INFORMATION SCIENCE MINOR

Bowers College of Computing and Information Science, College of Engineering

Program Website (https://infosci.cornell.edu/undergraduate/undergraduate-minor-info-sci/)

Program Description

A minor in information science is available to students in the Colleges of Agriculture and Life Sciences; Architecture, Art, and Planning; Arts and Sciences; Engineering; Human Ecology; and the Schools of Hotel Administration, Industrial and Labor Relations, and Public Policy. Because of small differences in regulations between the colleges, the requirements may vary slightly, depending on a student's college and, in a few cases, a student's major. Students interested in pursuing the information science minor must initiate the process by sending an e-mail message with their name, college, year of study (e.g., second-semester sophomore), expected graduation date, (intended) major, and minor concentration selection to ISadvising@cornell.edu.

When all minor courses are finished, or during the final semester of study, students must complete the IS Minor Certification Form (https://docs.google.com/forms/d/e/1FAIpQLSfz7q7c6l1bdou5J7s1O3C2PGEBkljgsMO5ASbc_bZZ463a6g/viewform/?usp=sf_link). Once the form has been processed, the IS Advising office will contact students to confirm certification.

Submission Deadline: If graduating in May or August, the form is due by 5/31. If graduating in December, the form is due by 12/31. Late submissions will not be accepted.

Minor Requirements

- A grade of C or higher is required for all classes counting towards the minor. S/U graded courses are not allowed.
- No class substitutions or petitions are allowed.
- No transfer credit or study abroad credits are accepted for the minor.
- Courses cannot count more than once within the minor.
- Due to high demand for courses among Bowers CIS majors (CS, IS/ISST, Stats), enrollment cannot be guaranteed for students pursuing the minor. Please see the Information Science Enrollment & Waitlist page (https://infosci.cornell.edu/courses/enrollmentwaitlist/) for additional details regarding course enrollment.
- The IS minor is available to all students, in every undergraduate college at Cornell except those majoring in Information Science (IS) or Information Science, Systems, and Technology (ISST).
- Given the overlap of INFO courses in the IS Minor (Data Science concentration) and the Data Science Minor (https://catalog.cornell.edu/programs/data-science-minor/), students cannot declare both.

Program Requirements by College

Students in the College of Agriculture and Life Sciences; College of Architecture, Art, and Planning; College of Arts and Sciences; School of Brooks Public Policy; College of Human Ecology; and the Industrial and Labor Relation School must fulfill the below requirements to successfully complete the IS Minor.

Code	Title	Hours
Core Requirement		1 Course
Concentration Courses		3 Courses
Elective [1]		2 Courses

[1] Elective courses can be from any concentration, including core requirements. INFO 1300 may count as an elective.

Students in the **College of Engineering** must fulfill the below requirements to successfully complete the IS Minor.

Code	Title	Hours
Core Requirement		1 Course
Concentration Courses		3 Courses
Elective [1]		2 Courses

[1] Elective courses can be from any concentration, including core requirements. INFO 1300 Introductory Design and Programming for the Web may count as an elective.

Students in the **Nolan School** must fulfill the below requirements to successfully complete the IS Minor.

Code	Title	Hours
Core Requirement		1 Course
Concentration Courses		2 Courses
HADM 3740	Fundamentals of Database Management and Data Analysis	3
Elective [1]		1 Course
AEM 3220	Digital Business Strategy	
or HADM 4897	The Law of the Internet and E-Commerce	

[1] Elective courses can be from any concentration, including core requirements. INFO 1300 may count as an elective.

Program Requirements by Concentration

Behavioral Science

Code	Title	Hours
Core Requirement		
INFO 2450	Communication and Technology	3
Concentration Courses *		**2-3 Courses**
COMM 4380	Communication in Virtual Worlds	3
COMM 4940	Special Topics in Communication	1-3
CS 3780	Introduction to Machine Learning	4

CS 4740	Natural Language Processing	4
INFO 3200	Technology, Behavior and Society	3
INFO 3300	Visual Data Analytics for the Web	3
INFO 3450	Human-Computer Interaction Design	3
INFO 3950	Data Analytics for Information Science	3
INFO 4100	Learning Analytics	3
INFO 4140	Law, Policy, and Politics of Cybersecurity	3
INFO 4240	Designing Technology for Social Impact	4
INFO 4300	Language and Information	3
INFO 4350	Conversations and Information	3
INFO 4360	Communication Networks and Social Capital	3
INFO 4400	Qualitative User Research and Design Methods	3
INFO 4430	Teams and Technology	3
INFO 4450	Computer-Mediated Communication	3
INFO 4490	Social Behavior and Technology	3
INFO 4500	Language and Technology	3
INFO 4505	Computing and Global Development	3
INFO 4940	Special Topics in Information Science	1-4
Applied Machine Learning: Methods and Applications		
How LLMs Work, Their Potential, and Limitations		
Law, Policy, and Politics of Artificial Intelligence (AI)		
Technology and Social Change Practicum		
Building Inclusive Computing Organizations		
PSYCH 3800	Social Cognition	3

* Number of required Concentration Courses is dependent on the student's college.

