engineering @iowa

Where students become engineers . . .

and something more
You love them: stomach-turning amusement park rides, digital cameras, soft drinks.

You can’t live without them: cell phones, iPods, laptops, PDAs.

You can’t imagine a world without them: fuel-efficient cars, movie special effects, water treatment plants.

You may need them someday: cancer treatment drugs, prosthetics, flood prevention and control.

Did you realize all these were created by engineers? Today’s world is full of devices, products, and technology that engineers have had their hands on—almost everything we see and touch.

Start on the road to a successful engineering career. At Iowa, you can put your creative spark to work immediately and gain a competitive advantage in the work world.

As the world becomes more and more driven by technology, engineers are taking center stage.

The kinds of problems you’ll tackle as an engineer are incredibly diverse. They range in size from giant systems that power major cities to tiny microprocessors that continue to revolutionize our information and communication systems.

The career paths you can take with your engineering degree are limited only by your imagination. You might choose to jump straight into an engineering position in private business, government, or a nonprofit organization. You might choose graduate study that could lead to a career in research or academics. An engineering degree is also an excellent springboard to professions in law, business, and medicine.


You're curious.

You'd like to make a difference in our world in very practical ways.

After you played with that new high-tech gadget you got for your birthday, you took it apart (maybe even before).
Flexible Curriculum
In addition to teaching critical core engineering principles, we have a curriculum that encourages students to enhance their education in such areas as communications, international studies, business, law, and all the health sciences. Engineering students benefit from a campus that synergistically combines all these areas of interest.

Recognition
In the past 27 years, 21 graduating engineering students have earned the prestigious University of Iowa Hancher-Finkbine medal for learning, leadership, and loyalty.

Why Iowa?
Accept no limits
Sure, you're good at math and science. And you probably could have a successful career if you take nothing but math, science, and engineering classes in college. But if you add to that, you can enhance your career potential and make your life more interesting. That's why The University of Iowa offers engineering... and something more. The College of Engineering is one of 11 colleges at the University, including liberal arts and sciences, business, law, and all the health sciences. Engineering students benefit from a campus that synergistically combines all these areas of interest.

Widen your interests
Your engineering studies at Iowa will be thorough, but you won't have to leave your other interests behind. Iowa encourages you to take advantage of all the exciting opportunities a major university has to offer.

Want to master a foreign language? Study art? Acquire business skills? Join the marching band? Go pre-med? Be on a Big Ten athletic team? Add a minor, a second major, or a Certificate in Technological Entrepreneurship to your engineering degree? Iowa engineers do it all—and we encourage it.

Expand your potential
It's a rapidly changing world. People will change jobs and retool their skills throughout their careers. How do you prepare for that? By diversifying your education. Of course you'll gain a very high level of technical and scientific knowledge in engineering at Iowa, but you'll also have the broad foundation of knowledge and experience it takes to adapt to new situations and solve new problems creatively.

Why Engineering at Iowa?
Flexible Curriculum
In addition to teaching critical core engineering principles, we have a curriculum that encourages students to enhance their education in such areas as communications, international studies, business, law, and all the health sciences. Engineering students benefit from a campus that synergistically combines all these areas of interest.

Professors teach the courses
Iowa’s 83 tenured and tenure-track engineering faculty teach more than 85 percent of the undergraduate courses. The others are taught by practicing engineers, medical doctors, and adjunct professors.

It’s not just men
The College of Engineering ranks 12th nationally in percentage of doctoral degrees and 17th nationally in percentage of bachelor’s degrees awarded to women.

A GREAT CAREER MOVE
Within three months after graduation, more than 94 percent of our May 2007 graduates had a job in their field or met their next academic goal (admitted to med school, law school, etc.).

Cooperation, not competition
Engineering students at Iowa are in a supportive atmosphere that doesn’t “weed out” students but instead encourages success.

First-rate facilities
We’ve spent about $31 million on renovations and expansion to make the Seaman Center for the Engineering Arts and Sciences technologically advanced and student friendly.

Size
With a total enrollment of 3,300 undergraduates and a first-year class of 900, the College of Engineering educates you to solve problems in teams, not in crowds—just like in the real world.

A diverse, fun campus
You’ll have access to the academic programs and extracurricular experiences of a major Big Ten research university in a city full of excitement.

Research opportunities
Our faculty are at the cutting edge of research in many areas. You’ll find the majority of faculty members welcome undergraduate students to work in their labs, often as early as their first year.

Accessible and dynamic faculty
Each faculty member advises an average of 14 undergraduate students and about 5 graduate students. Engineering faculty each conduct about $442,000 annually in collegiate and interdisciplinary research grants and contracts.

Mentoring
Iowa’s Engineering Connection program matches first-year students with upper-class engineering student mentors, providing new scholars with valuable advice and a familiar face around campus.
Problems solved by Iowa engineers

6

The problem: How do you best tap one of the Earth’s largest sources of energy?
The Iowa solution: Join a statewide effort to help coordinate the breadth of activities and capabilities in research and education taking place within the state, and catalyze activities designed to meet the research, training, and testing needs of the rapidly expanding wind energy industry.

The problem: How do you find sources of toxic air pollutants that can be measured in Chicago but were banned 20 years ago?
The Iowa solution: Build an air sampler that fits on the back of a medical clinic van traveling around the city.

The problem: How do you interpret the complex road map of human arteries visible in an angiogram?
The Iowa solution: Use computer graphics software to translate flat pictures into a 3-D rendering of the blood vessels running through the heart.
www.biomed-imaging.uiowa.edu

The problem: How do you make a high-speed, multi-hull ship reach faster speeds?
The Iowa solution: Design a catamaran with asymmetrical hulls, resulting in favorable interference and a reduction in drag.

