In research, they develop new ideas, new products, and new ways to produce existing products more economically and with less environmental impact. In design, they create the processes that convert raw materials into finished products with emphasis on efficiency, safety, consumer needs, and environmental protection. The development engineer improves existing processes and technology to better meet changing needs. Process engineering involves production processes and operations. Management and technical sales involve decision making with regard to consumer needs and technical capabilities. Chemical engineers are creative problem solvers. Their careers are rewarding not only from an intellectual and financial view, but also from a personal perspective. Their solutions provide a better lifestyle for mankind.

Financing of Education
Scholarships are available as well as research assistantships and teaching assistantships. Contact the department office for details.

Honorary Societies and Clubs
Students are encouraged to join the student chapter of the American Institute of Chemical Engineers (AIChE) and honor societies such as Tau Beta Pi, the engineering honor society.

Faculty Research
The Department of Chemical Engineering has a highly qualified faculty with a wide range of experience in both industry and research. Many areas of research are being pursued, including: 1) clean and efficient combustion of coals and other fuels as well as rocket propellants; 2) development of power sources for micromachines and other microsystems; 3) measurement and prediction of physical, chemical, thermodynamic, and transport properties of liquids, gases, and solids; 4) molecular simulations; 5) chemical processes and materials in biological systems, including the human body; 6) catalysis with emphasis on forming and reforming hydrocarbon fuels; 7) computer control of chemical processes; 8) mathematical modeling of chemical processes and phenomena; and 9) environmental engineering.

Undergraduate Admittance Requirements
The Chemical Engineering Department offers a professional program leading to the bachelor of science degree. The first two years of this program are considered to be pre-professional and permit unrestricted enrollment for any student who qualifies for admission to the university. The remaining two years are considered to constitute the professional program. All students are urged to declare their major upon first entry to the university or as soon thereafter as possible by contacting the college advisement center (242 CB).

Professional Program
Admission to the professional program is available to all students in good academic standing with the university who have:

a. passed the pre-requisite courses for the first semester professional courses, namely ChEn 273 and Math 302,
b. submitted to the department a completed Application for the Chemical Engineering Professional Program.

The Application for the Chemical Engineering Professional Program requires the student to meet with his/her department advisor for direction and counseling concerning performance in the pre-professional program classes and successful completion of the professional program.
With the exception of ChEn 378, none of the required 300- or 400-level courses in chemical engineering may be taken before acceptance into the professional program.

1. Application Procedures
Applications for the professional program are due each April 15, but may be submitted any time prior to that date. All students who will meet the professional program requirements by Fall semester should submit the application by April 15 even if completion of a prerequisite class will not occur until Spring Term. Application forms are available at the department office. The application form includes a tentative plan for graduation and major elective classes. The student completes these parts of the application and then meets with his/her advisor in advance of the April 15 deadline. All completed applications must include the advisor’s signature.

Transfer students should submit an application to the department for admission to the professional program concurrently with their application to the university. Transfer student applications do not require meeting with an advisor or an advisor’s signature. However, transfer students should meet with their advisor shortly after arriving on campus.

2. Professional Program Advising
There is a strong correlation between successful completion of the professional program and student performance in “key performance indicator courses” in the pre-professional program. Key performance indicator courses are shown in shaded boxes on the flow charts.

The key performance indicator courses are:
- Math 112, 113 and 302, 303 or 313, 314, 334
- Chem 111, 112 (or 105, 106, 107); 351, 352
- ChEn 170, 263, 273
- Phscs 121

Poor grades in these classes suggest inadequate preparation for professional program class work or a poor match between student aptitudes and the skill set required in the chemical engineering major.

Academic Standards and Continuance
On gaining acceptance to the professional program, students must maintain the following minimum academic standards. Failure to do so may result in being terminated from the program.

a. The student's academic standing with the university must be “Good” or “Previous” to enroll Chemical Engineering courses that are 300 level and above.

b. Anyone who accumulates grades below C- in excess of 6 hours in chemical engineering courses may not take further chemical engineering until he or she has reduced the number of credits of each unacceptable grade to 6 hours or less.

c. A student may not graduate with more than 3 hours below C- in chemical engineering courses.

General Information
Transfer Students. Provisions have been made so that a qualified student transferring from a junior college or from another university, college, or department, who has completed the equivalent of the first two years of the academic program, can complete the B.S. degree requirements in approximately two years. Students considering transferring should contact the department at the earliest date possible so that a program can be tailored to accommodate individual backgrounds.

Integrated Master's Program. At the end of the Sophomore year or during the Junior year, a student who desires to obtain a master's degree in chemical engineering may elect to enter the integrated master's program. The purpose of this program is to afford greater flexibility in scheduling course work than is normally available through the sequential completion of the B.S. and the M.S. degree programs, and to permit an early start on the M.S. thesis work. In this program, students may work toward both the bachelor's and master's degrees simultaneously, either receiving the B.S. degree before or at the same time as the M.S. degree. At the end of the Sophomore year students must have a cumulative GPA of 3.4 or higher. All credit to be counted toward the master's degree must carry a cumulative GPA of 3.0 or better.

Before completing the final 32 hours of undergraduate course work, students should submit a formal application for admission to the graduate program to the Office of Graduate Studies. Additional details may be obtained from the college advisement center.

Professional Registration. Chemical engineers can become licensed as professional engineers (P.E.’s). General qualifications for obtaining a P.E. license are explained in the College of Engineering and Technology section of the undergraduate catalog. Some states require this status for consulting and practice in the private or public sector. The basic chemical engineering program prepares graduates to successfully complete the Fundamentals of Engineering (FE) examination, which is the first step in licensure. Students who wish to become professional engineers are encouraged to talk to their advisor about preparing for the FE exam.

Internships, Co-ops, Undergraduate Research, and Projects. In order to gain hands-on experience, students are encouraged to seek out opportunities to do internships, co-ops, research with a faculty member, and other project-based learning (e.g. Global Engineering Outreach). Academic credit can be awarded for these activities. To receive credit for internships and co-ops, students should register for ChEn 199R and seek approval from the department (see Dr. Wheeler). To receive credit for research, students should register from ChEn 498R after approval from the mentoring faculty member. To become involved GEO, students should register from EngT 497R. Credit obtained from ChEn 199R, ChEn 498R, and EngT 497R can count towards fulfilling the ENG or the EMSB elective, but no more than a combined total of 4 hours may be applied.

Innovation
At least 1 hour, but no more than 4 hours, of the technical electives must be from a course or courses that provide significant experiential or project-centered learning, or focus on creativity and innovation skills. Applicable courses include Ch En 199R (Internship), Ch En 400 (Creativity), Ch En 498R (Mentored Research), and Eng T 497R (Global Engineering Outreach). For a full list of approved courses, see the department webpage. A course taken under this requirement will count toward either the advanced engineering or EMSB requirement above, depending on the department in which it is listed.