

**Environmental, Water Resources, and Coastal Engineering Division**  
**Zachry Department of Civil and Environmental Engineering**  
**Texas A&M University**

**Graduate Degree Program Handbook**

The Zachry Department of Civil and Environmental Engineering offers graduate degrees in Civil Engineering with a special focus in Environmental, Water Resources, and Coastal Engineering. These focus areas are closely linked by the role fluid motion (water and air) plays on the transport of mass, momentum, heat, and other materials, the transformations that may occur during transport, and by the forces fluids may generate on engineered structures. Environmental engineering applies science and engineering principles that protect human health and welfare and minimize the adverse effects of human activities on the environment. Water resources engineers are concerned with the cycling of water through the hydrosphere and with the design of systems to manage and utilize water for society. With over 70% of the world's populations living near the coast, coastal and ocean engineering applies science and engineering approaches to study forces generated by ocean currents to move sediment, impact structures, and modify the aquatic environment. Our graduate curriculum in these topics equips students to tackle these and related problems.

Graduate degrees in Environment, Water Resources, and Coastal Engineering prepare students for careers in consulting engineering firms, governmental agencies, large engineering corporations, research, and academia. Each degree combines fundamental principles of science and mathematics with the engineering disciplines of analysis and design to create safe systems that benefit human and ecosystem health and wellbeing.

Each degree described below conforms to the degree requirements of the Zachry Department of Civil and Environmental Engineering and of Texas A&M University. Each student develops an individualized degree plan with the advice and approval of a faculty advisor or advisory committee. Students are required to form and select a lead advisor and submit a degree plan by the end of the first semester of study. All graduate students in the program have the responsibility of knowing and adhering to all relevant University, Departmental, and Division curriculum requirements. Schedules, forms, and procedures for graduate students are provided by the Office of Graduate Studies (<http://ogs.tamu.edu/>). Additional assistance is available from the Graduate Student Services office in the Zachry Department of Civil and Environmental Engineering, Dwight Look Engineering Building, Room 101.

### **Degree Programs**

The Environmental, Water Resources, and Coastal (EWRC) Division in the Zachry Department of Civil and Environmental Engineering offers three graduate degrees in the Civil Engineering Program. These are the Master of Engineering (MEngr), Master of Science (MS), and Doctor of Philosophy (PhD). The MEngr degree is a non-thesis Masters degree. The MS offers two different tracks: a non-thesis track, similar to the MEngr degree, and a thesis track. In the EWRC Division, the requirements for the MEngr and MS Non-thesis degrees are the same.

### **Coursework Petitions**

Requirements for each graduate degree are described below. Students may be granted a deviation from these requirements through a written petition from the student to the division graduate coordinator. Deviations may include substitutions of coursework completed by the student elsewhere for coursework required here or the request to waive a course from the list of requirements in lieu of taking an alternative

course. The written request must include a strong justification by the student with the written support of the student's faculty advisor. The guiding principle for granting the petition is that students are expected to take coursework that prepares them for their primary field of study.

### **Program Prerequisites**

The prerequisite for degree candidates entering the Environmental, Water Resources, and Coastal Engineering graduate program is a Bachelor of Science degree in an engineering discipline, physics, applied mathematics, chemistry, biology, geology, or geosciences. Student-specific coursework prerequisite requirements may also be imposed by the faculty after reviewing an applicants' preparation in the fundamental engineering aspects of environmental engineering, water resources, and coastal engineering, including coursework in fluid mechanics, mathematics, chemistry, or design. Program prerequisite requirements will be communicated to the student at the time they are admitted to the program so that students will know what is expected of them before they begin their studies at Texas A&M University.