The problem: How do modern LCD displays require high-tech finishes to optimize performance and minimize energy consumption for longer battery life? Current methods require expensive processes or potentially dangerous aerosols.
The Iowa solution: Use specially designed patterns of light to tailor the surface characteristics and produce high-performance displays while eliminating the need for expensive processes and reducing waste.
http://css.engineering.uiowa.edu/~cfap

The problem: How do you find sources of toxic air pollutants that can be measured in Chicago but were banned 20 years ago?
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The problem: How do you alleviate the pain that accompanies severe wrist arthritis?
The Iowa solution: Employ laboratory testing and computer modeling to develop the Universal 2 total wrist prosthesis, engineered for both performance and longevity.

Works in Progress

Computer modeling
Developing computer models using techniques in imaging, tissue mechanics, and fluid mechanics to understand the causes of dysphagia (swallowing difficulties).

Disease control
Studying the mechanism of pathogens created in the lungs to explore chemical methods to stop the formation and subsequent exhalation of these pathogens.

Sustainability
Studying how land use for energy production affects pollutant transport, how river restoration improves biological diversity and ecological health, and how consumer behavior impacts natural systems.

Bioinformatics
Developing computer-based approaches for accessing, interpreting, and understanding genetic information as it applies to basic biological science and applied medical research.

Air transport
Producing a low-cost synthetic vision system, which renders images of the terrain and any obstacles, to improve safety for general aviation pilots.

Error detection
Automatically identify faulty sensors in a large-scale sensor network based on measurements of both working and faulty sensors.
Iowa’s engineering curriculum offers a combination of advantages that are quite unique.

The College of Engineering

Our college is small, which gives you a personalized educational experience. We’re on the same campus with one of the largest teaching hospitals in the country, as well as Iowa’s world-class Carver College of Medicine, so the opportunities for research in the health sciences are nearly unparalleled. We have strong ties to Iowa’s outstanding College of Liberal Arts and Sciences and Tippie College of Business. You’ll have opportunities to study non-engineering subjects that will benefit you in unexpected ways throughout your career.

We don’t have a “weed out” philosophy. We put our energy and resources into seeing that every first-year student we admit becomes a successful graduate. Of course, our students play a critical part in their own success by attending class, doing their homework, performing well on exams, and making wise decisions.

Iowa’s core engineering curriculum emphasizes teamwork, communication skills, open-ended problem-solving abilities, computer skills, multidisciplinary experience, and an awareness of the ethical, social, and global implications of the engineering sciences. The core is essential to all six engineering majors.

Something more

In addition to engineering expertise, we encourage our students to develop interests in areas outside of engineering. In the changing job market, additional skills can make you more competitive and adaptable while enriching your life.

Hands-on learning is a vital part of your engineering study, so Iowa urges you to participate in internships, co-op experiences, study abroad opportunities, research with faculty, and student organizations such as those designing concrete canoes, steel bridges, Mini-Baja race cars, and solar bikes.

You’re encouraged to get involved in research as early as your first year. Many students find that the best way to start is simply to find a faculty member whose research interests them, approach that professor, and ask to be involved.

In their last year of study, most students do a senior design project. You’ll identify a research or design problem of special interest to you. Then, with the guidance of an experienced faculty advisor, you’ll complete the project and present your results. Many projects involve working with industry partners on real-world problems. In 2008, a team of Iowa engineering students partnered with a team of students in France on virtual international projects, culminating in a trip to Marseilles.

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SAMPLE ENGINEERING FIRST-SEMESTER SCHEDULE (16 S.H.)

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Flexible Options: Elective Focus Areas

An exciting feature of the Iowa engineering curriculum is that each major includes a wide variety of elective focus areas, which allow students to tailor their engineering degrees to fit their personal interests. The focus area options are diverse and include more in-depth specialization areas in the major, as well as cross-disciplinary options, including pre-med; entrepreneurship; minors in liberal arts, science, or business fields; and more. See www.engineering.uiowa.edu/sdc/curriculum_guides.php.
Tyler Dunham
Hometown: Lisle, Illinois
Engineering activities: I have competed in a Mathematical Contest in Modeling, interned at American Prosthetics in University of Iowa Hospitals and Clinics, and observed practitioners work with prosthetics and orthotics patients.

…and Something More: I enjoy playing intramural golf—a friend and I won the University’s tournament last year. I also have competed in a triathlon.

Why engineering?: I went into college as an undeclared engineering major because I was good at math and science. When I discovered the field of prosthetic limb replacement, I knew it was the opportunity for me to apply my affinity for math and science in a way that would satisfy my desire to help others in a one-on-one environment.

"Iowa has offered me a very broad spectrum of opportunities. I was able to declare a biomedical engineering major with a focus in biomechanics. On top of this, I was able to build my own elective focus area course work—this will better prepare me for graduate school."

M.L. Raghavan
BS, Coimbatore Institute of Technology, India; PhD, University of Pittsburgh
Areas of expertise: Soft tissue biomechanics—fluid and solid mechanics applied to living tissues; vascular device/implant design

The attraction of engineering: Physics was my favorite subject in high school. Engineering is largely an application of physics and so it was a natural fit to my interests. Besides, engineering was (and still is) a lucrative field to hold a degree in—I must concede that possibly played some role too! Biomedical engineering essentially takes traditional engineering to a new frontier, and an exciting one at that.

"The best part of working at Iowa is the Midwestern collegiality that is bountiful here. I see this characteristic in students, staff, and faculty alike. Further, this university gave me the opportunity to work with some of the preeminent scientists and teachers in the nation—an experience I am honored to have had."

