# Civil Engineering

The Department of Civil, Construction, and Environmental Engineering (CCEE) offers master's and doctoral level programs as well as graduate certificates. Graduate students are exposed to cutting-edge research covering various facets of civil engineering theory and practice. Knowledgeable and experienced faculty members work closely with students to provide them with the tools required to succeed professionally in globally competitive work environments.

| Program | Coordinator | Room | Phone Number |
|---|---|---|---|
| Certificates | Nasim Uddin, PhD | Hoehn Engineering Building, Room 321 | (205) 934-8432; nuddin@uab.edu |

Category A certificates are offered by the Department of Civil, Construction, and Environmental Engineering. Any undergraduate or graduate student in good standing who is pursuing a Civil Engineering degree (BSCE, MSCE, or PhD) may elect to simultaneously complete the requirements of his or her degree program and the Certificate Program. These certificates are listed on student transcripts and in the university graduation bulletin.

Certificates can be earned in:

- Construction Engineering Management
- Environmental Engineering
- Geotechnical Engineering
- Structural Engineering
- Sustainable Engineering
- Transportation Engineering

Civil Engineering (BSCE) graduates who complete the Certificate Program will have greater depth in a specific technical area. The certificates also allow a means for practicing engineers to acquire expertise beyond a Bachelor's degree, and have it formally recognized without completing a program leading to a Master's degree. This technical expertise will enhance their proficiency and marketability. Up to 12 graduate level credit hours taken for a certificate may be applied toward the MSCE degree.

The requirements are as follows:

- Students must be admitted to the Department as either undergraduate (BSCE) or graduate (MSCE) students in Civil, Construction, and Environmental Engineering or hold a BS in Civil Engineering or a closely related field from an accredited institution.
- Certificates require a minimum of 15 credit hours consisting of five graduate level elective courses in the area of specialization. Certificates for undergraduate students will be awarded upon completion of the BSCE degree.
- Graduate level elective courses taken may be applied to the certificate as well as a MSCE degree.
- One course, up to three credit hours, may be transferred from another institution.
- Courses taken from University of Alabama, University of South Alabama, and University of Alabama in Huntsville via Intercampus Interactive Telecommunications System (IITS) may be applied to certificates with prior approval of the certificate program director.
- Elective course may be taken at the 500, 600, or 700 level. Special topics courses (CE 590, CE 690, CE 790) may be applied to certificates with prior approval of the certificate program director.

## Certificate in Construction Engineering Management

| Requirements | | Hours |
|---|---|---|
| **Prerequisite Course** | | |
| CE 497 | Construction Engineering Management (or equivalent) | |
| **Select 15 credits from the following:** | | **15** |
| CE 575 | Construction Safety and Health Management | |
| CE 600 | Sustainable Construction | |
| CECM 669 | Advanced Project Management | |
| CECM 670 | Construction Estimating and Bidding | |
| CECM 671 | Construction Liability & Contracts | |
| CECM 672 | Construction Methods and Equipment | |
| CECM 673 | Project Planning and Control | |
| CECM 674 | Green Building Design/Construction | |
| CECM 675 | Advanced Construction and Engineering Economics | |
| CECM 676 | Construction Project Risk Management | |
| CECM 688 | Construction Management and Leadership Challenges in the Global Environment | |
| CECM 689 | Building Information Modeling (BIM) Techniques | |

## Certificate in Environmental Engineering

| Requirements | | Hours |
|---|---|---|
| **Prerequisite Courses** | | |
| CE 236 | Environmental Engineering (or equivalent) | |
| CE 337 | Hydraulics (or equivalent) | |
| **Select 15 credits from the following:** | | **15** |
| CE 530 | Water Supply/Drainage Design | |
| CE 533 | Solid and Hazardous Wastes Management | |
| CE 534 | Air Quality Modeling and Monitoring | |
| CE 580 | Introduction to Water and Wastewater Treatment | |
| CE 608 | Green Building Design | |
| CE 640 | Wastewater Treatment Engineering | |
| CE 685 | Engineering Hydrology | |
| CESC 600 | Principles of Sustainable Development | |
| CESC 602 | Introduction to Sustainable Smart Cities | |

## Certificate in Geotechnical Engineering

| Requirements | | Hours |
|---|---|---|
| **Prerequisite Course** | | |
| CE 332 | Soil Engineering (or equivalent) | |
| CE 332L | Soil Engineering Laboratory (or equivalent) | |
| **Select 15 credits from the following:** | | **15** |
| CE 516 | Mechanical Vibrations | |
| CE 520 | Advanced Mechanics | |
| CE 526 | Foundation Engineering | |
| CE 560 | Structural Mechanics | |
| CE 562 | Advanced Structural Analysis | |
| CE 567 | Wind and Seismic Loads | |
| CE 690 | Special Topics in (Area) [1] | |

| | |
|---|---|
| CECM 669 | Advanced Project Management |
| CECM 671 | Construction Liability & Contracts |

[1] Must be approved by certificate program director prior to registration

## Certificate in Structural Engineering

| Requirements | | Hours |
|---|---|---|
| **Prerequisite Course** | | |
| CE 360 | Structural Analysis (or equivalent) | |
| **Select 15 credits from the following:** | | **15** |
| CE 516 | Mechanical Vibrations | |
| CE 520 | Advanced Mechanics | |
| CE 526 | Foundation Engineering | |
| CE 553 | Design of Wood Structures | |
| CE 556 | Prestressed Concrete Design | |
| CE 561 | Introduction to the Finite Element Method | |
| CE 562 | Advanced Structural Analysis | |
| CE 564 | Structural Dynamics | |
| CE 567 | Wind and Seismic Loads | |
| CE 568 | Bridge Engineering | |
| CE 650 | Advanced Structural Steel | |
| CE 655 | Advanced Reinforced Concrete | |
| CESE 653 | Wood and Masonry Design | |
| CESE 656 | Advanced Mechanics of Materials for Structural Engineering | |
| CESE 659 | Advanced Reinforced Concrete | |
| CESE 660 | Prestressed Concrete Behavior and Design | |
| CESE 662 | Advanced Structural Analysis | |
| CESE 664 | Bridge Engineering | |
| CESE 665 | Structural Dynamics and Earthquake Engineering | |
| CESE 676 | Design of Structural Steel Connections | |
| CESC 602 | Introduction to Sustainable Smart Cities [1] | |
| CESC 608 | Green Infrastructure and Transportation [1] | |
| CESC 614 | Smart Cities Technologies [1] | |

