list of design courses:

- CES 6706 Advanced Concrete Design
- CES 6835 Design of Masonry Structures
- CES 5715C Prestressed Concrete

At least 1 course from the following list of analysis courses:

- CES 6118 Applied Finite Elements
- CES 6230 Advanced Structural Mechanics
- CES 5209 Structural Dynamics

6 additional credit hours of coursework in Structures Engineering or closely related areas.

Transportation

- TTE 5205 Traffic Systems Engineering
- TTE 6267 Traffic Flow Theory (course change under revision in the 2024-2025 Graduate Catalog)
- TTE 6507 Travel Demand Modeling or TTE 6307 Statistical and Econometric Methods I

6 additional credit hours of coursework in Transportation Engineering or closely related areas.

Water Resources

3 courses (9 credit hours) from the following list:

- CWR 6305 Urban Hydrology
- CWR 6535 Hydrologic Models
- CWR 6105 Vadose Zone Hydrology
- CWR 6625 Ecological Engineering
- CWR 6820 Coastal Waves and Structures
- ENV 6564 Environmental and Water Resources Engineering Design
- CGN 6933 Special Topics in CEE: Advanced Numerical Methods
- CGN 6933 Special Topics in CEE: Water Resources Sustainability
- CGN 6933 Special Topics in CEE: Environmental Fluid Mechanics
- CGN 6933 Special Topics in CEE: Water Resources Engineering

6 additional credit hours in Water Resources Engineering or closely related areas.

Recommended Electives Outside of CEE Department

Below is a list of recommended **elective courses** outside of the CEE Department that may be of interest. Course descriptions are available on the USF Graduate Catalog or USF Course Inventory. Students who wish to apply a course from outside CEE to their concentration requirements should consult with the Graduate Program Director. No more than 12 credits outside CEE Department can be used to meet the MSCE requirement.

- CHM 6938 Functional Porous Materials (3 credits)
- ECO 6424 Econometrics I (3 credits)
- EIN 5182 Principles of Engineering Management (3 credits)
- EIN 6108 Engineering Mgmt.- Human Relations (3 credits)
- EIN 6458 Applied Lean Six Sigma (3 credits)
- ESI 6491 LP & Network Optimization (3 credits)
- GIS 5049 GIS for Non-Majors (3 credits)
- GIS 6100 Geographic Info Systems (3 credits)
- GIS 6355 Water Resources GIS (3 credits)
- IDS 6207 Renewable Fuels (3 credits)
- IDS 6233 Concepts of Sustainability (3 credits)
- IDS 6234 Systems Thinking (3 credits)
- IDS 6235 Econ & Fin for Sustainability (3 credits)
- IDS 6239 Six Sigma for Sustainability (3 credits)
- IDS 6245 Sust. Water Res. Management (3 credits)
- IDS 6246 Water Sensitive Urban Design (3 credits)
- IDS 6247 Water Resources Planning (3 credits)
- IDS 6276 Food/Energy/Water (FEW) Nexus (3 credits)
- PHC 6050 Biostatistics I (3 credits)
- PHC 6761 Global Health Assessment Strategies (3 credits)
- STA 6205 Design of Experiments (3 credits)
- URP 5277 GIS for Urban & Regional Planners (3 credits)
- URP 6201 Quantitative Analysis in Urban Regional Planning (3 credits)
- URP 6235 Lidar Field Methods (3 credits)
- URP 6256 Urban Spatial Analysis (3 credits)
- URP 6316 Land Use Planning (3 credits)
- URP 6401 Resilient Communities (3 credits)
- URP 6406 Urban Environmental Policy (3 credits)
- URP 6549 Urban & Metropolitan Economic Development Strategies (3 credits)
- URP 6711 Multimodal Transport Planning (3 credits)
- URP 6930 Special Topics in URP: GIS II Urban Spatial Analysis (3 credits)
- URP 6930 Special Topics in URP: Mobile Lidar Field Methods (3 credits)
- URP 6930 Special Topics in URP: Terrestrial LiDAR Field Method (3 credits)
- URP 6930 Special Topics in URP: Transportation Policy & Economy (3 credits)
- ANG 6766 Research Methods in Applied Anthropology (3 credits)
- ANG 6730 Socio Cultural Aspects of HIV/AIDS (3 credits)
- ANG 6469 Selected Topics in Medical Anthropology: Health, Illness and Culture (3 credits)
- PHC 6764 Global Health Principles and Contemporary Issues (3 credits)

MSCE Program of Study Form - Non-thesis option

Name:					
UID:					
MSCE Admission Term:					
Email:					
Address:					
Phone:					
Area of concentration:	EFD Geotechnical Materials	Structural Transportation Water Resources	No concentration		
Course Title	Course Number	Credits	Semester Taken	Outside CEE?	Grade
Core Coursework 5 credits					
Intro to Data Science for CE	CGN 6311C	3			
Professional Practice of CE	CGN 6162	2			
Seminar 1 credit					
		1			
Concentration Requirements 15 credits (see requirements for STR, GTL, WRS, TPT, MTL, EFD above)					
Electives 9 credits (grad level classes you may select based on your interests and career goals):					
Total credits outside CEE (≤ 12)					
Total credits of Independent study (≤ 6)					
Total credits (≥ 30)					

Notes for the GPD:

Graduate Program Director signature

Date

MSCE Program of Study Form - Thesis Option

Name:					
UID:					
MSCE Admission Term:					
Email:					
Address:					
Phone:					
Major Professor(s):					
Area of Concentration	EFD Geotechnical Materials	Structural Transportation Water Resources	No concentration		
Course Title	Course Number	Credits	Semester Taken	Outside CEE?	Grade
Core Coursework 5 credits					
Intro to Data Science for CE	CGN 6311C	3			
Professional Practice of CE	CGN 6162	2			
Seminar 1 credit					
		1			
Concentration Requirements 15 credits (see requirements for STR, GTL, WRS, TPT, MTL, EFD above)					
Electives 3 credits (grad level classes you may select based on your interests and career goals):					
Thesis (a minimum of 6 credits are required, with 2 credits taken in the semester of graduation)					
MS Thesis	CGN 6971			NA	NA
Total credits outside CEE (≤ 12)					
Total credits of Independent study (≤ 6)					
Total credits (≥ 30)					

Notes for the GPD:

Major Professor signature

Date

Grad Prog Director signt.

Date