Biomedical engineers link biology, medicine, and engineering to improve human health. Biomedical engineers collaborate closely with medical doctors to design and evaluate prosthetic devices, work with computer analysis of medical images, develop new materials for tissue-engineered implants, or use computers to analyze genetic structures and functions. About a third of UI biomedical engineering students use this major as a route to medical school.

Iowa advantages
Iowa is one of only 49 accredited undergraduate programs in biomedical engineering in the United States, and the University is ranked eighth nationally in the number of biomedical engineering BS degrees awarded. At Iowa, students have access to one of the largest and best teaching and research hospitals in the United States, with many opportunities for hands-on work. Students interested in earning both a bachelor’s degree and a master’s degree in biomedical engineering at Iowa may apply to enter the fast track BS/MS degree program. This program is designed for completion within five years.

Elective Focus Areas
Biomedical
Bioinformatics and computational biology
Biomechanics
Bioimaging
Cardiovascular biomechanics
Musculoskeletal biomechanics
Pre-medicine
Tissue engineering
Student-tailored EFA

Career Prospects
Bioinstrumentation
Biomechanics
Cellular, tissue, and genetic engineering
Clinical engineering
Consulting
Design/evaluation of implants
Manufacturing
Medical imaging
Medicine/dentistry/health care
Prosthetics/orthotics
Rehabilitation engineering

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Manufacturing
Medical imaging
Medicine/dentistry/health care
Prosthetics/orthotics
Rehabilitation engineering
Chemical engineers improve the world around us through the industrial application of chemistry. Chemical engineers may produce pharmaceuticals and chemicals through the use of microbes, develop new sources of energy, purify drinking water, produce and process food, or design the next generation of polymers. The department’s small size encourages close daily interaction between faculty and students, and it provides opportunities to develop strong leadership skills. The program includes an innovative safety course and a broad foundation in basic sciences and the biological sciences.

Iowa advantages
Iowa students have access to world-class research facilities, such as the Center for Biocatalysis and Bioprocessing, the Center for Global and Regional Environmental Research, and the UI Carver College of Medicine and the Colleges of Public Health and Pharmacy. Undergraduate students contribute to research in areas such as biotechnology, atmospheric chemistry and modeling, alternative fuels, and new polymeric materials.

Elective Focus Areas
- Biochemical engineering
- Business
- Chemical process engineering
- Entrepreneurship
- Energy and environment
- Polymers
- Pre-medicine
- Student-tailored EFA

Career Prospects
- Biotechnology
- Computer chip development
- Drug development
- Energy production
- Environmental remediation
- Food processing
- Microelectronics
- Nanotechnology
- Petroleum processing
- Pharmaceutics
- Pollution control
- Product development (paint, ink, glass, paper, personal care products)

Anne-Marie Marquez
Hometown: Elgin, Illinois
Engineering activities: I am a member of the Society of Women Engineers, an organization dedicated to advancing women from all engineering disciplines in their college and professional careers. I am also an undergraduate researcher in a biochemical engineering lab on campus.

…and Something More: My passion is tennis. I’m involved with the UI Tennis Club. It’s fun to get out and play, and it’s a great way to meet people from outside of the College of Engineering.

Why engineering?: I would have never thought to pursue a degree in chemical engineering if I hadn’t come to visit The University of Iowa. My love for chemistry and the attractiveness of the College of Engineering made me decide to become a Hawkeye.

“I chose Iowa mostly because I could pursue engineering, but what I enjoy most about Iowa is the people. Everyone here is friendly and welcoming. People still stop to hold doors open for you and smile. It’s a great atmosphere in which to get my education—I wouldn’t want to be anywhere else.”

Jennifer Fiegel
BS, University of Massachusetts at Amherst; PhD, Johns Hopkins University
Areas of expertise: Drug delivery, polymeric biomaterials, nano and microtechnology, airborne infectious diseases

The attraction of engineering: I always liked my math and science classes (particularly biology), and the hands-on experiments in high school. I also had a practical side that told me I should make good money in whatever profession I choose. Engineering seemed a natural fit for me. Chemical engineering intrigued me because, even then, I could see the link between chemistry and biology (biology is, after all, just the chemistry of life).

“Iowa students can focus on an area that interests them, such as business, entrepreneurship, law, and the health sciences. We also have a low student-to-faculty ratio, which naturally leads many students to do research in faculty laboratories—a unique experience as students earn their engineering degrees.”
Civil and Environmental Engineering

Cristina Fernandez-Baca
Hometown: Ames, Iowa

Engineering activities: I am a member of Engineers for a Sustainable World and I was recently accepted into the National Science Foundation Research Experience for Undergraduates program for the summer.

…and Something More: I love foreign languages. I grew up speaking Spanish, and I am currently pursuing a minor in French.

Why engineering? My family has a strong background in engineering so I grew up around math and science and gradually grew to appreciate them. I soon realized I wanted to be an environmental engineer. Engineers for a Sustainable World allows me to use my skills to help people and improve the environment at the same time.

“I really enjoy the atmosphere in Iowa City, and the engineering program here is strong. There are also a lot of women in engineering at Iowa, both students and faculty, which is encouraging to see in an often male-dominated major. At Iowa, there is a lot of diversity and the people you meet are amazing. I have been able to make a lot of friends while getting a great education.”

Jerry Schnoor
BS, Iowa State University; MS, PhD, University of Texas

Areas of expertise: Water quality modeling, phytoremediation, carbon sequestration, and climate change

The attraction of engineering: I was drawn to this area through a combination of my love of chemistry and experiencing the first Earth Day in 1970. Those things inspired me to work on projects such as my work with water quality sensor networks, more specifically the WATERS Network.