### **General Requirements**

General requirements for the Master of Engineering, Master of Science, and Doctor of Philosophy degrees are set by the Office of Graduate Studies (<https://ogaps.tamu.edu>) and are published in the Graduate and Professional Catalog (<https://catalog.tamu.edu/graduate/>). These include residency requirements, limitations on transfer credit, restrictions on certain courses (e.g., 684 and 685 credit), and other specifications regarding the number of hours of various courses that may count toward the degree. Additional requirements for all students in Civil Engineering are given in the Graduate and Professional Catalog under the Zachry Department of Civil and Environmental Engineering (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/civil/>). Unless the following degree requirements alter these general requirements, the requirements of the University and Department will always apply.

## **Master of Engineering and Master of Science, Non-Thesis Track**

The MEngr and MS Non-Thesis degrees have identical requirements and are intended for students who seek a Master's degree to prepare them for engineering practice. Graduates from our program are recruited to work in private consulting firms, large engineering firms, city and state government positions, and federal government laboratories. The MEngr and MS Non-Thesis degrees require a minimum of 30 credit hours of coursework; all students must also meet the program prerequisites (see the Program Prerequisites section above). Students generally complete the degree requirements in 12 to 16 months. Students must take 9 hours in both the fall and spring semesters to have full-time student status.

### **Advising**

Each student will be assigned a faculty graduate advisor, who will assist MEngr and MS non-thesis students with selecting courses, submitting degree plans and petitions, meeting all of the requirements for successful completion of the graduate degree, and general professional mentoring. The coursework requirements for an MEngr or MS Non-Thesis Degree in Civil Engineering with a focus in Environmental, Water Resources, and Coastal Engineering are listed below. Within each rubric of required coursework, students should discuss their course selections within their graduate advisor each semester before course registration begins. The degree plan, listing all courses a student plans to take to meet the 30-hour coursework requirement, must be completed and filed with the Office of Graduate and Professional Studies before the end of the second semester of study. No exceptions are allowed. See the Graduate Student Services office for forms, deadlines, and general requirements.

### **Coursework Requirements**

#### Foundation Courses (9 hours)

Students must select 9 hours of technical coursework from the following list of foundation courses in Environmental, Water Resources, and Coastal Engineering Coursework.

CVEN 601	Environmental Engineering Processes III
CVEN 619	Environmental Engineering Processes I
CVEN 620	Environmental Engineering Processes II
CVEN 627	Engineering Surface Water Hydrology
CVEN 628	Advanced Hydraulic Engineering
CVEN 674	Groundwater Engineering
CVEN 6xx	Environmental Fluid Mechanics
MEEN 621	Fluid Mechanics
OCEN 671	Ocean Wave Mechanics

#### EWRC Division Seminar (0 hours)

Students are expected to enroll in CVEN 681 Seminar (0 hours) each long semester (fall and spring) the student is in-residence on campus in College Station.

#### Focus Technical Electives (12 hours)

Students must select 12 hours of technical coursework from the following list of focus technical electives.

Any of the courses listed above under Foundation Courses (CVEN 601, 619, 620, 627, 628, 674, 6xx, MEEN 621, or OCEN 671)

CVEN 602	Remote Sensing in Hydrology
CVEN 604	Engineering Analysis of Treatment Systems
CVEN 607	Engineering Aspects of Air Quality
CVEN 658	Civil Engineering Applications of GIS
CVEN 664	Water Resources Planning and Management
CVEN 665	Water Resources Systems Engineering
CVEN 675	Stochastic Hydrology
CVEN 679	Experimental Fluid Mechanics Modeling
CVEN 680	Advanced Computation Methods for Fluid Flow
CVEN 682	Environmental Remediation of Contaminated Sites
CVEN 689	Advanced Biological Treatment in Environmental Engineering
CVEN 689	Air Quality Modeling
CVEN 689	Sediment Transport
OCEN 675	Nonlinear Waves
OCEN 672	Coastal Engineering

Math, Science, Business, or Law Elective (3-6 hours)

Students are required to take at least one three-hour elective in math, science, business, or law from among the following approved electives. A second course in this rubric is also encouraged.