[1] Only one of these courses can be applied to this certificate

## Certificate in Sustainable Engineering Management

| Requirements | | Hours |
|---|---|---|
| **Prerequisite Course** | | |
| CE 497 | Construction Engineering Management (or equivalent) | |
| **Select 15 credits from the following:** | | **15** |
| CE 600 | Sustainable Construction | |
| CE 608 | Green Building Design | |
| CESC 600 | Principles of Sustainable Development | |
| CESC 602 | Introduction to Sustainable Smart Cities | |
| CESC 608 | Green Infrastructure and Transportation | |
| CESC 610 | Health and Livability | |
| CESC 614 | Smart Cities Technologies | |
| CESC 616 | Big Data and Smart Cities | |

## Certificate in Transportation Engineering

| Requirements | | Hours |
|---|---|---|
| **Prerequisite Course** | | |
| CE 345 | Transportation Engineering (or equivalent) | |
| **Select 15 credits from the following:** | | **15** |
| CE 543 | Pavement Design & Construction | |
| CE 622 | Traffic Flow Theory | |
| CE 623 | Non-Motorized Transportation Design and Planning | |
| CE 624 | Simulation Models for Transportation Applications | |
| CE 625 | Intelligent Transportation Systems | |
| CE 646 | Traffic Engineering Operations | |
| CE 648 | Urban and Transportation Planning | |
| CE 690 | Special Topics in (Area) [1] | |
| CECM 669 | Advanced Project Management [2] | |
| CECM 671 | Construction Liability & Contracts [2] | |
| CESC 600 | Principles of Sustainable Development [2] | |
| CESC 602 | Introduction to Sustainable Smart Cities [2] | |
| CESC 608 | Green Infrastructure and Transportation [2] | |

[1] Must be approved by certificate program director prior to registration
[2] Only one of these courses can be applied to this certificate

The following three concentrations in the online Master in Engineering program are offered through the Department of Civil, Construction, and Environmental Engineering:

- Construction Engineering Management
- Sustainable Smart Cities
- Structural Engineering

## Sustainable Smart Cities Concentration

**Please Note:** All Master of Engineering concentrations are 100% online. There are no on-campus classes or required on-campus meetings or activities. Course delivery includes asynchronous and synchronous learning modes. Proper computer equipment and high-speed internet direct access are required to be successful.

| | |
|---|---|
| Degree Offered | Master of Engineering |
| Website | http://www.uab.edu/engineering/smartcities |
| Director | Jason T. Kirby, PhD |
| E-mail | jtkirby@uab.edu |
| Phone | 205-934-8479 |
| Address | UAB School of Engineering, HOEN 340 |
| | 1720 2nd Avenue South, Birmingham, AL 35294-4440 |

## Admission Requirements

In addition to the Graduate School admission requirements, requirements for admission to the UAB MEng-SSC program includes the following:

- Bachelor's degree (any discipline) from a regionally accredited US college or university. SSC promotes a multi-discipline learning experience and therefore an engineering undergraduate degree is not required;

- An undergraduate GPA of 3.0 or higher (individuals not meeting this requirement but who have a strong professional background, references, and interview may be admitted);
- No GRE required
- International applicants must submit English proficiency scores in accordance with UAB Graduate School requirement. Click here for details;
- Original transcripts sent directly to the UAB Graduate School per their policy for degree-seeking students (detailed instructions are included during the online application process);
- Personal interview with the Director of SSC (schedule the interview prior to submitting an application);
- Three letters of recommendation from professional contacts;
- Personal essay detailing academic motivation and career aspirations in SSC; and
- Résumé/Curriculum Vitae

| | |
|---|---|
| Application Submission Deadline for Entry Term(s) | Fall: August 1; Spring: December 1; Summer: May 1 |
| Deadline for All Application Materials to be in the Graduate School Office | Seven business days before term begins (see UAB academic calendar - https://www.uab.edu/students/academics/academic-calendar) |

| Requirements | | Hours |
|---|---|---|
| CESC 600 | Principles of Sustainable Development | 3 |
| CESC 602 | Introduction to Sustainable Smart Cities | 3 |
| CESC 604 | Low-Carbon and Renewable Energy Systems for Smart Cities | 3 |
| CESC 606 | Managing Natural Resources and Sustainable Smart Cities | 3 |
| CESC 608 | Green Infrastructure and Transportation | 3 |
| CESC 610 | Health and Livability | 3 |
| CESC 612 | Green Buildings | 3 |
| CESC 614 | Smart Cities Technologies | 3 |
| CESC 616 | Big Data and Smart Cities | 3 |
| CESC 618 | Research Methods and Project Planning | 3 |
| **Total Hours** | | **30** |

# Curriculum

| Requirements | Hours |
|---|---|
| **Students must complete a minimum of 30 hours with the classes listed below** | **30** |
| All CESE courses at the 600 level | |
| All CECM courses with advisor-approval 600-791 (maximum of 9 hours) | |
| All CE courses with advisor-approval 500-791 (maximum of 12 hours) | |
| **Total Hours** | **30** |

# Structural Engineering Concentration

**Please Note:** All Master of Engineering concentrations are 100% online. There are no on-campus classes or required on-campus meetings or activities. Course delivery includes asynchronous and synchronous learning modes. Proper computer equipment and high-speed internet direct access are required to be successful.

The Master of Engineering with a concentration in Structural Engineering is designed to increase the technical knowledge of engineering professionals working in or desiring to work in the broad field of structural engineering.

## Admission Requirements

In addition to the Graduate School admission requirements, requirements for admission to the UAB MEng-STR concentration include the following:

- An undergraduate degree in civil or mechanical engineering from an ABET accredited program. Applicants who have a Bachelor's degree and an outstanding academic record from an ABET accredited program other than civil or mechanical engineering or from an unaccredited engineering or applied science program may be admitted at program discretion;
- An undergraduate GPA of 3.0 or higher (individuals not meeting this requirement but who have a strong professional background, references, and interview may be admitted at program discretion);
- No GRE required;
- International applicants must submit English proficiency scores in accordance with UAB Graduate School requirement. Click here for details;
- Original transcripts from all colleges and universities attended since high school must be sent directly to the UAB Graduate School (detailed instructions are included during the online application process);
- Minimum undergraduate prerequisites or equivalent (students missing undergraduate prerequisites may be admitted but will be restricted from taking certain courses until the needed prerequisites are satisfied:
  - Structural Analysis of Elastic Structures
  - Reinforced Concrete Design
  - Principles of Steel Design
- Personal interview with the program director (schedule the interview prior to submitting an application);
- Three letters of recommendation from professional or academic contacts;
- Personal essay detailing academic motivation and career aspirations for earning the degree; and
- Résumé/Curriculum Vitae

To apply: Visit the UAB Graduate School website and click the 'Apply Now' button. Choose MEng - Structural Engineering in the Program Applying To section.