“Iowa is a world-class university at an affordable cost. My favorite aspect of being a professor is seeing the students grow and become productive in their chosen field of environmental engineering. I am blessed with friends and former students located all over the world who have The University of Iowa and their shared experiences here in common.”

Civil and environmental engineers enjoy multifaceted careers.

They develop the infrastructure for the “built” environment while also sustaining the health of the natural environment. They design, build, and operate a wide range of structures, transportation systems, environmental systems, and water-supply and pollution-control systems.

Civil and environmental engineering students learn geology, hydrology, structures, soil mechanics, water resources, and environmental processes, and participate in many other areas including biology, public health, economics, planning, aesthetics, law, and computer science.

Iowa advantages
Iowa students contribute to faculty research on numerous projects. Our active student chapter of the American Society of Civil Engineers competes with other Universities in national events like the concrete canoe and steel bridge design contests. Engineers for a Sustainable World/Engineers Without Borders apply engineering know-how to problems in developing and poor countries.

Elective Focus Areas
Civil engineering practice
Entrepreneurial career path
Environmental health
Environmental remediation and control
Sustainability engineering
Project management
Structures, mechanics, and materials
Transportation engineering
Urban and regional planning
Water resources engineering
Student-tailored EFA

Career Prospects
Construction processes and techniques
Environmental protection
Hydraulics of water engineering
Public service organizations
Radar and satellite measurement of rainfall
River management
Structural design
Transportation systems
Utilities
Water and wastewater treatment
Water resources

Undergraduate research assistant Aren Kriks performs a sieve analysis for a pavement research project sponsored by the Iowa Department of Transportation.
An undergraduate student works on building electronic circuits during a lab exercise for the Principles of Electronic Instrumentation, a core course in the College of Engineering.

Luke Arens
Hometown: Iowa City, Iowa
Engineering activities: I have been a tutor for the College of Engineering. Providing one-on-one support for first-year and sophomore students has been very rewarding.

...and Something More: I enjoy traveling; I took the opportunity to study abroad at the University of Canterbury in New Zealand. I also enjoy attending Hawkeye sporting events and playing basketball and golf.

Why engineering? I have always enjoyed learning about technology and computers. In high school I took classes toward my CCNA (Cisco Certified Network Associate) Certification. I did very well in the program and decided to pursue similar technology-oriented coursework in college through electrical engineering. I feel electrical engineering will allow me to be a part of advancing technology in the future.

"As a first-year student, I lived in the Men in Engineering living-learning community. This, along with the small size of the college, allowed me to get to know people in my classes right away. It also made me feel like I was part of a community, rather than just an individual student on a large university campus."

Mark Andersland
BSE, MSE, PhD, University of Michigan
Areas of expertise: communication and control systems. My current research is focused on improving the allocation and control of resources in networks, particularly sensor and communications networks.

The attraction of engineering: As a kid I was given a 65-in-1 electronic projects kit. With it I built simple radios, alarms, and all manner of chirp circuits. At some point I realized that I did not have to follow the kit directions to build working circuits; that got me interested in electrical and computer engineering.

"The College of Engineering at Iowa is a great place to learn. The best part of my job is working with students, in particular, witnessing all those "ahh" moments when students make the connection between something they have learned and a real problem they want to solve."

Electrical and computer engineers make a difference in lives every day.

Since products in today’s world depend on electronics and software, electrical and computer engineers are vital parts of the design, development, and production teams working on projects to support and improve virtually all areas of manufacturing, research, and development.

Electrical and computer engineers will be challenged to build more sophisticated computers, improve wireless networks, design better cellular phones, and invent more precise medical devices—work that will have a tremendous positive effect on people’s well-being and everyday lives. As the world’s ever-increasing need for information fuels tomorrow’s innovations, electrical and computer engineering graduates will be asked to develop cutting-edge information gathering, storage, protection, aggregation, and delivery mechanisms. CNN Money routinely ranks electrical engineering among the most lucrative degrees.

Iowa Advantages
Esteemed faculty, small class sizes, and diverse interests across the University provide unique educational opportunities for Iowa’s engineering students. The program also offers undergraduate research possibilities in areas such as optics, imaging, robotics, and software engineering.

Subtracks
Electrical engineering
Computer engineering
Information engineering

Elective Focus Areas
Applied physics
Control systems
Electronics
Medical imaging
Robotics
Student-tailored EFA

Career Prospects
Aviation, aeronautics, and astronautics
Computer design
Consulting
Manufacturing
Power generation and transmission
Semiconductors
Software development and applications
Special effects in films
Telecommunications

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Industrial engineers manage all aspects of the production process.

Industrial engineers improve the quality of our lives by making systems and processes better, faster, cheaper, and safer. They excel at exploring business challenges and finding innovative solutions to make industries, hospitals, education, and government more effective.

Successful industrial engineers know how to work with others—understanding, analyzing, and designing solutions that help people work more effectively. Industrial engineers organize the efforts of workers, business owners, managers, sales staff, and other engineers by applying their management, problem-solving, simulation, and analysis skills.

Iowa Advantages

The IE program emphasizes teamwork and hands-on projects while focusing on business management, logistics, structured problem solving, process engineering, quality engineering, complex system design, human-centered design, and the mathematics of probability, statistics, and optimization. Many IE undergrads enjoy close professional relationships with the faculty and participate in world-class research, such as designing a robot to visit Mars, building a sensor for detecting machine breakdowns before they occur, or designing a new jet cockpit.

