COMPUTER SCIENCE

Computer scientists identify and solve computational problems in all areas of modern life. They use a combination of technical skills and creativity to design and build software, to formulate solutions to computing problems and to invent new and better ways of using computers.

The discipline of computer science has many challenging, interesting and socially important careers that appeal to a diverse range of people. Computer scientists are not only employed by software companies, but also by health care companies, government agencies and educational institutions to name a few. In short, the computer science profession is multifaceted and has wide-ranging applications.

Computers are continually changing, so those who choose a career in computer science will become life-long learners and will be on the cutting edge of new trends in technology.

Pursuing Computer Science at UK

The UK College of Engineering Department of Computer Science was ranked 30th among U.S. Ph.D.-granting universities and 16th among public universities by Academic Analytics™. Department of Computer Science professors and instructors are readily available both inside and outside the classroom to discuss course material, emerging topics of research and the computing profession. Here at the University of Kentucky, you will be taught by professors who are recognized leaders in their respective fields and are outstanding teachers. Our faculty have expertise in computing foundations, algorithms, networking, systems, data mining, software engineering, and artificial intelligence. Faculty who recently joined our department bring additional strength in modern computer science topics such as machine learning, big data, mobile computing, security, and cyber-physical systems.

The Department of Computer Science is housed in the Davis Marksbury Building. This building is part of the University of Kentucky Digital Village–a special area of campus dedicated to "all things computing."

First-Year Engineering Program

The University of Kentucky First-Year Engineering program is designed to remove as much guesswork from your major selection as possible. Instead of pushing through a major you don't like, or adding time and expense by changing majors, you can make an informed choice thanks to hands-on, team experiences that expose you to all of our engineering disciplines from the start. If you are certain about your major, the program is still highly beneficial as it exposes you to other engineering disciplines that you will encounter in the workforce and teaches you skills that you will use throughout the remainder of your engineering curricula. If you are unsure about your major, you may enroll as "undeclared engineering" and choose your major during the second semester.

All incoming freshmen and transfer engineering students take part in the First-Year Engineering program. Freshmen students take a two-semester series which includes an overview of engineering disciplines, computer programming, computer-aided design, MATLAB, engineering design and analysis, project management, ethics in engineering, teamwork and oral and written technical communication. Transfer students complete a course series their first semester focused on similar topics. Studies have shown that students who participate in a First-Year Engineering Program are more successful in upper level engineering courses and are more inclined to graduate with an engineering degree.

Students may directly enroll as pre-engineering students in their chosen major; however, there are minimum admission requirements. Minimum freshman entry requirements are an ACT math score of 23 or a SAT math score of 570. Additionally, students must meet the university's minimum ACT/SAT reading and writing requirements to be admitted to the College of Engineering. Students not eligible to directly enroll in engineering should contact the director of recruitment at visit@engr.uky.edu for alternate pathways.

Experiential Education

Growth and learning also happen outside the classroom. They happen in research labs working alongside professors and graduate students. They happen on student design teams in the capstone design courses. They happen on cooperative education rotations and internships with companies all over the country. There are also numerous Education Abroad programs involving international travel and study.

Computer Science Curriculum Sample

This is a sample list of classes a student will take to pursue a degree in computer science. As part of the computer science curriculum, students must complete the pre-engineering requirements, major requirements and general education coursework, called UK Core.

Note: This sample represents one of several paths to a College of Engineering degree. Consult the departmental websites for details on specific paths.

Freshman Year

Engineering Exploration I and II	3
Fundamentals of Engr Computing	2
Calculus I and II	8
Chemistry I and Physics I and lab	9
Composition & Communication I and II	6
Intro to Program Design	4
Total hours	**32**

Sophomore Year

Intro to Software Engineering	3
Design of Logic Circuits	3
Calculus III	4
Discrete Mathematics	4
Systems Programming	3
Algorithm Design and Analysis	3
Technical elective	3
Science elective	3
UK Core courses	6
Total hours	**32**

Junior Year

Intro to Computer Networking	3
Intro to Numerical Methods	3
Logic and Theory of Computing	3
Engineering Statistics	3
Computer Science electives	12
Natural Science elective	3
Technical elective	3
UK Core course	3
Total hours	**33**

Senior Year

Software Engr for Senior Project	3
Senior Design Project	3
Computer Science electives	6
Technical electives	6
Non-technical electives	3
Free electives	7
UK Core course	3
Total hours	**31**

The Engineering Career Development Group is your one-stop shop for assisting you in the development of job, co-op and internship search skills, and building career networks to eventually help you secure a rewarding career in your chosen field of study.

Student Involvement

Student organizations are an outgrowth of student interest and serve the needs of a variety of students. Many provide programs that supplement the classroom experience and extend into areas of service for the community. All provide learning and leadership training for participating students.

Student organizations that are typically of interest to computer science students include: Association of Computing Machinery, Dot Diva, Upsilon Pi Epsilon, Society of Women Engineers, and others. The UK Association for Computing Machinery hosts Hackathon events and programming contests.

Career Prospects in Computer Science

Worried about what you will do after graduation? There is good news here. According to the Bureau of Labor Statistics, computer occupations will constitute 57% of all job openings in STEM (science, technology, engineering and mathematics) fields from 2012-2022. The Bureau of Labor Statistics has also projected that employment of computer software engineers and computer programmers will increase much faster than the average for all occupations–around 21% between 2008 and 2018. Related occupations, such as Information Technology Managers, have similar prospects for growth.

Computer science is a gateway to many fields. A computer science education will give you a solid grounding in logic, strategic and critical thinking and teamwork–skills that you can use whether you choose to go on to medical school, business school, law school or another field.

The University of Kentucky's computer science program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Revised July 2017. Information subject to change. For the most up-to-date information on the UK College of Engineering, visit www.engr.uky.edu.

UK College of Engineering