ACCT 640	Accounting Concepts and Procedures I
ATMO 601	Fundamentals of Atmospheric Dynamics
ATMO 602	Principles of Atmospheric Physics and Chemistry
ATMO 613	Advanced Atmospheric Chemistry
ATMO 629	Climate Change
BICH 601	Fundamentals of Biochemistry I
BIOL 650	Genomics
FINC 635	Financial Mgt. for Non-Business Majors
GEOG 626	Fluvial Geomorphology
GEOL 621	Contaminant Hydrogeology
GEOL 625	Applied Ground Water Modeling
MATH 601	Higher Mathematics for Engineers and Physicists 1
MATH 602	Methods and Applications of Partial Differential Equations
MATH 609	Numerical Analysis
MGMT 639	Negotiations
MGMT 640	Managing for Creativity and Innovation
MGMT 643	Foundations of Managerial Law
MGMT 655	Survey of Management
MGMT 678	International Management
RENR 662	Environmental Law and Policy
STAT 601	Statistical Analysis
STAT 602	Statistical Methods of Regression Analysis
STAT 626	Methods in Time Series Analysis
OCNG 608	Physical Oceanography
OCNG 640	Chemical Oceanography
OCNG 620	Biological Oceanography
OCNG 657	Data Methods and Graphical Representation in Oceanography

Breadth Electives (3-6 hours)

To complete the 30 hours of required coursework, students may select 3 to 6 hours of electives from among all approved technical electives attached at the end of this handbook. CVEN 691 Research credit does not count toward the 30 hours required for the MEngr or MS Non-Thesis in Environmental, Water Resources, and Coastal Engineering.

## Master of Science, Thesis Track

The MS degree with the thesis option is intended for students who seek a Master's degree to prepare them for engineering practice and is appropriate for those students who are interested in a research component to their degree, especially students who plan to continue to the PhD degree or who are interested in research positions at government laboratories. Graduates are recruited to work in private consulting firms, large engineering firms, city and state government positions, and federal government laboratories. The MS With-Thesis degree requires a minimum of 30 credit hours of coursework; all students must also meet the program prerequisites (see the Program Prerequisites section above). Students generally complete the degree requirements in 15 to 24 months. Students must take 9 hours in both the fall and spring semesters to have full-time student status.

### Thesis Committee

All student advising for the MS thesis-track degree is handled by the student's Advisory Committee. Students select a committee chair, who will direct both the thesis research and provide coursework advising. The student should also recruit a minimum of two additional committee members to their thesis committee, one of whom must be from outside the Zachry Department of Civil and Environmental Engineering. Students should select committee members in consultation with their committee chair and after interviewing each candidate to determine whether they are available to serve on the committee. For more details on the thesis committee and program requirements for the MS With-Thesis in Civil Engineering, see the Graduate and Professional Studies Catalog (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/civil/ms/>).

The coursework requirements for the MS With-Thesis degree in Civil Engineering with a focus in Environmental, Water Resources, and Coastal Engineering are listed below. Within each rubric of required coursework, students should discuss their course selections within their Thesis Committee Chair each semester before course registration begins. The degree plan, listing all courses a student plans to take to meet the 30-hour coursework requirement, must be completed and filed with the Office of Graduate and Professional Studies before the end of the second semester of study or 18 credit hours of coursework at Texas A&M, whichever occurs first. No exceptions are allowed. See the Graduate Student Services office for forms, deadlines, and general requirements.

### Coursework Requirements

#### Foundation Courses (9 hours)

Students must select 9 hours of technical coursework from the following list of foundation courses in Environmental, Water Resources, and Coastal Engineering Coursework.

CVEN 601	Environmental Engineering Processes III
CVEN 619	Environmental Engineering Processes I
CVEN 620	Environmental Engineering Processes II
CVEN 627	Engineering Surface Water Hydrology
CVEN 628	Advanced Hydraulic Engineering
CVEN 674	Groundwater Engineering
CVEN 6xx	Environmental Fluid Mechanics
MEEN 621	Fluid Mechanics
OCEN 671	Ocean Wave Mechanics

### EWRC Division Seminar (0 hours)

Students are expected to enroll in CVEN 681 Seminar (0 hours) each long semester (fall and spring) the student is in-residence on campus in College Station.