Elective Focus Areas

- Computer and information systems
- Entrepreneurship
- Human factors and ergonomics
- Management
- Medical systems
- Student-tailored EFA

Career Prospects

- Airlines
- Energy
- Finance
- Food processing
- Hospitals/health services
- Information systems
- Manufacturing
- Quality control
- Service industries
- Transportation

Industrial Engineering

Robin Donegan

Hometown: Gurnee, Illinois

Engineering activities: I currently live on the Men in Engineering floor in Burge Hall. It is a great place to meet fellow engineers who help each other study, all while having fun and making the most of their college experience. I also participated in the Randall & Barbara Meyer Engineering Leadership Retreat.

…and Something More: I enjoy staying active, whether it’s playing golf, basketball, or Guitar Hero! I love Iowa’s great sporting events—I went to every football game at Kinnick Stadium and cheered on the Hawkeye basketball team at Carver-Hawkeye Arena.

Why engineering?: I took pride in fixing problems and improving existing items around the house. As I got older I gained an interest in factories, assembly lines, and how to make those lines more efficient. This drew me to industrial engineering.

“I feel a great sense of community in the College of Engineering: the great campus; the close proximity of the facilities; and the central hub of activity found at the Seamans Center. And the friends I have made at Iowa? They’ve made my college experience an absolute riot!”

Yong Chen

BS, Tsinghua University; MS, PhD, University of Michigan

Areas of expertise: Operations research, and more specifically, modeling, simulation, and optimization of stochastic systems with applications in areas such as network reliability

The attraction of engineering: I like to design and build things of high quality and performance by applying advanced analytical methods. By using techniques such as mathematical and statistical modeling to analyze complex situations, operations research (which is my discipline of engineering) gives design engineers and managers the power to make more effective decisions and build more productive systems.

“Iowa is a great place to study engineering because of the high research quality of the faculty members, the faculty’s commitment to teaching, the small student/faculty ratio, and the close teaching and research ties with other colleges such as business and medicine.”

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Mechanical engineers use energy principles and mechanics to design machines.

Mechanical engineers use the laws of mechanics to design and build machines that we use in everyday life. These include automobiles, aircraft, medical devices, structures, heating and ventilation systems, and a host of others. Their work leads to new products and concepts for energy conversion, environmental control, materials processing, transportation, materials handling, and more.

For example, mechanical engineers may develop robots for space exploration; use a computer to simulate freezing of human cells; produce better steel castings; or improve devices that utilize alternative energy sources.

Iowa Advantages

The department is strong in biomechanics, chemically reacting flows, computational mechanics, design optimization and sensitivity, fatigue and fracture mechanics, fluid mechanics, metal solidification, multi-body dynamics, reliability analysis, and ship hydrodynamics. Students benefit from Iowa’s strong research emphasis, with many opportunities for undergraduates to get hands-on experience in laboratories.

Elective Focus Areas

- Design
- Energy and environment
- Manufacturing and materials processing
- Student-tailored EFA

Career Prospects

- Aerospace
- Automotive
- Bioengineering
- Component design
- Consulting
- Energy
- Entrepreneurship
- Marine engineering
- Manufacturing
- Machine design
- Mechatronics
- Robotics

Julie Wisch

Hometown: Jefferson City, Missouri

Engineering activities: I live on the Women in Science and Engineering (WISE) floor; I work as an undergraduate employee for the Virtual Soldier Research Project; and I participate in Engineers for a Sustainable World / Engineers without Borders.

…and Something More: I'm a Spanish and math minor. This past fall I was the captain of our floor’s flag football team, and I am a Young Life Leader at City High School in Iowa City.

Why engineering?: I really like math and problem solving, so engineering seemed to be a logical choice. I chose mechanical engineering because it is such a versatile major, and the courses required to earn a degree looked to fit my interests the best.

"I loved Iowa when I came to visit, and that is the biggest reason why I chose to attend. When I visited, I thought that Iowa was a place where I could fit in — now that I’m here, I can attest that this is true. I like that the College of Engineering puts emphasis on being 'an engineer...and something more.'"
Beyond the classroom

Iowa offers special opportunities to broaden your potential and make you a well-rounded engineer of great value to future employers.

Student Profile

Brianne O’Loughlin
Hometown: Independence, Iowa

Engineering activities: I am a member of the Society of Women Engineers—within SWE, I’m involved in volunteering at the Ronald McDonald House, at Girl Scout Day, and High School Conference. I am also an Engineering Connections mentor.

…and Something More: I play soccer for the women’s club team, and I was president of the club for the last year. I am also a volunteer at University of Iowa Hospitals and Clinics and for Habitat for Humanity. I have two minors, Spanish and mathematics.

Study abroad: Last spring, I studied abroad in Palma de Mallorca, Spain. I took courses in Spanish writing, politics, literature, and math. In our free time, my friends and I loved to find new places to eat, play soccer and beach volleyball, go rock climbing and hiking, and go dancing at the discotecas!

“Ever since I was little, I’ve been building things or tearing them apart to see how they work. Studying engineering was a way for me to continue to do that as an adult! After my first visit, I fell in love with Iowa—the atmosphere, the students, and the faculty.”

Jamie Cecil
Hometown: Keokuk, Iowa

Engineering activities: I am a member of AIChE (the American Institute of Chemical Engineering) and Omega Chi Epsilon.

…and Something More: I serve as the leader for Campus Christian Fellowship.

My co-op experience: I worked for Cargill in Gainesville, Georgia, as a project engineering co-op/packaging supervisor. I designed new production lines, ordered equipment, supervised operators, and analyzed flow dynamics. I gained a much better perspective of what it is like to work as a chemical engineer in a production facility.

