



Graduate Curriculum Approval Form Changes to Graduate Majors

Degree Program CIP Code	14.1401
Degree (i.e. M.A., Ph.D., etc.):	Ph.D.
Name of Major (e.g. Biology)	Environmental Engineering
Name of affected Concentration(s) (e.g. Botany)	
Proposed Effective Term (e.g Fall 2017)	Fall 2018
Faculty Contact	Dr. Sarina Ergas
Email	sergas@usf.edu

APPROVALS	Name	Signature	Action	Date
Dept. Chair	Manjriker Gunaratne		<input checked="" type="checkbox"/> Approve <input type="checkbox"/> Not approved <input type="checkbox"/> Comments attached	01/19/18
School Committee Chair (if applicable)			<input type="checkbox"/> Approve <input type="checkbox"/> Not approved <input type="checkbox"/> Comments attached	
College Committee Chair			<input type="checkbox"/> Approve <input type="checkbox"/> Not approved <input type="checkbox"/> Comments attached	
College Dean/ Associate Dean	Sanjukta Bhanja		<input checked="" type="checkbox"/> Approve <input type="checkbox"/> Not approved <input type="checkbox"/> Comments attached	1/24/18
Concurrence <input type="checkbox"/> N/A <input type="checkbox"/> Needed	Dept: Chair:		<input type="checkbox"/> Concur <input type="checkbox"/> Doesn't concur <input type="checkbox"/> Comments attached	
Grad Council	<input type="checkbox"/> Approve <input type="checkbox"/> Not approved <input type="checkbox"/> Tabled <input type="checkbox"/> Comments	Graduate Studies	<input type="checkbox"/> Approve <input type="checkbox"/> Disapprove	

Summary of Changes – Select all that apply:

Admissions Section:

- Change Priority Admission Deadlines
 - Fall: _____
 - Spring: _____
 - Summer: _____
 - To "fall admissions only"
- From Regular to Direct Receipt Admissions
- From Direct Receipt to Regular Admission
- Admission Requirements

Curriculum Requirements

- Current Curriculum Requirements
 - Core
 - Add New Concentration, Specialization, or Track*
 - Delete Concentration, Specialization, or Track
 - Thesis/Dissertation
 - Comprehensive/Qualifying Exam
- Other: ___Course name correction_____

*Requires submission to APAC for comment/clearance

Why are these changes necessary?

Minor change in course names.

Attach the current Catalog Copy, with the requested revisions shown using Track Changes. Catalog copy is not required for changes to the Admission Deadline. All other changes require Catalog Copy. To obtain the most current catalog, email cdh@usf.edu.

Once College has approved, scan and email this Approval Form, and the revised Catalog Copy in Word to Graduate Studies by the deadline posted online <http://www.grad.usf.edu/graduate-council.php> . For questions, contact cdh@usf.edu

ENVIRONMENTAL ENGINEERING

Doctor of Philosophy (Ph.D.) Degree

DEGREE INFORMATION

Priority Admission Application Deadlines:
Fall: February 15
Spring: October 15
Summer: February 15

International applicant deadlines:
<http://www.grad.usf.edu/majors>

Minimum Total Hours: 48/78
Level: Doctoral
CIP Code: 14.1401
Dept. Code: EGX
Major/College Codes: ECE EN
Approved: 2013
Concentration:
 Engineering for International Development (EFD)

CONTACT INFORMATION

College: Engineering
Department: Civil and Environmental Engineering

Contact Information: www.grad.usf.edu

MAJOR INFORMATION

The Ph.D. degree is awarded in recognition of demonstrated scholarly competence and ability to conduct and report original and significant research in Environmental Engineering.

The field of Environmental Engineering has long been known for its breadth and ability to adapt to the new technological, societal, and global problems facing the environment. Major research areas include water quality engineering; air quality engineering; fate and transport of contaminants in the environment; environmental biotechnology and nanotechnology; waste management; sustainability and ecological engineering; surface water hydrology and hydraulics; groundwater hydrology; water reuse; green engineering; renewable energy; fate of emerging contaminants; and humanitarian engineering with a focus on the developing world. Graduates of the major are prepared for careers in academia, governmental agencies, nongovernmental organizations (NGOs), or private industry and firms involved in planning, design, research and development, or policy.

Major Research Areas:

Water quality engineering; air quality engineering; fate and transport of contaminants in the environment; environmental biotechnology and nanotechnology; waste management; sustainability and ecological engineering; surface water hydrology and hydraulics; groundwater hydrology; water reuse; green engineering; renewable energy; fate of emerging contaminants; and humanitarian engineering with a focus on the developing world.