### Focus Technical Electives (9 hours)

Students must select 9 hours of technical coursework from the following list of focus technical electives.

Any of the courses listed above under Foundation Courses (CVEN 601, 619, 620, 627, 628, 674, 6xx, MEEN 621, or OCEN 671)

CVEN 602	Remote Sensing in Hydrology
CVEN 604	Engineering Analysis of Treatment Systems
CVEN 607	Engineering Aspects of Air Quality
CVEN 658	Civil Engineering Applications of GIS
CVEN 664	Water Resources Planning and Management
CVEN 665	Water Resources Systems Engineering
CVEN 675	Stochastic Hydrology
CVEN 679	Experimental Fluid Mechanics Modeling
CVEN 680	Advanced Computation Methods for Fluid Flow
CVEN 682	Environmental Remediation of Contaminated Sites
CVEN 689	Advanced Biological Treatment in Environmental Engineering
CVEN 689	Air Quality Modeling
CVEN 689	Sediment Transport

### Breadth Electives (6 hours)

To complete the 30 hours of required coursework, students may select 6 hours of electives from among all approved technical electives attached at the end of this handbook.

### Research (6 hours)

A minimum of 6 hours of CVEN 691 Research are required for the MS With-Thesis degree option. These hours should be selected from the course section corresponding to the chair of their thesis committee. Students may take additional CVEN 691 Research hours as needed to retain full-time student status, but only 6 hours should be listed on the Degree Plan.

### **MS Thesis**

The following items discuss expectations for the major steps toward completion of the MS thesis and defense. A number of other requirements related and in addition to these steps are specified by the Office of Graduate Studies (<http://ogs.tamu.edu/>), and many are described in the university catalog (<http://www.tamu.edu/admissions/catalogs/>). Each graduate student has the obligation to be informed of these requirements and to adhere to them. A checklist with all steps required to complete the MS Thesis-Option Degree in Civil Engineering is provided in the Graduate and Professional School Catalog (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/civil/ms/>). Consult with the Graduate Student Services office for additional general guidance.

An MS Thesis generally consists of three major components. First, an MS degree candidate must prepare a *Thesis Proposal* that describes the research to be conducted in fulfillment of the requirements for the

degree. The proposal should be written as soon as the research project can be outlined in reasonable detail, but usually no later than the end of the third long semester (fall or spring) of study. The university requires the proposal to be submitted at least 20 days prior to submitting the Request for Final Examination. A draft Research Proposal must be submitted to the advisory committee chair at least 10 working days prior to revision and subsequent submittal to other members of the thesis committee. The committee members will be provided at least 10 working days to review the revised draft Research Proposal prior to their approval through the Office of Graduate and Professional Studies. The research proposal should describe the proposed research, including relevant background information, and clearly demonstrate how this research will make a unique contribution of new knowledge to the student's area of study.

Second, students report the results of their research studies in a written *Masters Thesis*. This is a comprehensive, written document that reports the major research effort conducted, the results, and a discussion of their novelty and implications. A draft thesis must be submitted to the advisory committee chair at least 10 working days prior to revision and subsequent submittal to other members of the thesis committee. The committee members will be provided at least 10 working days to review the revised draft thesis prior to the Final Examination (thesis defense). The Masters Thesis must be approved by the Thesis Committee and will be published by the University Library. Details requirements for the format of the Master of Science Thesis are available through the Office of Graduate Studies (<https://ogaps.tamu.edu/New-Current-Students/Thesis-and-Dissertation-Services/Document-Template>).

Third, students defend the results of their research study in an oral, *Final Examination* (thesis defense). This presentation is made to the thesis committee and invited faculty, staff, and students. At this examination, the student will give a presentation of the research work completed for the degree and documented in the thesis. It is expected that the thesis committee will recommend revisions to the written thesis following the Final Examination, and these must be made before the thesis is approved by the committee for submission to the University.