“From an engineering standpoint, I really enjoy how Iowa focuses on teamwork and understanding instead of forcing students to compete with one another in order to stay in the program. From the financial side, Iowa offered me numerous scholarship opportunities—that played a role in choosing Iowa.”

Engineering/Combined Degree Program

If you’re highly motivated, you can choose to earn two degrees at once: a bachelor of science in engineering and a bachelor’s degree in a liberal arts or business major. Getting a double degree usually takes five years instead of the typical four.

Engineering Professional Development

www.engineering.uiowa.edu/epd

Engineering Professional Development works with engineering students and employers in the job and internship search. Engineering Professional Development offers:

• Information and guidance to help you obtain a co-op or internship
• Job-search strategies
• Résumé and cover letter reviews
• Fall Engineering Career Fair and a Spring Engineering Job/Internship Fair
• Information for researching employers and career opportunities
• Electronic recruiting
• Assistance in negotiating with companies and evaluating job offers

Co-ops and internships

www.engineering.uiowa.edu/epd

These hands-on learning opportunities in business, industry, education, and health care enable students to experience the excitement and challenges of an engineer’s day-to-day life. Get your foot in the door with a company as early as the summer after your first year in engineering. Students also may choose to do an internship working in a research lab with a professor.

Study abroad

http://international.uiowa.edu/study-abroad

With many large companies going global, it’s increasingly important for engineers to get international perspectives while in college. Iowa encourages you to take a summer, a semester, or even a full year to study abroad. Within the last few years, Iowa engineering students have studied in places such as Spain, France, Germany, Australia, and the British Isles.

Certificate in Technological Entrepreneurship

www.engineering.uiowa.edu/about/tech-certificate

Earning the Technological Entrepreneurship Certificate, you will interact with current and future entrepreneurs and gain the know-how to turn your engineering expertise into a successful company or a patented invention.
All you need to succeed is under one roof at the Seamans Center for the Engineering Arts and Sciences.

Seamans Center for the Engineering Arts and Sciences
www.engineering.uiowa.edu/seamans
The College of Engineering focuses on students and student success, and the Seamans Center reflects that—in fact, student input was a part of the design process. The $31 million showpiece offers significant space and facilities: technology-laden classrooms, a rooftop terrace, more than 50 research labs, high-speed Ethernet and Wi-Fi connectivity, and the Engineering Student Commons, a two-story atrium with team-study areas. Engineering students have access to the building 24/7.

Hanson Center for Technical Communication
www.engineering.uiowa.edu/~ctc
Located in the Engineering Student Commons, the Hanson Center for Technical Communication creates a culture of communication—a vital element to one’s success in engineering fields. Students receive invaluable assistance from peer consultants—fellow engineering students—and professional staff members through interactive dialogue in an open, casual environment. Need assistance with collaborative writing, a PowerPoint presentation, or a scholarship statement? Drop by to schedule a consultation.

Lichtenberger Engineering Library
www.lib.uiowa.edu/eng
The Lichtenberger Engineering Library, with space on the first and second levels of the Seamans Center, offers a significant collection to serve the needs of undergrads and faculty alike. If you seek something not found among the library’s 120,000 volumes, it can be obtained quickly. Take advantage of the library’s comfortable study areas, online access to journals and indexes, and a collection of current publications.

Student Development Center
www.engineering.uiowa.edu/services/sdc
Looking for career guidance? Or perhaps you want information about scholarship opportunities. The Student Development Center provides one stop for these and other questions regarding student services. Staff members will assist you in areas such as academic advising, degree evaluations, and on-campus interviewing. Stop by often, and be sure to check out the bulletin board of engineering students in the news.

The Engineering Connection is designed to link new engineering students with enthusiastic, successful upperclass students, and to help make the transition into the University and the engineering program as smooth as possible. Mentors are sophomores, juniors, and seniors who volunteer their time to be resources for new students. Mentors have the opportunity to make a positive difference in the lives of new engineering students while developing their own interpersonal skills. The program officially runs from August to December each year; however, first-year students are encouraged to keep in touch with their mentors beyond this time. The goal is to have this experience be very positive for all students involved.

First-year students with mentors find it advantageous—they have someone to answer their questions, whether pertaining to classes or student life in general, and they see a familiar face on campus. Mentors stay in contact with their students, offering support and getting together to talk about college life. A welcome party is held at the beginning of the academic year, where new students can meet their mentors, other first-year students, faculty, and staff members. Mentors find no shortage of things to do with their students: meet to do homework, get ice cream, attend a UI sporting event, see a movie, or take part in the college’s monthly board game nights. New students can sign up for a mentor at summer orientation.
As the smallest of the Big Ten public universities, Iowa offers an incredibly diverse range of activities and events on a campus that’s easy to get around.

Living in the residence halls
Most first-year students choose to live in one of Iowa’s 10 residence halls, which offer flexible dining plans, computer labs, and common spaces for special events or everyday study. Engineering students can benefit from living in a residence hall living-learning community such as Honors House, Women in Science and Engineering (WISE), or Men in Engineering. For more information about housing options, visit http://housing.uiowa.edu or contact University Housing at 800-553-IOWA (4692).

Catching a performance
Between Iowa’s student-run cinema and concert series, Hancher Auditorium, and the many live performances offered in other Iowa City venues, you can catch everything from world-class performances to the latest Hollywood blockbusters.

While engineering is a rigorous field of study that requires hard work, we believe that it’s important to have fun in college, too.

