

Colorado State University

Department of Chemical and Biological Engineering

Information for potential graduate applicants who do not have a degree in Chemical Engineering

The department of chemical and biological engineering frequently admits applicants who have a bachelor's degree in a field other than chemical engineering. Many of our research programs are highly interdisciplinary, and benefit tremendously from the participation of students with different academic backgrounds. In particular, a student with a degree in chemistry, physics, a biological science, other engineering discipline, or other natural science might be a very competitive applicant.

Nonetheless, the department will not admit students who do not have the background necessary to be successful in our required graduate coursework. The required graduate-level coursework for both Master's and Ph.D. students includes some discipline-specific courses that students without a chemical engineering background may not be prepared for. These courses are:

Course	Description	Prerequisite(s)
MATH 530 Mathematics for Scientists and Engineers	Proof-oriented linear algebra; ordinary and partial differential equations	An undergraduate course in ordinary differential equations.
CBE 501 Chemical Engineering Thermodynamics	Definition, correlation, and estimation of thermodynamic properties; non-ideal chemical and physical equilibria.	Undergraduate courses in thermodynamics and ordinary differential equations.
CBE 502 Advanced Reactor Design	Nonideal flow and tracers; reactions and diffusion; evaluation of complex kinetics; stability of reactors. Biochemical reactor examples.	Undergraduate courses in chemical kinetics and reactor design, and heat and mass transport.
CBE 503 Transport Phenomena Fundamentals	General topics in transport phenomena; analytical and numerical solution of laminar flows; perturbation techniques; coupled transport.	Undergraduate courses in fluid mechanics and heat and mass transport.

Potential applicants who do not have the background for the four courses listed above will be advised to pass the necessary prerequisite coursework before applying for admission to CSU. Background courses might be completed at CSU or another school; they may be taken as electives, as part of another degree program, or they might be taken as a GUEST (non-degree seeking student) at CSU. Undergraduate-level background courses in mathematics and chemical engineering can generally not be used to satisfy credit requirements for graduate degrees.

For specific advice about the necessary background, interested applicants are strongly encouraged to send an email to cbe_grad@engr.colostate.edu with the subject "graduate program background inquiry". Please attach an (unofficial) copy of transcripts, a brief statement about your interest in chemical engineering and background, and information about current status (current or past enrollment in a degree program, professional background, etc.). Some background might be satisfied by other courses on an applicant's transcript with similar content (e.g. physical chemistry, biochemical engineering, etc.). Our graduate admissions committee will review all such requests and make specific recommendations about coursework that should be completed before applying to our graduate program.