## **Doctor of Philosophy**

The Doctor of Philosophy (PhD) degree is a research-oriented degree requiring performance of independent research that is the original work of the degree candidate. The PhD degree prepares students for careers in engineering practice, education, leadership, and research, including industry, government laboratories, and academia. The final basis for granting the degree shall be the candidate's grasp of the subject matter of a broad field of study and a demonstrated ability to do independent research. In addition, the candidate must have acquired the ability to express thoughts clearly and forcefully through both oral and written communication.

For a student who has completed a master's degree, a minimum of 64 hours is required on the degree plan for the PhD degree. For a student who has completed a baccalaureate degree but not a master's degree, a minimum of 96 hours is required on the degree plan for the PhD degree. All students must also meet the program prerequisites (see the Program Prerequisites section above and also additional details below). In addition to the credit-hour and prerequisite requirements, the PhD requires a dissertation, which is a written document that reports the results of the candidate's independent research. Students must also pass a Qualifier Exam, a Preliminary Exam oriented around the dissertation proposal, and a final Dissertation Defense. The requirements for each element of the PhD degree in Civil Engineering with a focus in Environmental, Water Resources, and Coastal Engineering are listed below.

### **Thesis Committee**

All student advising for the PhD degree is handled by the student's Advisory Committee. Students select a committee chair, who will direct both the dissertation research and provide coursework advising. The student should also recruit a minimum of three additional committee members to their thesis committee, one of whom must be from outside the Zachry Department of Civil and Environmental Engineering. Students should select committee members in consultation with their committee chair and after interviewing each candidate to determine whether they are available to serve on the committee. For more details on the thesis committee and program requirements for the PhD in Civil Engineering, see the Graduate and Professional Studies Catalog (<https://catalog.tamu.edu/graduate/colleges-schools-interdisciplinary/engineering/civil/phd/>).

The coursework requirements for a PhD Degree in Civil Engineering with a focus in Environmental, Water Resources, and Coastal Engineering are listed below. Within each rubric of required coursework, students should discuss their course selections within their Thesis Committee Chair each semester before course registration begins. The degree plan, listing all courses a student plans to take to meet the 64- or 96-credit hour requirement, must be completed and filed with the Office of Graduate and Professional Studies before the end of the fourth semester of study or 36 credit hours of accumulated credit at Texas A&M, whichever occurs first. No exceptions are allowed. See the Graduate Student Services office for forms, deadlines, and general requirements.

### **Coursework Requirements**

#### Program Pre-Requisites

Students admitted directly to the PhD following a baccalaureate degree must complete 24 hours of pre-requisite coursework. These 24 hours of coursework requirements must be taken as follows:

- Select 9 hours from the list of Foundation Courses specified for the MS With-Thesis requirements, above.

- Select 9 hours from the list of Focus Technical Electives specified for the MS With-Thesis requirements, above.
- Select 6 hours of electives from among all approved technical electives attached at the end of this handbook.

Following the 24 hours of program pre-requisites, students must also meet the PhD coursework requirements specified below.

### PhD Coursework Requirements

Students admitted directly to the PhD and requiring 96 hours on the degree plan, must complete 24 hours of prerequisite course work, as specified above, and an additional 15 hours of PhD level coursework, as specified below. Students admitted to the PhD with a masters and requiring 64 hours on the degree plan, must take 15 hours of PhD course work as specified below. For either student, the remaining hours on the degree plan are expected to be research hours (CVEN 691).

- CVEN 681<sup>1</sup> Seminar, 0 credit hours (every semester in residence)
- Select 3 credit hours from coursework *outside* of engineering from among those courses on the approved technical electives list at the end of this handbook. This is a general science requirement, and includes courses in science, math, or statistics
- Select 12 credit hours<sup>2</sup> from among all CVEN, MATH, or STAT courses at Texas A&M University or from among all approved technical electives attached at the end of this handbook.