## Application and Program Deadlines

| Entry Term | Deadline |
|---|---|
| Fall | August 1 |
| Spring | December 1 |
| Summer | May 1 |
| Deadline for All Application Materials to be in the Graduate School Office | Seven business days before term begins (see UAB Academic Calendar - https://www.uab.edu/students/academic-calendar) |

## Curriculum Requirements

| Requirements | Hours |
|---|---|
| **Students must complete a minimum of 30 hours with the classes listed below** | **30** |
| All CESE courses at the 600 level | |
| All CECM courses with advisor-approval 600-791 (maximum of 9 hours) | |
| All CE courses with advisor-approval 500-791 (maximum of 12 hours) | |
| **Total Hours** | **30** |

# Master of Engineering in Construction Engineering Management

**Please Note:** This program is 100% online. There are no on-campus classes or required on-campus meetings or activities. Course delivery includes asynchronous and synchronous learning modes. Proper computer equipment and high-speed internet direct access are required to be successful.

| | |
|---|---|
| Degree Offered | Master of Engineering |
| Website | http://www.uab.edu/engineering/cem |
| Director | Wesley Zech, PhD, LEED AP |
| Email | zechwes@uab.edu |
| Director of CEM Student Affairs | Dianne Gilmer, MEng, PMP |
| Email | digilmer@uab.edu |
| Phone | 205-975-5848 |
| Address | UAB School of Engineering, HOEN 130B |
| | 1720 2nd Avenue South, Birmingham, AL 35294-4440 |

The Master of Engineering in Construction Engineering Management (MEng-CEM) is designed to enhance the construction engineering management and business qualifications of working professionals interested in project and company/corporate management.

## Admission Requirements

In addition to the Graduate School admission requirements, admission to the program includes the following:

1. **Bachelor's degree** (any discipline) from a regionally accredited US college or university. CEM promotes a multi-discipline learning experience and therefore an engineering undergraduate degree is not required;
2. An **undergraduate GPA** of 3.0 or higher (individuals not meeting this requirement but who have a strong professional background, references, and interview may be admitted);
3. **No GRE required**;
4. International applicants must submit **English proficiency scores** in accordance with UAB Graduate School requirement. Click here for details;
5. **Original transcripts** sent directly to the UAB Graduate School per their policy for degree-seeking students (detailed instructions are included during the online application process);
6. Two years of **relevant construction industry work experience** or a bachelor's degree in engineering or a science-related field;
7. **Personal interview** with the Director of CEM Student Affairs (schedule the interview prior to submitting a application);
8. Three **letters of recommendation** from professional contacts;
9. **Personal essay** detailing motivation and career aspirations for earning the degree; and
10. **Résumé/Curriculum Vitae**

To apply: Visit the UAB Graduate School website and click the ‘Apply Now’ button.

| | |
|---|---|
| Deadline for Entry Term(s) | Fall: August 1; Spring: December 1; Summer: May 1 |
| Deadline for All Application Materials to be in the Graduate School Office | Seven business days before term begins (see https://www.uab.edu/students/academics/academic-calendar) |

## Curriculum Requirements

| Requirements | | Hours |
|---|---|---|
| CECM 669 | Advanced Project Management | 3 |
| CECM 670 | Construction Estimating and Bidding | 3 |
| CECM 671 | Construction Liability & Contracts | 3 |
| CECM 672 | Construction Methods and Equipment | 3 |
| CECM 673 | Project Planning and Control | 3 |
| CECM 674 | Green Building Design/Construction | 3 |
| CECM 675 | Advanced Construction and Engineering Economics | 3 |
| CECM 676 | Construction Project Risk Management | 3 |
| CECM 688 | Construction Management and Leadership Challenges in the Global Environment | 3 |
| CECM 689 | Building Information Modeling (BIM) Techniques | 3 |
| **Total Hours** | | **30** |

## Admission Requirements

In addition to the UAB Graduate School admission requirements, admission to the Master's of Science in Civil Engineering degree include the following five criteria:

1. An undergraduate engineering degree from an ABET accredited engineering program or applied science program. Applicants who have an outstanding academic record in an unaccredited engineering or applied science degree program may be admitted at program discretion. Students admitted from this category may be required to complete a sequence of undergraduate courses in addition to the normal requirements of the MSCE degree. This set of extra requirements will be specified in writing at the time of admission to the program.
2. GPA of 3.0 or better on a 4.0 scale in all undergraduate degree major courses attempted;
3. Three letters of recommendation concerning the applicant's previous academic and professional work;
4. Original transcripts from all colleges and universities attended since high school must be sent directly to the UAB Graduate School (detailed instructions are included during the online application process)
5. International applicants must submit English proficiency scores in accordance with UAB Graduate School requirement. Click here for details
6. Verification of registration by examination as a Professional Engineer (PE) will satisfy criteria 4 above.

## Program Requirements

The following minimum requirements apply to the plan of study for a student who has earned a baccalaureate degree in civil engineering. A student with an undergraduate degree in another field may also be accepted into the civil engineering program but will normally have to take additional preparatory coursework as part of an expanded plan of study. Continuous enrollment for at least 3 credit hours per term is required. Students receiving a research assistantship are required to be enrolled as full-time students. A full-time student is one who is enrolled in at least 9 credit hours per semester.

Special Topics (590/690/790) courses and Independent Study (591/691/791) courses are reviewed for degree applicability for each program in the School of Engineering. No more than 6 combined credit hours of Special Topics and/or Independent Study courses will be applied to the MSCE degree without appeal to and approval from the Program Director.

The School of Engineering offers similar courses at the 400/500 and 600/700 levels. While the higher numbered course has more advanced content, there is a significant overlap in topics. Therefore, students are not allowed to take a 500-level or 700-elevel course for credit if they have previously taken the related 400-level or 600 level course, respectively.

## Master of Science in Civil Engineering

### Plan I (Thesis Option)

When a Plan I student successfully completes required coursework, the student should apply to enter candidacy. Once a master's candidate, the student must complete a minimum of 9 credit hours of thesis research (CE 699) over the course of at least two semesters. Prior to admission of candidacy, the student can take research credit hours in the form of non-thesis research (CE 698). These non-thesis research credit hours cannot be converted from non-thesis research credits into thesis research credits.

1. The student must successfully complete at least 33 credit hours of graduate credit, including:
   a. A minimum of 18 credit hours in civil engineering,
   b. Up to 6 credit hours in disciplines outside civil engineering, such as other engineering disciplines, mathematics, chemistry, computer science, earth science, physics, urban affairs, public administration, or public health, and
   c. A minimum of 9 credit hours of CE 699 Thesis Research under the direction of the graduate study committee chair resulting in a successful oral defense and committee approved thesis.
2. All Plan I Master's students are required to complete online modules covering the 9 topic areas of Responsible Conduct of Research (RCR) research integrity. The modules can be accessed online at **https://www.citiprogram.org.**

### Plan II (Non-Thesis Option):

The student must successfully complete at least 33 credit hours of graduate credit including:

1. A minimum of 24 credit hours in civil engineering,
2. Up to 6 credit hours in disciplines outside civil engineering, such as other engineering disciplines, mathematics, chemistry, computer science, earth science, physics, urban affairs, public administration, or public health, and
3. A minimum of 3 credit hours of CE 698 Non-Thesis Research under the direction of the graduate study committee chair resulting in a successful oral defense and committee approved written report.