STUDENT ORGANIZATIONS
Iowa has more than 400 student organizations (see http://imu.uiowa.edu/osl/). Whether you’re interested in politics or Ultimate Frisbee, bass fishing or dance, you’ll find it here. Iowa engineers row, play in the band, and regularly compete in the annual concrete canoe race. Also, consider these engineering organizations:
- American Society of Civil Engineers (ASCE)
- American Society of Mechanical Engineers
- Biomedical Engineering Student Society
- Biomedical Student Association
- Engineering Student Council
- Engineers for a Sustainable World
- Hawkeye Engineer magazine
- Human Factors and Ergonomic Society
- Institute of Electrical and Electronics Engineers (IEEE)
- Multi-Ethnic Engineering Student Association (MESA)
- Society of Automotive Engineers (SAE)
- Society of Women Engineers (SWE)
- Tau Beta Pi
- Theta Tau (Professional Engineering Fraternity)

A FEW HELPFUL WEB LINKS
- The University of Iowa
  - www.uiowa.edu/admissions
  - Student Ambassadors
  - www.engineering.uiowa.edu/ambassador
  - Women in Science and Engineering program
  - www.uiowa.edu/~wise
- Engineering: Your Future (American Society for Engineering Education)
  - www.asae.org/precollege
- Info on AP, transfer credit, curriculum guides, focus areas, and general education
  - www.engineering.uiowa.edu/sdc
- Iowa Engineer magazine
- Engineer Girl
  - www.engineergirl.org

As the smallest of the Big Ten public universities, Iowa offers an incredibly diverse range of activities and events on a campus that’s easy to get around.

Iowa City is a surprisingly cosmopolitan town of 63,000. Set in the rolling hills and woods along the banks of the Iowa River, it combines the diverse culture, arts, ethnic restaurants, and shops of a big city with the friendly feeling of a small community. And the campus is right in the heart of town.
**Kristi Schmidt**  
Human Factors Engineer, Apple Inc., Cupertino, California  
BSE 2002, Electrical Engineering  
Schmidt is a member of the Apple Industrial Design team, specializing in human factors and ergonomics for new product development. “The size of Iowa’s College of Engineering gave me the opportunity to easily meet and work with people in other engineering disciplines as well as outside of engineering. Those types of interactions prepared me for what I am doing now—each product team is interdisciplinary. In addition, the opportunity to begin conducting meaningful research my first year at Iowa and to learn how to conduct good research was invaluable.”

**Greg Kirsch**  
Patent Attorney, Needle & Rosenberg, P.C., Atlanta, Georgia  
BSE 1987, Electrical Engineering  
As a patent attorney who leads his firm’s electronics, software, and communications technology patent practice group, Kirsch has the opportunity to use his engineering background daily. In his work, he helps technology-driven companies protect their innovations through patents and other forms of intellectual property (trademarks, copyrights, trade secrets, etc.). “The engineering education I received at Iowa was instrumental in preparing me for my career as a patent attorney. Having an engineering background allows me to fully understand my clients’ inventions, explain the inventions to the U.S. Patent Office and the courts, and gives me credibility with clients.”

**Lisa Bogh**  
Director of Analytical Services, Integrated DNA Technologies, Coralville, Iowa  
BSE 1992, Biomedical Engineering  
Bogh oversees various quality control departments, which run analytical chemistry tests on synthetic DNA and test new technologies and instruments. She consults with lab managers on quality control results, communicates with vendors on instrument upgrades, and devotes time to stay abreast of news in the field of genomics. “The College of Engineering, and the University as a whole, gave me the knowledge to design instruments applicable to my work and to develop experiments to test these instruments. I gained the skills to seek the information I need to run tests and to find the people who can assist me in this work.”

**Andrew McCoy**  
Water Resources Engineer, HDR Engineering, Des Moines, Iowa  
BS 1990, MS 1995, PhD 1996, Civil/Environmental Engineering  
McCoy analyzes the effects of engineering projects on water resources for clients on the local, state, and national level. He enjoys being able to help find ways to build projects—railroad facilities, bridges, commercial developments—that do not adversely affect water resources and habitats. “Early on, a UI faculty member emphasized that so much of learning takes place outside of the classroom. While you are going to be an engineer, many of your clients won’t have the same background—so broaden your horizons. Don’t miss out on everything a Big Ten university has to offer: fine arts classes, exhibits, clubs, and an incredible amount of backgrounds and worldviews.”

**Robert K. (Kelly) Ortberg**  
Executive Vice President and Chief Operating Officer, Rockwell Collins Commercial Systems, Cedar Rapids, Iowa  
BSE 1982, Mechanical Engineering  
As chief operating officer, Ortberg provides leadership for the company’s $5-billion-plus commercial systems business, which produces aviation electronics and communications for the air transport, business aviation, and regional airline markets. His duties span the full operation of the business: long-term strategic planning, customer and investor relations, product development and production, and aftermarket support and workforce development. “My education at the University of Iowa gave me a solid technical background to enter the workforce, and I have leveraged that throughout my career. This technical training, coupled with a strong Midwestern work ethic, allowed me to expand my development in various leadership positions.”

The median starting salary for May 2007 Iowa engineering graduates was $55,500 with a placement rate exceeding 94 percent.