<sup>1</sup>Students must enroll in the Environmental, Water Resources, and Coastal Engineering section of the CVEN 681 Seminar. Other seminars can be taken *in lieu* of CVEN 681 with approval of the dissertation committee chair. In residence means students living in the Bryan/College Station area.

<sup>2</sup>Students may select course not on this list at the recommendation of the Advisory Committee Chair and following approval of the division Graduate Coordinator. The EWRC Division fully supports the need of students to take coursework related to their major field of study.

### **PhD Qualifier Examination**

Students are formally admitted to the PhD Program after passing a written and oral Qualifier Exam, to be taken following the end of the first semester of PhD studies. The Qualifier Exam is administrated by the Environmental, Water Resources, and Coastal Engineering Division faculty in the Zachry Department of Civil Engineering. The Qualifier is designed to ensure broad understanding at an undergraduate level of the key concepts of Environmental, Water Resources, and Coastal Engineering (fluid mechanics, hydrology, chemistry, and biology) and to test the research creativity of the applicant. Candidates may take the Qualifier Exam a maximum of two times.

### **PhD Preliminary Examination**

In the Preliminary Examination, a PhD candidate presents their research plan to the dissertation committee in the form of a written Dissertation Proposal followed by an oral presentation of the research plan and optional written examination.

A draft Dissertation Proposal must be submitted to the advisory committee chair at least 10 working days prior to revision and subsequent submittal to other members of the dissertation committee. The committee members will be provided at least 10 working days to review the revised draft Dissertation Proposal prior to the date of the Preliminary Exam. The Preliminary Exam consists of an optional written

exam (the dissertation committee members either prepare or waive the written portion of the exam) and an oral defense of the dissertation proposal. Students are expected to conduct the PhD Preliminary Examination no later than the fourth semester of study. The university requires that the candidate pass the Preliminary Exam at least 14 weeks before the Dissertation Defense.

### **PhD Dissertation**

The PhD dissertation is a written document reporting the research that is the original work of the candidate. A draft Dissertation must be submitted to the advisory committee chair at least 15 working days prior to revision and subsequent submittal to other members of the thesis committee. The committee members will be provided at least 10 working days to review the revised draft Dissertation prior to the Final Examination (Dissertation Defense).

The Dissertation Defense, consisting of an oral examination, will be scheduled with all of the advisory committee members. At this examination, the student will give a presentation of the research work completed for the degree and documented in the Dissertation. It is expected that the thesis committee will recommend revisions to the written thesis following the Final Examination, and these must be made before the thesis is approved by the committee. The student must pass the Dissertation Defense and all committee members must approve the written Dissertation prior to submission of the dissertation to the university and graduation with the PhD degree.

## Approved Technical Electives

Each student's Degree Plan is comprised of the courses required in the sections above and of technical elective courses. The following is a list of pre-approved technical elective courses. Courses not on this approved list can be used on the degree plan upon the approval of the student's advisory committee chair and the division graduate coordinator. For courses to be approved that are not on this list, the guiding principle is that students are expected to take coursework that prepares them for their primary field of study.

AGEC 604	Natural Resource Economics
AGRO 605	Pedology
AGRO 611	Introduction to Environmental Biophysics
AGRO 614	Biodegradation and Bioremediation (VAPH 614)
AGRO 615	Reclamation of Drastically Disturbed Lands
AGRO 616	Land Disposal of Waste
AGRO 617	Advanced Soil Physics
AGRO 650	Mode of Action and Environmental Fate of Herbicides
AGRO 670	Basic Environmental Toxicology
AERO 640	Turbulence Processes
AERO 672	Perturbation Methods in Mechanics
ATMO 600	Fundamentals of Atmos. Dynamics
ATMO 601	Fundamentals of Atmospheric Dynamics
ATMO 602	Principles of Atmospheric Physics and Chemistry
ATMO 613	Advanced Atmospheric Chemistry
ATMO 621	Atmospheric Science
ATMO 629	Climate Change
ATMO 631	Climate Modeling
ATMO 661	Atmospheric Turbulence
ATMO 655	Satellite Data in Meteorology
ACCT 640	Accounting Concepts and Procedures I
BAEN 652	Advanced Topics in GIS
BAEN 672	Small Watershed Hydrology
BAEN 673	Modeling Small Watersheds
BAEN 674	Vadose Zone Hydrology
BICH 601	Fundamentals of Biochemistry I
BIOL 650	Genomics
BIOT 601	Biotechnology Principles and Techniques I
BIOT 602	Biotechnology Principles and Techniques II
CHEN 624	Chemical Engineering Kinetics and Reactor Design
CHEN 629	Transport Phenomenon
CHEN 651	Biochemical Engineering