## Areas of Specialization

The department offers specialization programs in the fields of construction engineering management, environmental engineering, structural engineering/structural mechanics, and transportation engineering. Supporting courses are offered in geotechnical engineering, optimization, engineering law, and other areas. If a student chooses to declare a concentration, the student must choose from the courses listed below the appropriate concentration to fulfill the required 18 credit hours (Plan I) or 24 credit hours (Plan II) within civil engineering.

## Concentration in Construction Engineering Management

| Requirements | | Hours |
|---|---|---|
| **Select 18 credits hours for Plan I or 24 credit hours for Plan II from the following:** [1] | | |
| CE 515 | Building Information Modeling (BIM) [1] | |
| CE 575 | Construction Safety and Health Management | |
| CE 597 | Construction Engineering Management | |
| CE 600 | Sustainable Construction | |
| CE 690 | Special Topics in (Area) [2] | |
| CE 691 | Individual Study in (Area) [2] | |
| CECM 669 | Advanced Project Management [3] | |
| CECM 670 | Construction Estimating and Bidding [3] | |
| CECM 671 | Construction Liability & Contracts [3] | |
| CECM 672 | Construction Methods and Equipment [3] | |
| CECM 673 | Project Planning and Control [3] | |
| CECM 674 | Green Building Design/Construction [3] | |
| CECM 675 | Advanced Construction and Engineering Economics [3] | |
| CECM 676 | Construction Project Risk Management [3] | |
| CECM 688 | Construction Management and Leadership Challenges in the Global Environment [3] | |
| CECM 689 | Building Information Modeling (BIM) Techniques [1, 3] | |

1 Only one of these courses can be applied to this degree

2 or any CE 590/690 IITS course offerings from UA, USA, or UAH campuses with prior approval of the Program Director. Please note: all special topics and individual study courses must have prior approval of the program director in order to apply to degree or concentration requirements; no more than a combined 6 hours of special topics or individual study can be applied to the degree without prior program director approval

3 MEng courses (i.e., CECM, CESE, and CESC) can be applied toward MSCE degree requirements

## Concentration in Environmental Engineering

| Requirements | | Hours |
|---|---|---|
| **Select 18 credit hours for Plan I or 24 credit hours for Plan II from the following:** | | |
| CE 530 | Water Supply/Drainage Design | |
| CE 531 | Energy Resources | |
| CE 533 | Solid and Hazardous Wastes Management | |
| CE 534 | Air Quality Modeling and Monitoring | |
| CE 537 | Environmental Experimental Design and Field Sampling | |

| | |
|---|---|
| CE 580 | Introduction to Water and Wastewater Treatment |
| CE 585 | Engineering Hydrology |
| CE 590 | Special Topics in Civil Engineering [2] |
| CE 600 | Sustainable Construction [1] |
| CE 608 | Green Building Design |
| CE 610 | The Engineered Environment |
| CE 636 | Stormwater Pollution Management |
| CE 640 | Wastewater Treatment Engineering |
| CE 690 | Special Topics in (Area) [2] |
| CE 691 | Individual Study in (Area) [1] |
| CESC 600 | Principles of Sustainable Development |
| CESC 602 | Introduction to Sustainable Smart Cities [2, 3] |
| CESC 608 | Green Infrastructure and Transportation [2, 3] |

1 or any CE 590/690 IITS course offerings from UA, USA, or UAH campuses with prior approval of the Program Director. Please note: all special topics and individual study courses must have prior approval of the program director in order to apply to degree or concentration requirements; no more than a combined 6 hours of special topics or individual study can be applied to the degree without prior program director approval

2 MEng courses (i.e., CECM, CESC, CESE) can be applied to the MSCE degree requirements

3 Only one of these courses can be applied to this degree

## Concentration in Structural Engineering

| Requirements | | Hours |
|---|---|---|
| **Select 18 credit hours for Plan I or 24 credit hours for Plan II from the following:** | | |
| CE 516 | Mechanical Vibrations | |
| CE 520 | Advanced Mechanics | |
| CE 526 | Foundation Engineering | |
| CE 544 | Civil Engineering Analysis II | |
| CE 553 | Design of Wood Structures | |
| CE 554 | Design of Masonry Structures | |
| CE 556 | Prestressed Concrete Design | |
| CE 557 | Concrete Technology | |
| CE 560 | Structural Mechanics | |
| CE 561 | Introduction to the Finite Element Method | |
| CE 562 | Advanced Structural Analysis | |
| CE 564 | Structural Dynamics | |
| CE 568 | Bridge Engineering | |
| CE 590 | Special Topics in Civil Engineering [1] | |
| CE 612 | Theory of Elasticity | |
| CE 617 | Theory of Plates and Shells | |
| CE 650 | Advanced Structural Steel | |
| CE 655 | Advanced Reinforced Concrete | |
| CE 690 | Special Topics in (Area) [1] | |
| CE 691 | Individual Study in (Area) [1] | |
| CESC 602 | Introduction to Sustainable Smart Cities | |
| CESC 608 | Green Infrastructure and Transportation | |
| CESC 614 | Smart Cities Technologies | |

1 or any CE 590/690 IITS course offerings from UA, USA, or UAH campuses with prior approval of the Program Director. Please note: all special topics and individual study courses must have prior approval of the program director in order to apply to degree or concentration requirements; no more than a combined 6 hours of special topics or individual study can be applied to the degree without prior program director approval

2 MEng courses (i.e., CECM, CESC, CESE) can be applied to MSCE degree requirements

## Concentration in Transportation Engineering

| Requirements | | Hours |
|---|---|---|
| **Select 18 credit hours for Plan I or 24 credit hours for Plan II from the following: [1]** | | |
| CE 543 | Pavement Design & Construction | |
| CE 590 | Special Topics in Civil Engineering [2] | |
| CE 621 | Transportation Engineering Seminar [1] | |
| CE 622 | Traffic Flow Theory | |
| CE 624 | Simulation Models for Transportation Applications | |
| CE 625 | Intelligent Transportation Systems | |
| CE 646 | Traffic Engineering Operations | |
| CE 648 | Urban and Transportation Planning | |
| CE 690 | Special Topics in (Area) [2] | |
| CE 691 | Individual Study in (Area) [1] | |

1 or any CE 590/690 IITS course offerings from UA, USA, or UAH campuses with prior approval of the Program Director. Please note: all special topics and individual study courses must have prior approval of the program director in order to apply to degree or concentration requirements; no more than a combined 6 hours of special topics or individual study can be applied to the degree without prior program director approval

The Department offers a variety of courses due to the focus areas under the Master of Science in Civil Engineering, which makes it difficult to designate all the courses in which students may enroll. Therefore, the lists above are not all-inclusive.

