

CHBE 4535 Syllabus

Chemical Product Design, 3 credit hours

Fall 2026

Instructor Information

Instructor: Blair Brettmann

General Course Information

Description

Chemical engineering principles applied to the design of products.

Course Learning Outcomes

By the end of this course, a student should be able to:

1. Engage with C-level executives, senior scientists, lawyers, thought leaders, and pioneers from leading companies and organizations. Identify various paths in a chemical product design career.
2. Understand the distinction between commodity and specialty products, and the attributes that make them profitable.
3. Gain insights into structure/property relationships and their application in product design.
4. Apply the ChBE core (thermo, kinetics, transport) in the design of new products.
5. Understand and use contemporary product development methodologies such as stage/gate protocols, quality-by-design, design of experiments, etc. that reflect current industry practices.
6. Communicate in a style appropriate for a business environment, through both written and oral means.

Recommended Course Materials

Cussler, Edward Lansing, and Geoff D. Moggridge. Chemical product design. 2nd edition. Cambridge University Press, 2011.

Grading Policy:

In this course the following graded assessments and assignments are used to determine the course grade:

Oral presentations	20%
Midterm deliverables	20%
Final report	25%
Attendance and discussion	10%
Quizzes	15%
Homework	10%

The letter grade cutoffs in this class are 90%+ for A, 80%+ for B, 70%+ for C, 60%+ for D, based on the overall score based on the relative weights above. These cutoff points may be lowered (resulting in a higher grade for some students) but will never be increased.

Course Policies

Attendance and/or Participation

Your academic success will depend strongly on the level of engagement with the course material. Actively participating in all lectures and taking advantage of other learning opportunities offered (e.g. assignments, office hours) is critical for successful attainment of the learning outcomes. The Georgia Tech Catalog describes policies around “approved Institute activities” (e.g., field trips and athletic events) and accommodations around religious observances.

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](#).

Cases of suspected 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

Not applicable for this course.

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.