CVEN 455	Urban Stormwater Management
CVEN 458	Hydraulic Engineering of Water Distribution Systems
CVEN 601	Environmental Engineering Processes III
CVEN 602	Remote Sensing in Hydrology
CVEN 604	Engineering Analysis of Treatment Systems
CVEN 607	Engineering Aspects of Air Quality
CVEN 619	Environmental Engineering Processes I
CVEN 620	Environmental Engineering Processes II
CVEN 624	Infrastructure Engineering and Management
CVEN 627	Engineering Surface Water Hydrology
CVEN 628	Advanced Hydraulic Engineering
CVEN 641	Construction Engineering Systems
CVEN 645	Geotechnical Site Investigation
CVEN 647	Numerical Methods in Geotechnical Engineering
CVEN 649	Physical and Engineering Properties of Soil
CVEN 655	Structural Reliability
CVEN 658	Civil Engineering Applications of GIS
CVEN 664	Water Resources Planning and Management
CVEN 665	Water Resources Systems Engineering
CVEN 673	Transport Phenomena in Porous Media
CVEN 674	Groundwater Engineering
CVEN 675	Stochastic Hydrology
CVEN 679	Experimental Fluid Mechanics Modeling
CVEN 680	Advanced Computation Methods for Fluid Flow
CVEN 682	Environmental Remediation of Contaminated Sites
CVEN 686	Offshore and Coastal Structures
CVEN 687	Foundation Engineering
CVEN 689	Advanced Biological Treatment in Environmental Engineering
CVEN 689	Air Quality Modeling
CVEN 689	Sediment Transport
CVEN 6xx	Environmental Fluid Mechanics
FINC 635	Financial Mgt. for Non-Business Majors
GEOG 626	Fluvial Geomorphology
GEOL 610	Field Methods in Hydrogeology
GEOL 621	Contaminant Hydrogeology
GEOL 625	Applied Ground Water Modeling
GEOL 631	Engineering Geomorphology
GEOL 635	Engineering Geology
GEOL 641	Environmental Geochemistry
ESSM 635	Ecohydrology
ESSM 631	Ecological Restoration of Wetland and Riparian Systems
INEN 622	Linear Programming
INEN 623	Nonlinear and Dynamic Programming
INEN 625	Simulation Methods and Applications
INEN 629	Engineering Optimization

MATH 601	Higher Mathematics for Engineers and Physicists 1
MATH 602	Methods and Applications of Partial Differential Equations
MATH 609	Numerical Analysis
MATH 639	Iterative Techniques
MEEN 621	Fluid Mechanics
MEEN 636	Turbulence: Theory and Engineering Applications
OCEN 603	Environmental Management
OCEN 671	Ocean Wave Mechanics
OCEN 672	Coastal Engineering
OCEN 675	Nonlinear Waves
OCEN 677	Environmental Fluid Mechanics
OCEN 682	Coastal Sediment Processes
OCEN 683	Estuary Hydrodynamics
OCEN 688	Marine Dredging
OCEN 6xx	Computational Fluid Dynamics
STAT 601	Statistical Analysis
STAT 602	Statistical Methods of Regression Analysis
STAT 626	Methods in Time Series Analysis