## Admission Requirements

The coordinated Environmental Engineering/Public Health degree program is offered through the UAB School of Engineering (SOE) and UAB School of Public Health (SOPH). Earning these two advanced degrees prepares students for a broad range of careers in urban planning, urban sustainability, healthy and livable city design, the management of air, water, and land resources, and creating healthy communities. Students in this coordinated program earn a Master of Public Health (M.P.H.) with a concentration in Population Health. In this concentration, students gain a solid foundation in public health through completion of the M.P.H. core (based on the Evidence-based Public Health framework), an Applied Practice Experience (Internship), and an Integrative Learning Experience (Capstone). Students also complete environmental health sciences courses focusing on urban health issues including air and water pollution, occupational safety, and assessing and managing environmental risks. In addition, in this coordinated degree program students earn a Master of Science in Civil Engineering (MSCE) with a specialization in environmental engineering focusing green building and water supply design, drainage and stormwater runoff design, and energy resources. The program offers a broad curriculum covering health aspects of engineering designs, resilient and sustainable urban development, low carbon and renewable energy systems, green infrastructure, natural resource management, health and livability, transportation and mobility, big data analytics, and smart technologies. Graduates of this coordinated degree program will shape our modern cities into human habitats that are safe, clean,

and sustainable addressing issues such as the growing stressors of energy security, population growth and health, food supply, waste disposal, climate change, and future infrastructure demands. This program is aimed at leaders and professionals in public and private sector organizations who seek to design, develop, and deliver smart, healthy and sustainable environmental solutions.

In addition to the UAB Graduate School admission requirements, admission to the dual Master's of Science in Civil Engineering (MSCE)/ Master's of Public Health (MPH) degree include the following five criteria:

1. An undergraduate engineering degree from an ABET accredited engineering program, applied science program, or similar. Applicants who have a degree from an unaccredited program but demonstrate an outstanding academic record may be admitted provisionally at the CCEE Graduate Program Director's discretion. Students admitted from this category may be required to complete a sequence of undergraduate courses in addition to the regular requirements of the MSCE degree. This set of extra requirements will be specified in writing at the time of admission to the program.
2. An undergraduate GPA of 3.0 or higher on a 4.0 scale in all undergraduate degree major courses attempted. Individuals not meeting this requirement but who have a strong professional background and excellent references may be admitted.
3. Three (3) letters of recommendation concerning the applicant's previous academic and professional work.
4. **No GRE required**.
5. International applicants must submit English proficiency scores in accordance with UAB Graduate School requirement. Click here for details.
6. Verification of registration by examination as a Professional Engineer (PE) will satisfy criterion 2 above.

## Master of Science in Civil Engineering/Master of Public Health Program Requirements

The following minimum requirements apply to the plan of study for a student who has earned a baccalaureate degree in civil engineering (BSCE). The MSCE/MPH degree plan contains 42-44 MPH credit hours meeting the Council on Education for Public Health (CEPH) MPH requirements and include PUH 610 Population Health meeting the SOPH requirement for the MPH in Population Health. 2) The MSCE/MPH degree plan contains 33 MSCE credit hours meeting the SOE MSCE requirements and have at least 30 credit hours unique to each Master's degree satisfying the UAB Graduate School requirements.

A student with an undergraduate degree in another field may also be accepted into the civil engineering program but will normally have to take additional preparatory coursework as part of an expanded plan of study. Continuous enrollment for at least 3 credit hours per semester is required. Students receiving a research assistantship are required to be enrolled as full-time students. A full-time student is one who is enrolled in at least 9 credit hours per semester.

Special Topics (590/690/790) courses and Independent Study (591/691/791) courses are reviewed for degree applicability for each program in the School of Engineering. No more than 6 combined credit hours of Special Topics and/or Independent Study courses will be applied to the MSCE degree without appeal to and approval from the Program Director.

The SOE offers similar courses at the 400/500 and 600/700 levels. While the higher numbered course has more advanced content, there is a significant overlap in topics. Therefore, students are not allowed to take a 500-level or 700-elevel course for credit if they have previously taken the related 400-level or 600 level course, respectively.

When the graduate student successfully completes required coursework, the student opted for Plan I (Thesis Option) should apply to enter candidacy. Once a master's candidate, the student must complete a minimum of 9 credit hours of thesis research (CE 699) over the course of at least two semesters. Prior to admission of candidacy, the student can take research credit hours in the form of non-thesis research credit hours (CE 698). These non-thesis research credit hours cannot be converted from non-thesis research credits into thesis research credits.

## MSCE/MPH Curriculum

| Requirements | | Hours |
|---|---|---|
| MPH Core Requirements | | 14 |
| PUH 601 | This is Public Health | |
| PUH 602 | Community Assessment | |
| PUH 603 | Quantitative Methods in Public Health | |
| PUH 604 | Programs and Policies | |
| PUH 605 | Public Health Management and Evaluation | |
| PUH 606 | Leadership for Evidence-Based Public Health | |
| MPH Degree Requirement | | 1 |
| ENH 690 | Environmental Health Perspectives | |
| Population Health Requirement | | 3 |
| PUH 610 | Population Health | |
| Environmental Health Sciences Recommended Courses [1] | | 7 |
| ENH 600 | Fundamentals of Environmental Health Science | |
| ENH 612 | Assessing & Managing Environmental Risks | |
| ENH 660 | Fundamentals of Air and Water Pollution | |
| MPH Applied Practice Experience | | 3 |
| PUH 688 | Public Health Internship | |
| MPH Integrative Learning Experience | | 2 |
| ENH 689 | Environmental Health Sciences Integrative Learning Experience | |
| Total Hours Earned for MPH Degree: 30 [3] | | |
| MPH Shared Hours from MSCE Curriculum [4] | | 18 |
| CE 580 | Introduction to Water and Wastewater Treatment | |
| CE 585 | Engineering Hydrology | |
| CE 530 | Water Supply/Drainage Design | |
| CE 608 | Green Building Design | |
| Total Hours Earned for MPH Degree [3] | | |
| Remaining MSCE Program Requirements | | 18 |
| CE 531 | Energy Resources | |
| CE 537 | Environmental Experimental Design and Field Sampling | |
| CE 731 | Environmental Law | |
| CE 699 | Thesis Research [5, 6] | |
| Total Unique MSCE Hours: 30 [2] | | |
| MSCE Shared Hours from MPH Curriculum | | |
| ENH 612 | Assessing & Managing Environmental Risks | |
| Total Hours Earned for MSCE Degree [7] | | |
| Total Hours Completed for MSCE/MPH Degree [8] | | |

1 Students may substitute ENH courses to meet their educational objectives with consent of advisor (7 credit hours minimum required)