The environmental engineering laboratories provide state-of-the-art analytical and experimental equipment for chemical and biological research. Equipment includes an ion chromatograph, atomic absorption spectrophotometer, several gas chromatographs (including with mass spectrometry), HPLC, TOC machine, and environmental chambers. Field research sites are available locally and in several international settings that include developing world communities.

ADMISSION INFORMATION

Must meet University requirements (see Graduate Admissions) as well as requirements for admission to the major, listed below.

- Undergraduate GPA \geq 3.3 preferred;
- GRE with preferred minimum scores of V 150 (45th percentile), Q 159 (75th percentile) AW 4.0 (55th percentile).
- TOEFL (International applicants only) 79 (550 paper based exam) or IELTS 6.5
- Resume provided at the time of application
- Three (3) letters of reference provided at the time of application
- Statement of Purpose provided at the time of application
- Exceptions made on a case-by-case basis where warranted.

CURRICULUM REQUIREMENTS

Total Hours: **78 hours minimum post-bachelors**
 48 hours minimum post-masters

Core course requirements – 14 credit hours

Concentration- 9 credit hours

Other courses – 36 credit hours minimum

Dissertation - 20 credit hours' minimum

Directed Research/Dissertation/Other – 8 credit hours minimum

Coursework requirements - 50 hours minimum

Core Courses – 14 hours

CGN 6945	2	Graduate Research Methods
ENV 6002	3	Physical & Chemical Principles in Environmental Engineering
EES 6107	3	Biological Principles
ENV 6666	3	Aquatic Chemistry
1 course (3 credits) from the following list of sustainability courses:		
ENV 6617	3	Green Engineering for Sustainability
CGN 6933	3	<u>Selected Topics</u> : Resilient Infrastructure for Sustainable Communities
ENV 6510	3	Sustainable Development Engineering

Students may opt to complete the concentration, or an additional 9 hours of coursework as noted below.

Concentration Requirements - 9 hours minimum

The Department supports Ph.D. concentration area in Engineering for International Development (EFD)

Engineering for International Development (EFD)

This concentration acknowledges coursework and international field experience in the area of engineering for international development that considers issues of sustainable development, water, sanitation, and health (WaSH), gender, and society. This graduate concentration requires: 1) coursework in global health, applied anthropology (medical, environmental, and development), and Water, Sanitation, Hygiene (WaSH) engineering, 2) a development-focused research component, and 3) a long-term overseas field experience in sustainable development as a WaSH engineer, which in most cases will form part of the basis of the student's dissertation. The international field experience allows a student to remain enrolled as a full-time student (with zero tuition/fees) and gain development experience serving with Peace Corps and Nongovernmental Development Organizations. Graduates are competitive for employment in the global WaSH development field.

ENV 6510 Sustainable Development Engineering

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

ANG 6766	3	Research Methods in Applied Anthropology
ANG 6730	3	Socio-cultural Aspects of HIV/AIDS

ANG 6469 3 Health, Illness and Culture

A minimum of 1 course (3 credits) from the following global public health courses:

PHC 6764 3 Global Health Principles & Contemporary Issues

PHC 6761 3 Global Health Assessment Strategies

Students engaged in full-time global training and/or service as part of the EFD concentration (e.g., in the U.S. Peace Corps, with a nongovernmental organization, UNESCO-IHE, or equivalent) may register for CST 6990 for 0 credit hours while in their country of service/research.

Additional Courses – 27- 36 hours

Students complete an additional 27 credits of coursework if in the Concentration, or an additional 36 credits of coursework if not in the Concentration, in Environmental Engineering or related areas, of which at least 3 credits must be structured coursework in Environmental Engineering specifically. These credits may include up to 9 credits of Independent Study and/or 6 units of Master's Thesis, pending the approval of the Department, the College, and the Office of Graduate Studies. Directed research and/or dissertation credits may not be counted towards this coursework requirement.

Qualifying Exam

Doctoral students are expected to pass a qualifying examination no later than the semester following the 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 Qualifying Examination the second time will be dismissed by the Major.

Dissertation Requirements - 20 hours minimum

CGN 7980 20 Dissertation

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 (see Qualifying Exam, above).

Additional Requirements - 8 hours minimum

Eight (8) credits of additional coursework, dissertation, or directed research are required.

Publication Requirement

Students must have at least one paper accepted to a peer-reviewed journal or peer-reviewed conference based on their research carried out during their doctoral studies at USF.

COURSES

See <http://ugs.usf.edu/course-inventory>