

Cornell Engineering

Department of Information Science and
School of Operations Research and Information Engineering

OPERATIONS RESEARCH AND ENGINEERING UNDERGRADUATE DEGREE PROGRAM

Information technologies have become pervasive in business, finance, medicine, healthcare, education, government, law, manufacturing, and physical sciences, dramatically changing the way people work and live. The proliferation and significance of these new technologies demands a new focus in engineering education. This focus remains rigorous and technically oriented, while simultaneously being devoted to the integration of engineering design, practice, and theory.

The major in information science, systems, and technology (ISST) studies the design, implementation, and management of complex information systems. In addition to understanding the computing and communication technologies that underlie digital information systems, the ISST program emphasizes information systems engineering in broad applications, where issues at the confluence of information science, technology, and increasingly rich interactions between information systems and their human audiences are the primary concerns.

Students take classes in operations research modeling techniques of probability, statistics, and optimization; computer science; economics; and the social and organizational contexts in which transformative information systems exist. Students in the major specialize in one of two options:

- The **information science** option educates students in methods for the creation, representation, organization, access, and analysis of information in digital form. Students who choose the information science option take classes in information systems, mathematical modeling in IT, human-centered systems, and social systems.
- The **management science** option teaches methods for quantitative decision-making and their application to information technology (IT), as well as the broader role that IT plays in making these methods effective. Management science students take advanced courses in mathematical models in management science, information systems, mathematical modeling in IT, and information technology management solutions.

Students then take seven additional required courses in three areas: economic, organizational, and social context; information systems; and probability, statistics, and optimization. Students next take seven advanced courses to complete the selected specialization option. Students complete the major by taking two

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ISST REQUIRED COURSES

Economic, Organizational, and Social Context

INFO 2040 Networks

And one of the following:

INFO 2450 Communication and Technology
or

ENGRC 3350 Communications for Engineering
Managers

Information Systems

INFO 2300 Intermediate Design and
Programming for the Web

ORIE 3800 Information Systems & Analysis

And one of the following:

INFO 3300 Data-Driven Web Applications
or

INFO 4300 Information Retrieval

Probability, Statistics, and Optimization

ORIE 3300 Optimization I

ORIE 3500 Engineering Probability and
Statistics II

INFORMATION SCIENCE, SYSTEMS, AND TECHNOLOGY



SOME AREAS OF FACULTY RESEARCH

computer-mediated communication

economics of information

human-computer interaction

information technology policy

machine learning

mobile systems

natural-language processing

social and information networks

additional major-approved technical electives.

Majoring in ISST will open up career opportunities in a variety of fields including: the design and development of technology for business, education, healthcare, and the entertainment industry; data science; software, mobile and wearable product development; and IT consulting. Students can also pursue graduate degrees in other fields.

MASTER OF PROFESSIONAL STUDIES PROGRAM

The one-year Master of Professional Studies (M.P.S.) in information science will prepare you to hit the ground running and to stand out in your career in the rapidly changing field of information technology.

Potential careers include the design, development, and management of big data systems, the definition and implementation of information policy related to technology, the design, implementation of human-centered data science applications, and the creation and dissemination of innovative information media.

ISST SAMPLE ELECTIVE COURSES

CS 4740	Introduction to Natural Language Processing
CS 5150	Software Engineering
INFO 3450	Human-Computer Interaction Design
INFO 4120	Ubiquitous Computing
INFO 4130	Health & Computation
INFO 4220	Networks II
INFO 4240	Designing Technology for Social Impact
INFO 4250	Surveillance and Privacy
INFO 4320	Introduction to Rapid Prototyping and Physical Computing
ORIE 4350	Introduction to Game Theory
ORIE 4580	Simulation Modeling and Analysis
ORIE 4740	Statistical Data Mining I
ORIE 5126	Principles of Supply Chain Management

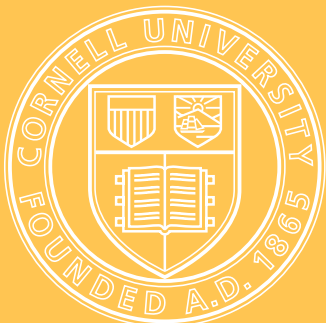
ISST By the Numbers

Information Science, Systems and Technology undergraduate students	473
College of Agriculture and Life Sciences	213
College of Arts and Sciences	198
College of Engineering	62

Information Science graduate (M.P.S.) students 86

Starting salaries of B.S. Information Science, Systems, and Technology graduates (for 2018)

Low	\$47,000
Median	\$87,250
High	\$110,000



Cornell University is an equal-opportunity affirmative-action educator and employer. Produced by the Office of Engineering Admissions.

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