2 Meets UAB Graduate School requirements of a minimum 30 hours of graduate work

[3] Meets the CEPH MPH requirements of a minimum of 42 semester hours
[4] Course substitutions may be made with consent of advisor
[5] EHS faculty will serve on thesis committee
[6] For Thesis students; Non-Thesis students will register for a total of 6 credit hours of CE electives and 3 credit hours of CE 698 Non-Thesis Research
[7] Master of Science in Engineering
[8] Assumes the recommended Environmental Health Sciences courses plus PUH 610 Population Health (12 credit hours)

## Admission Requirements

In addition to the UAB Graduate School admission requirements, requirements for admission to the program leading to the Doctorate of Philosophy in Civil Engineering degree include the following five criteria:

1. An **undergraduate engineering degree** from an ABET accredited program **or a master's degree in engineering**. Applicants who do not meet this criterion but who have an outstanding academic record in an engineering degree program not accredited by ABET, or in a baccalaureate or master's degree program in a related field, may be admitted on probation. Students admitted in this category will be required to complete a sequence of undergraduate or graduate courses in addition to the regular requirements of the MSCE degree. This set of extra requirements will be specified in writing at the time of admission to the program;
2. An **undergraduate GPA** of 3.0 or higher on a scale of 4.0 in all undergraduate degree major courses attempted. Individuals not meeting this requirement but who have a strong professional background and excellent references may be admitted;
3. Three (3) **letters of recommendation** concerning the applicant's previous academic and professional work;
4. No GRE required
5. International applicants must submit **English proficiency scores** in accordance with UAB Graduate School requirement. Click here for details.
6. Verification of registration by examination as a Professional Engineer (PE) will satisfy criterion 2.

## Doctor of Philosophy in Civil Engineering Program Requirements

This is a joint program with the University of Alabama in Huntsville (UAH). A typical student entering the program will already have an undergraduate degree in Civil Engineering from a program accredited by the Engineering Accreditation Commission of ABET. Students with outstanding records in related fields or from a non-accredited engineering program will be considered for admission with contingencies and must remedy deficiencies in their preparation after the start of their academic program. These requirements will be defined in writing at the time of admission.

The program requires 51 credit hours of coursework beyond the baccalaureate level or 27 credit hours of coursework beyond the master's degree, plus a minimum of 24 credit hours of dissertation research (CE 799 Dissertation Research).

A minimum of 6 credit hours must be taken from the UAH campus. The student has two options

1. Register at UAH and then have the credits transferred to UAB or
2. Register at UAB for an equivalent course and have the UAH instructor send the grade to UAB.

The courses may be taken through the Intercampus Interactive Telecommunications System (IITS) at UAB, Distance Learning (DL), or web-based instruction for UAH.

Special Topics (690/790) courses and Individual Study (691/791) courses are reviewed for degree applicability for each program in the School of Engineering. No more than 6 combined credit hours of Special Topics and/or Independent Study courses will be applied to the degree without appeal to and prior approval from the Program Director.

The School of Engineering offers similar courses at the 400/500 and 600/700 levels. While the higher numbered course has more advanced content, there is a significant overlap in topics. Therefore, students are not allowed to take a 500-level or 700-elevel course for credit if they have previously taken the related 400-level or 600 level course, respectively.

Doctoral students are also required to successfully complete GRD 717 Principles of Scientific Integrity prior to admission to candidacy.

A Graduate Study Committee must be established by the doctoral student and must include a minimum of five graduate faculty members, at least one of which must be from UAH. A comprehensive examination is required of all doctoral candidates. This examination is conducted by the Graduate Study Committee after all coursework is successfully completed. The examination has both written and oral components. During the oral portion of the examination, the student also presents the dissertation proposal to the Graduate Study Committee. The comprehensive examination may only be taken twice.

When the graduate student successfully passes the comprehensive examination, including the dissertation proposal, the student should apply to enter candidacy. Once a doctoral candidate, the student must complete a minimum of 24 credit hours of dissertation research (CE 799 Dissertation Research) over the course of at least two semesters. Prior to admission to candidacy, the student can complete research hours in the form of non-dissertation hours (CE 798). A maximum of 12 CE 798 Non-Dissertation Research hours can be applied to the Dissertation Research (CE 799) requirement.

After successful completion of a minimum of 24 credit hours of dissertation research, the graduate student must complete the dissertation and submit to the Graduate Study Committee for review. The doctoral candidate must also present an oral public defense of the dissertation. When the graduate student successfully defends the dissertation, the student then has ten working days to complete revisions and submit the approved document to the Graduate School.

Required coursework must be selected from the list below. PhD students are encouraged to take the highest level available (700 level rather than 600 level; 600 or 700 level rather than 500 level). Students are only allowed to take 500 level courses if there is no equivalent 600 or 700 level course available. A minimum of 50 percent of the required coursework must be at the graduate level of 600 or above.

Additional graduate courses can be counted towards the PhD degree, as long as those courses were taken above and beyond the requirements for a BS or MS degree. To do so requires that the student must petition the department to have those courses counted toward an advanced degree. The graduate program director would make a recommendation on the petition (and would consider the UAB equivalent

course description if the course was taken from another university). The maximum credit hours from an outside institution that could be applied toward an advanced degree at UAB is 12 credit hours.

