

school of sustainable engineering and the built environment

civil, environmental and sustainable



Sustainability Engineering is a revolutionary approach to long-lasting improvement of the human condition. Sustainable engineers recognize that their works are embedded in complex social, environmental, political, and economic systems that require a broader and more integrative approach than has historically been applied. Sustainable engineers are prepared to work across disciplinary boundaries and in teams. They seek a holistic understanding of complex problems that transcend the traditional boundaries of engineering, but are nevertheless amenable to analytic tools such as life cycle assessment, risk analysis and systems engineering.

The graduate curriculum in the Sustainability Engineering specialty area in the School of Sustainable Engineering & the Built Environment (SSEBE) emphasizes flexibility and individuality. Students from many different engineering and physical science backgrounds may enter this specialty area and design a plan of study that supports their original research and professional development goals. Faculty in the Sustainability Engineering specialty area study topics at the intersection of multiple fields, including alternative energy, transportation, earth systems, and the environment.

sustainable
engineering

SUSTAINABILITY ENGINEERING FACULTY

- [Braden Allenby](#), Professor
- [Mikhail Chester](#), Assistant Professor
- [Oswald Chong](#), Associate Professor
- [Mounir El Asmar](#), Associate Professor
- [Matt Fraser](#), Associate Professor (Specialty Area Coordinator)
- [Margaret Garcia](#), Assistant Professor
- [Klaus Lackner](#), Professor
- [Bruce Marsh](#), Professor of Practice
- [Kristen Parrish](#), Assistant Professor
- [Agami Reddy](#), Professor
- [Thomas P. Seager](#), Associate Professor

LIST OF COURSES

Students are required to develop a POS which would generally include three of the following core courses (substitutions may be allowed subject to approval of the Specialty Area Coordinator):

- CEE 506 Life Cycle Assessment
- CEE 507: Urban Infrastructure Anatomy
- CEE 517: Data Analysis and Modeling for Energy Engineers
- CEE 581: Advanced Earth Systems Engineering & Management
- CEE 582: Industrial Ecology and Design for Sustainability
- CEE 598: Sustainable Engineering Ethics

Related class work in other specialty

engineering areas: Graduate students with an interest or background in environmental, construction, chemical, industrial and other engineering disciplines can take course work in these specialty areas upon approval of the Specialty Area Coordinator. For those classes offered outside the department, the SSEBE advising staff may not be able to properly advise the student or state when these classes are offered. Given below is a partial list of related CEE, CON and courses from other engineering departments relevant to sustainable engineering that can be included in a student's POS (also subject to approval of the Specialty Area Coordinator):

- CEE 598: Socio-Hydrological Systems Analysis
- CEE 598: Sustainable Energy Technologies
- CEE 598: Carbon Capture Technology
- CEE 598: Carbon Storage Technology
- CEE 598: Communications of Sustainability Science and Engineering
- CEE 598: Sustainable Transportation Systems
- CEE 598: Water Policy & Management
- CON 598: Sustainable Construction
- CON 598: Front-end Planning
- CON 598: Energy Retrofits
- CON 598: Green Buildings and Infrastructures
- IEE 534: Supply Chain Modeling and Analysis
- IEE 556: Intro to Systems Engineering
- IEE 569: Advanced Statistical Methods
- IEE 572: Design of Engineering Experiments
- GPH 412 Physical Climatology
- GPH 414 Climatic Analysis
- GPH 511 Fluvial Processes

Upon approval of the Specialty Area Coordinator, a maximum of 2 professional elective classes (or 6 credits) can be taken outside engineering in such departments as the School of Sustainability, the Design School, the College of Liberal Arts and Sciences, or the School of Life Sciences.

M.S. PROGRAM

During their first semester of enrollment, MS students should identify a faculty Advisor to serve as Chair of a Graduate Supervisory Committee (GSC). The Advisor must be approved by the Graduate College, be a member of the Sustainable Engineering faculty, and (in consultation with the student), establish a GSC composed of a minimum of three faculty, including at least two from the Fulton Schools of Engineering and at least one from the Sustainability Engineering faculty. A majority of the committee shall be tenure-track Fulton Schools of Engineering faculty.

Each student will establish an individual POS for approval by the GSC, in accordance with Graduate College and Civil, Environmental and Sustainable Engineering (CESE) Program requirements. The candidate must complete at least 30 semester hours of approved course and research work (including the required core classes), subject to the following constraints:

1. Not more than three (3) hours may be seminar credit.
2. Six (6) hours must be CEE 599 thesis credits OR three (3) credits towards an independent design project CEE 593: Applied Project.
3. Not more than three (3) hours may be CEE590 (Reading and Conference) taken under the supervision of any one faculty member serving on the GSC.
4. A student must be registered for at least one graduate level credit every fall and spring until he/she has officially completed their degree program requirements.

The six hours of thesis credits must reflect an acceptable original and independent thesis demonstrating the student's mastery of sustainable engineering science. The student must present the thesis to the GSC and the public, and pass an oral exam in defense of the thesis to a faculty committee of at least three members. The three hours of credits towards an applied project must demonstrate that the student can undertake sustainable research relevant to a practical project including problem identification, literature search, research analysis, documenting results and presenting the results. A short written report or a technical paper should be submitted to the supervising faculty member.

It is important for all doctoral students to read the [Civil, Environmental and Sustainable Engineering Ph.D. program](#)