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**A SAMPLING OF COMPANIES CURRENTLY RECRUITING FOR ENGINEERS AT IOWA**

- Accenture
- Alliant Energy
- Burns & McDonnell
- Cargill
- Caterpillar
- Cerner
- Civo Medical Instruments
- Cook, Inc.
- Epic Systems
- Exelon Corp.
- Federal Express
- General Electric
- General Mills
- HNI
- Howard R. Green
- Iowa Department of Natural Resources
- John Deere
- KJWW Engineering
- Whirlpool/Amana
- MidAmerican Energy
- Monsanto
- Motorola
- Nestle Purina
- Pella Corp.
- Rock Island Arsenal
- Siemens
- Rockwell Collins
- Rockwell Collins
- Stanley Consultants
- Union Pacific Railroad
- UPS
- Vital Images

For a more comprehensive list of companies hiring our graduates, and other employment statistics, go to www.engineering.uiowa.edu/epd.
APPLYING for Admission

Apply electronically at www.uiowa.edu/admissions/apply.htm.

You are guaranteed to be admitted into the College of Engineering if you:

• Submit a complete application—including test scores, transcripts, and the $40 application fee—by the priority filing date of Feb. 1.

• Successfully complete the high school course requirements outlined in the chart below; and

• Present ACT math and composite scores of 25 or higher (630 SAT math and 1130 combined SAT critical reading and math scores) and present a Regent Admission Index score of 265 or higher.

Visit www2.state.ia.us/regents/rai to calculate your score.

High School Course Requirements for Engineering

<table>
<thead>
<tr>
<th>Subject Area</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>English/Language Arts</td>
<td>4</td>
</tr>
<tr>
<td>Single Foreign Language</td>
<td>2</td>
</tr>
<tr>
<td>Science*</td>
<td>3</td>
</tr>
<tr>
<td>Social Studies</td>
<td>2</td>
</tr>
<tr>
<td>Mathematics</td>
<td></td>
</tr>
<tr>
<td>Algebra</td>
<td>2</td>
</tr>
<tr>
<td>Geometry</td>
<td>1</td>
</tr>
<tr>
<td>Higher Mathematics</td>
<td>1</td>
</tr>
<tr>
<td>(trigonometry, analysis, calculus, etc.)</td>
<td></td>
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</tbody>
</table>

* Includes one year each of chemistry and physics in the three units.

If you do not meet the standards for guaranteed admission (and/or if your high school does not rank students), your application will be considered through our individual review process.

• Engineering applicants who have a strong math and science background do not need to submit additional materials.

• If your math and science background is not strong, submit a personal statement about any special circumstances that may have contributed to your not meeting our published standards.

• You also may choose to submit a letter of recommendation from a math and/or a science teacher about your abilities to be academically successful in the math and science courses required in an engineering curriculum.

Transfer students

Applicants must have the following characteristics:

• Demonstrated success in math, science, and engineering courses (ideally all A’s and B’s in these subjects, with no grade lower than a C); and

• Completed Calculus I and equivalent of either Iowa’s Principles of Chemistry or Introductory Physics (e.g., the first semester of chemistry designed for majors or first semester of calculus-based physics).

HELLO!

There’s no substitute for a campus visit. I encourage you to:

TAKE A TOUR.

Student-led tours of the Seams Center for the Engineering Arts and Sciences are 2:30-3:30 p.m., Monday-Friday (when school is in session), leaving from the Student Development Center in room 3124. Parents and friends are invited. Large groups should call in advance. There are also daily tours of campus.

SEE IOWA CITY.

Experience the town that Outside magazine ranked the No. 1 town in the Midwest.

TALK TO STUDENTS.

Get the inside story about the supportive atmosphere here and the high value the college places on your success. I encourage you to attend an Explore Engineering@Iowa or Hawkeye Visit Day program and talk to current students.

MEET WITH ME.

We can sit down face-to-face and talk about your goals and ambitions, admission to the program, what makes engineering at Iowa unique, and scholarships.

You will have the chance to meet current engineering students and learn what makes Iowa’s engineering program a great choice for high-achieving, multi-talented students.

To arrange a visit, call the Admission Visitors Center at 800-553-IOWA (4692). I look forward to meeting you.

Jane Dorman
Director of Engineering Admissions and First-Year Experience

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Director of Engineering Admissions and First-Year Experience

3124 Seams Center for the Engineering Arts and Sciences
Iowa City, IA 52242-1527
E-mail: engineering@uiowa.edu
319-335-7569 • 800-553-IOWA (4692)
www.engineering.uiowa.edu

Explore engineering@iowa

The College of Engineering hosts Saturday afternoon programs throughout the year that give you the opportunity to meet current students, faculty members, and other prospective students looking to join our team—and to find out why Iowa’s College of Engineering is a great option for bright students like you. The schedule includes a student panel discussion, a chance to talk with students about campus life, tours of interesting research labs, and an optional morning tour of campus.

To register for one of these programs, go to www.engineering.uiowa.edu/future-students/explore. To schedule a campus visit, contact the Office of Admissions at 800-553-IOWA (4692) or admissions@uiowa.edu. If you need more information about engineering@iowa, contact Jane Dorman, director of engineering admissions and first-year experience, at 800-553-IOWA (4692), extension 5-5769, or e-mail engineering@uiowa.edu.
Come visit The University of Iowa’s College of Engineering and learn about becoming an engineer and something more.

You’re admitted directly into engineering
Iowa doesn’t “weed out” students. From the moment you set foot on campus, we invest in your success.

You’ll be taught by professors, not TAs
We have a faculty of world-renowned scholars who make teaching their priority. With a 14-to-1 student-to-faculty ratio, you’ll work closely with professors in class and on projects.

More than 94% of our May 2007 graduates had a job in their field or had met their next academic goal (medical school, law school, etc.).

Women comprise 24% of our 2007 incoming class
Iowa’s College of Engineering has long been a leader in the percentage of doctoral and bachelor’s degrees awarded to women.

Our powerful combination:
small-college attention and a Big Ten engineering education gives you lots of opportunities for exploring your interests, developing your career, and having a remarkable college experience.