CEE 6315 Syllabus

Environmental Nanotechnology, Section A, and 3 Credits
Fall, 2026

Instructor Information

Instructor	**Email**
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General Course Information

Description

The course is divided into two primary sections: 1) fundamentals of nanomaterials and nanotechnology and 2) the environmental applications of nanotechnology.

Course Learning Outcomes

Upon successful completion of this course, the student should be able to:

- understand the basic concepts of nanoscience and nanoengineering;
- list common procedures and tools to synthesize, fabricate, and assemble nanomaterials;
- identify the appropriate techniques for nanomaterial characterization;
- assess journal papers, scientific reports, and professional documents relevant to environmental nanotechnology;
- discuss the near term and future environmental applications of nanomaterials; and
- describe the process and challenges to employ nanotechnologies in environmental systems.

Required Course Materials

None.

Grading Policy:

Homework, 30%; Exams, 35%; Final project, 35%.

Description of Graded Components

Homework (30%): Multiple homework sets will be assigned. The homework should be submitted on Canvas by the end of the day they are due unless specified otherwise. For late submissions, 0.5 point per day deduction will be applied to the homework grade. You may discuss the general approach to the problems with classmates but should try to work independently on the actual solutions.

Exam (35%): One closed book exam will be given. Students can prepare a 1-page letter-size cheat sheet for the exam. The instructor may provide necessary equations. Students may need a calculator. Calculators must not have any communication capability: you cannot use a mobile phone as a calculator. A make-up exam will only be permitted for extremely difficult situations that are considered prohibitive enough and with prior permission from the instructor or proper documents for the absence.

Final Project (35%): Each student will be required to work on a final project relevant to the environmental applications of nanomaterials: pick a recently published research article; summarize the article; review the article, propose future research, and discuss the potential of the application described in the article for practical implementation. A 1-page introduction of your final paper (5%) will be due about 4 weeks before the end of the semester. Students will present their paper in class (15%) during the last two weeks of the semester. The final paper (15%) should be divided into three sections, summary (~2 pages), review and future research (~2 pages), and discussion (~1 page).

USG Required Course Policies

Attendance and/or Participation

Attendance will not be counted towards your final grade. "The Flipped Classroom" model will be applied for about half of the course. A flipped classroom is an instructional strategy and a type of blended learning, which aims to increase student engagement and learning by having students complete readings at their home and work on live problem-solving during class time. It moves activities, including those that may have traditionally been considered homework, into the classroom. In a flipped classroom, students will watch lecture recordings at home in advance, while engaging discussion and problem solving in the classroom with the guidance of the instructor.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review Georgia Tech's Honor Code and the student Code of Conduct.

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Core IMPACTS

Core IMPACTS is the University System of Georgia's General Education curriculum. If you are teaching a course that counts towards Core IMPACTS, you should include a syllabus statement about the Core area and associated career competencies. This resource developed by the Center for Excellence in Teaching and Learning and Online Education at Georgia State University includes template syllabus statements for each of the Core IMPACTS areas that you may adapt for your course.

Additional Georgia Tech Required Policies

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.