| Requirements | | Hours |
|---|---|---|
| **Required Courses** | | |
| GRD 717 | Principles of Scientific Integrity | 3 |
| CE 799 | Dissertation Research [1] | 24 |
| **Construction Engineering Management Courses [2]** | | |
| CE 515 | Building Information Modeling (BIM) [3] | |
| CE 575 | Construction Safety and Health Management | |
| CE 597 | Construction Engineering Management | |
| CE 600 | Sustainable Construction | |
| CE 790 | Special Topics in (Area) [4] | |
| CE 791 | Individual Studies (In Area) [4] | |
| CECM 669 | Advanced Project Management | |
| CECM 670 | Construction Estimating and Bidding | |
| CECM 671 | Construction Liability & Contracts | |
| CECM 672 | Construction Methods and Equipment | |
| CECM 673 | Project Planning and Control | |
| CECM 674 | Green Building Design/Construction | |
| CECM 675 | Advanced Construction and Engineering Economics | |
| CECM 676 | Construction Project Risk Management | |
| CECM 688 | Construction Management and Leadership Challenges in the Global Environment | |
| CECM 689 | Building Information Modeling (BIM) Techniques [3] | |
| **Structural Engineering Courses [2]** | | |
| CE 516 | Mechanical Vibrations | |
| CE 520 | Advanced Mechanics | |
| CE 526 | Foundation Engineering | |
| CE 544 | Civil Engineering Analysis II | |
| CE 553 | Design of Wood Structures | |
| CE 554 | Design of Masonry Structures | |
| CE 556 | Prestressed Concrete Design | |
| CE 557 | Concrete Technology | |
| CE 560 | Structural Mechanics | |
| CE 561 | Introduction to the Finite Element Method | |
| CE 562 | Advanced Structural Analysis | |
| CE 564 | Structural Dynamics | |
| CE 568 | Bridge Engineering | |
| CE 612 | Theory of Elasticity | |
| CE 617 | Theory of Plates and Shells | |
| CE 650 | Advanced Structural Steel | |
| CE 655 | Advanced Reinforced Concrete | |
| CE 712 | Theory of Elasticity | |
| CE 715 | Theory of Elastic Stability | |
| CE 717 | Theory of Plates and Shells | |
| CE 750 | Advanced Structural Steel | |
| CE 755 | Advanced Reinforced Concrete | |
| CE 790 | Special Topics in (Area) [4] | |
| CE 791 | Individual Studies (In Area) [4] | |
| CESC 602 | Introduction to Sustainable Smart Cities [5] | |
| CESC 608 | Green Infrastructure and Transportation [5] | |
| CESC 614 | Smart Cities Technologies [5] | |
| **Environmental Engineering Courses [2]** | | |
| CE 530 | Water Supply/Drainage Design | |
| CE 531 | Energy Resources | |
| CE 533 | Solid and Hazardous Wastes Management | |
| CE 534 | Air Quality Modeling and Monitoring | |
| CE 537 | Environmental Experimental Design and Field Sampling | |
| CE 580 | Introduction to Water and Wastewater Treatment | |
| CE 585 | Engineering Hydrology | |
| CE 600 | Sustainable Construction | |
| CE 608 | Green Building Design | |
| CE 610 | The Engineered Environment | |
| CE 636 | Stormwater Pollution Management | |
| CE 640 | Wastewater Treatment Engineering | |
| CE 731 | Environmental Law | |
| CE 732 | Industrial Waste and Wastewater Treatment | |
| CE 736 | Stormwater Pollution Management | |
| CE 738 | Water and Wastewater Chemistry | |
| CE 739 | Sediment Sources and Controls | |
| CE 740 | Wastewater Treatment Engineering | |
| CE 781 | Environmental Chemistry | |
| CE 782 | Water Treatment Engineering | |
| CE 783 | Water and Wastewater Treatment Processes Lab | |
| CE 786 | Engineering Hydrogeology | |
| CE 787 | Stormwater Detention Pond Design | |
| CE 790 | Special Topics in (Area) [4] | |
| CE 791 | Individual Studies (In Area) [4] | |
| CESC 600 | Principles of Sustainable Development | |
| CESC 602 | Introduction to Sustainable Smart Cities | |
| CESC 608 | Green Infrastructure and Transportation | |
| **Transportation Engineering Courses [2]** | | |
| CE 543 | Pavement Design & Construction | |
| CE 621 | Transportation Engineering Seminar | |
| CE 622 | Traffic Flow Theory | |
| CE 624 | Simulation Models for Transportation Applications | |
| CE 625 | Intelligent Transportation Systems | |
| CE 646 | Traffic Engineering Operations | |
| CE 648 | Urban and Transportation Planning | |
| CE 721 | Transportation Engineering Seminar | |
| CE 722 | Traffic Flow Theory | |
| CE 723 | Non-Motorized Transportation Design and Planning | |
| CE 724 | Simulation Models for Transportation Applications | |
| CE 725 | Intelligent Transportation Systems | |
| CE 790 | Special Topics in (Area) [4] | |
| CE 791 | Individual Studies (In Area) [4] | |

1 Minimum 24 hours of dissertation research taken over the course of at least two semesters following admission to candidacy

2 MEng courses (i.e., CECM, CESC, CESE) can be applied toward PhD degree requirements

3 Only one of these courses can be applied to the degree

4 Or any CE 690/790 IITS course offerings from UAH, USA, and/or UA campuses with prior approval of Program Director

5 Only one of these courses can be applied to the degree

## Admission Requirements

The coordinated Public Health/Civil Engineering degree program is offered through the UAB School of Engineering (SOE) and the School of Public Health (SOPH). Earning these two advanced degrees provides students with a foundation for positions in research, government, as

well as private industry. Students in this coordinated program earn a Doctor of Philosophy in Civil Engineering (PhD). The PhD program is intended for students who have achieved high levels of scholarship and are capable of conducting independent and original research. PhD students in civil engineering will work closely with faculty in the Department of Civil, Construction and Environmental Engineering, but they may also work on interdisciplinary teams with faculty from other UAB departments as well as outside industry. The program offers a broad curriculum covering engineering designs, resilient and sustainable urban development, low carbon and renewable energy systems, green infrastructure, natural resource management, health and livability, transport and mobility, big data analytics, and smart technologies. In addition to the PhD, students earn a Master of Public Health (MPH) with a concentration in Population Health. In this concentration, students gain a solid foundation in public health through completion of the MPH core (based on the Evidence-based Public Health framework), an Applied Practice Experience (Internship), and an Integrative Learning Experience (Capstone). Students also complete environmental health sciences courses focusing on urban health issues including air and water pollution, occupational safety, and assessing and managing environmental risks. Graduates of this coordinated degree program will conduct research in and create solutions for human habitats that are safe, clean, and sustainable addressing issues such as the growing stressors of energy security, population growth and health, food supply, waste disposal, climate change, and future infrastructure demands.

In addition to the UAB Graduate School admission requirements, requirements for admission to the program leading to the Doctor of Philosophy in Civil Engineering degree include the following five criteria:

1. An undergraduate engineering degree from an ABET accredited program or a master's degree in engineering. Applicants who do not meet this criterion but who have an outstanding academic record in an engineering degree program not accredited by ABET, or in a baccalaureate or master's degree program in a related field, may be admitted on probation. Students admitted in this category will be required to complete a sequence of undergraduate or graduate courses in addition to the regular requirements of the MSCE degree. This set of extra requirements will be specified in writing at the time of admission to the program.
2. An undergraduate GPA of 3.0 or higher on a 4.0 scale in all undergraduate degree major courses attempted. Individuals not meeting this requirement but who have a strong professional background and excellent references may be admitted.;
3. Three (3) letters of evaluation concerning the applicant's previous academic and professional work; and
4. **No GRE required.**
5. International students are required to have a bachelor's or master's degree in engineering or a science related field and must submit TOEFL, IELTS, PTEA, IELA, or Duolingo scores. (https://www.uab.edu/graduate/admissions/international-applicants#english-proficiency-exams). Duolingo scores are preferred by the UAB Graduate School.
6. Verification of registration by examination as a Professional Engineer (P.E.) will satisfy criterion 2 above.

## Doctor of Philosophy in Civil Engineering and Master of Public Health with a concentration in Population Health

Two curricula have been developed for this coordinated program, one for students entering with a Master's of Science in Civil Engineering (MSCE) or closely related field and another for students entering without an MSCE, most likely with on a baccalaureate degree in Civil Engineering or closely-related field. The curriculum planning grid and a breakdown of coursework by degree program is attached for both options are attached. For students entering with an MSCE degree, a total of 81-83 credit hours of coursework are required for the coordinated PhD/MPH Normally, 42-44 credit hours are required for the MPH; however, because of the coordinated nature of the degree 12 credit hours from the PhD curriculum are credited to the MPH This allows students to earn both degrees in reduced time and at reduced cost. The PhD program 27 credit hours of coursework beyond the master's degree, plus a minimum of 24 credit hours of dissertation research. For students entering without an MSCE degree, a total of 90-92 credit hours of coursework are required for the coordinated PhD/MPH Normally, 42-44 credit hours are required for the MPH; however, because of the coordinated nature of the degree 12 credit hours from the PhD curriculum are credited to the MPH Twelve credit hours from the MPH degree are used to meet PhD program requirements. This allows students to earn both degrees in reduced time and at reduced cost. The PhD program requires 48 credit hours of coursework beyond the master's degree, plus a minimum of 24 credit hours of dissertation research. Students may complete the MPH portion of this coordinated degree program totally online, in class or through a mix of online and in-class experiences. Online students pay less than the out-of-state tuition rate for the MPH portion of this coordinated degree.

## Curriculum for students entering with an acceptable bachelor's degree

| Requirements | | Hours |
|---|---|---|
| MPH Core Requirements | | 14 |
| PUH 601 | This is Public Health | |
| PUH 602 | Community Assessment | |
| PUH 603 | Quantitative Methods in Public Health | |
| PUH 604 | Programs and Policies | |
| PUH 605 | Public Health Management and Evaluation | |
| PUH 606 | Leadership for Evidence-Based Public Health | |
| MPH Degree Requirement | | 1 |
| ENH 690 | Environmental Health Perspectives | |
| Population Health Degree Requirement | | 3 |
| PUH 610 | Population Health | |
| Environmental Health Sciences Recommended Courses [1] | | 7 |
| ENH 600 | Fundamentals of Environmental Health Science | |
| ENH 612 | Assessing & Managing Environmental Risks | |
| ENH 660 | Fundamentals of Air and Water Pollution | |
| MPH Applied Practice Experience | | 3 |
| PUH 688 | Public Health Internship | |
| MPH Integrative Learning Experience | | 2 |
| ENH 689 | Environmental Health Sciences Integrative Learning Experience | |
| Total Unique SOPH Hours: minimum 30 required [2] | | |
| Shared Hours from PhD in Civil Engineering | | 12 |
| CE 530 | Water Supply/Drainage Design | |
| CE 580 | Introduction to Water and Wastewater Treatment | |
| CE 608 | Green Building Design | |

| | | |
|---|---|---|
| CE 685 | Engineering Hydrology | |
| CE 608 | Green Building Design | |
| CE 685 | Engineering Hydrology | |
| Total Hours Earned for MPH Degree: 42 hours [3] | | |
| Remaining Hours from PhD in Civil Engineering Program Requirements [4] | | |
| CE 740 | Wastewater Treatment Engineering | |
| CE 786 | Engineering Hydrogeology | |
| CE 787 | Stormwater Detention Pond Design | |
| GRD 717 | Principles of Scientific Integrity | |
| CE 799 | Dissertation Research [5] | |
| CE Electives | | 12 |
| Total Hours Earned for PhD in Civil Engineering: 72 Hours [5] | | |
| Total Hours Completed for PhD in Civil Engineering/MPH Degree | | |

1 Student may substitute ENH courses to meet their educational objectives with consent of advisor (7 credit hours minimum required)
2 Meets UAB Graduate School requirements of a minimum 30 hours of graduate work
3 Meets the CEPH MPH requirements of a minimum of 42 semester hours
4 Course substitutions may be made with consent of advisor; Assumes the recommended Environmental Health Sciences courses plus PUH 610 Population Health (12 credit hours); A minimum of 72 total credit hours are required, 48 hours of coursework and 24 hours of dissertation research
5 A minimum of 24 credit hours, taken over at least 2 terms, are required

## Curriculum for students entering with an acceptable Master's degree

| Requirements | | Hours |
|---|---|---|
| MPH Core Requirements | | 14 |
| PUH 601 | This is Public Health | |
| PUH 602 | Community Assessment | |
| PUH 603 | Quantitative Methods in Public Health | |
| PUH 604 | Programs and Policies | |
| PUH 605 | Public Health Management and Evaluation | |
| PUH 606 | Leadership for Evidence-Based Public Health | |
| MPH Degree Requirement | | 1 |
| ENH 690 | Environmental Health Perspectives | |
| Population Health Degree Requirement | | 3 |
| PUH 610 | Population Health | |
| Environmental Health Sciences Recommended Courses [1] | | 7 |
| ENH 600 | Fundamentals of Environmental Health Science | |
| ENH 612 | Assessing & Managing Environmental Risks | |
| ENH 660 | Fundamentals of Air and Water Pollution | |
| MPH Applied Practice Experience | | 3 |
| PUH 688 | Public Health Internship | |
| MPH Integrative Learning Experience | | 2 |
| ENH 689 | Environmental Health Sciences Integrative Learning Experience | |
| Total Unique SOPH Hours: minimum 30 required [2] | | |
| Shared Hours from PhD in Civil Engineering | | 12 |
| CE 530 | Water Supply/Drainage Design | |
| CE 580 | Introduction to Water and Wastewater Treatment | |
| CE 608 | Green Building Design | |
| CE 685 | Engineering Hydrology | |
| Total Hours Earned for MPH Degree: 42 hours [3] | | |
| Remaining Hours from PhD in Civil Engineering Program Requirements [4, 6] | | |
| CE 740 | Wastewater Treatment Engineering | |
| CE 786 | Engineering Hydrogeology | |
| CE 787 | Stormwater Detention Pond Design | |
| GRD 717 | Principles of Scientific Integrity | |
| CE 799 | Dissertation Research [5] | |
| CE Electives | | 3 |
| Total Hours Earned for PhD in Civil Engineering: 72 Hours [6] | | |
| Total Hours Completed for PhD in Civil Engineering/MPH Degree | | |

1 Student may substitute ENH courses to meet their educational objectives with consent of advisor (7 credit hours minimum required)
2 Meets UAB Graduate School requirements of a minimum 30 hours of graduate work
3 Meets the CEPH MPH requirements of a minimum of 42 semester hours
4 Course substitutions may be made with consent of advisor
5 A minimum of 24 credit hours, taken over at least 2 terms, are required
6 Assumes the recommended Environmental Health Sciences courses plus PUH 610 Population Health (12 credit hours); A minimum of 72 total credit hours are required, 48 hours of coursework and 24 hours of dissertation research