Data Science

Code	Title	Hours
Core Requirement		
INFO 2950	Introduction to Data Science	4
or INFO 2951	Introduction to Data Science with R	
Concentration Courses *		**2-3 Courses**
COMM 3150	Organizational Communication: Theory and Practice	3
COMM 4860	Risk Communication	3
COMM 4940	Special Topics in Communication	1-3
Data and Technology for Organizing		
CS 3780	Introduction to Machine Learning	4
CS 4740	Natural Language Processing	4
ENGL 3778	Free Speech, Censorship, and the Age of Global Media	4
GOVT 3189	Taking America's Pulse: Creating and Conducting a National Opinion Poll	3-4
INFO 2770	Excursions in Computational Sustainability	3
INFO 3130	Data and the State: How Governments See People and Places	4
INFO 3200	Technology, Behavior and Society	3
INFO 3300	Visual Data Analytics for the Web	3
INFO 3312	Data Communication	3
INFO 3350	Text Mining History and Literature	3
INFO 3370	Studying Social Inequality Using Data Science	3
INFO 3900	Causal Inference	3
INFO 3950	Data Analytics for Information Science	3
INFO 4100	Learning Analytics	3
INFO 4120	Ubiquitous Computing	3
INFO 4140	Law, Policy, and Politics of Cybersecurity	3
INFO 4145	Privacy and Security in the Data Economy	3
INFO 4200	Information Policy: Applied Research and Analysis	3
INFO 4240	Designing Technology for Social Impact	4
INFO 4250	Surveillance and Privacy	3
INFO 4260	Computing On Earth: Planetary Dimensions and Consequence of Computing	3
INFO 4300	Language and Information	3
INFO 4310	Interactive Information Visualization	3
INFO 4350	Conversations and Information	3
INFO 4390	Practical Principles for Designing Fair Algorithms	3
INFO 4561	Evaluation and Society	4
INFO 4940	Special Topics in Information Science	1-4
Advanced NLP for Humanities Research		
Applied Machine Learning: Methods and Applications		
Building Inclusive Computing Organizations		
How LLMs Work, Their Potential, and Limitations		
Law, Policy, and Politics of Artificial Intelligence (AI)		
Technology and Social Change Practicum		
U.S. Copyright Law		
ORIE 3120	Practical Tools for Operations Research, Machine Learning and Data Science	4
ORIE 3741	Learning with Big Messy Data	4
ORIE 4740	Statistical Data Mining I	4
PUBPOL 3460	Culture, Law, and Politics of Information Policy	3
SOC 3580	Big Data on the Social World	3
STSCI 3740	Data Mining and Machine Learning	4

* Number of required Concentration Courses is dependent on the student's college.

Digital Culture and Production

Code	Title	Hours
Core Requirement		
INFO 3561	Computing Cultures [1]	4
or INFO 2921	Inventing an Information Society	
or INFO 3200	Technology, Behavior and Society	
or INFO 4140	Law, Policy, and Politics of Cybersecurity	
or INFO 4260	Computing On Earth: Planetary Dimensions and Consequence of Computing	
or INFO 4940	Special Topics in Information Science	
Concentration Courses *		**2-3 Courses**
ART 3705	Media Arts, Performance, and Sound: Sound	4
ARTH 4151	Topics in Media Arts	3
COML 3115		3
CS 4620	Introduction to Computer Graphics	3
CS 4758	Autonomous Mobile Robots	3

INFO 2300	Server-Side Web Development	4
INFO 2310	Interactive Web Development	4
INFO 2921	Inventing an Information Society	3
INFO 3152	Introduction to Computer Game Design	4
INFO 3200	Technology, Behavior and Society	3
INFO 3300	Visual Data Analytics for the Web	3
INFO 3450	Human-Computer Interaction Design	3
INFO 3660	History and Theory of Digital Art	3
INFO 4140	Law, Policy, and Politics of Cybersecurity	3
INFO 4152	Advanced Topics in Computer Game Design	3
INFO 4240	Designing Technology for Social Impact	4
INFO 4260	Computing On Earth: Planetary Dimensions and Consequence of Computing	3
INFO 4320	Introduction to Rapid Prototyping and Physical Computing	4
INFO 4400	Qualitative User Research and Design Methods	3
INFO 4420	Human Computer Interaction Studio	4
INFO 4940	Special Topics in Information Science	1-4
Clockwork: Infrastructure, Work, and Time		
Design Thinking, Media, and Community		
Human Centered Design and Engaged Media		
Law, Policy, and Politics of Artificial Intelligence (AI)		
Producing Culture About, With, and Through Tech		
Technology and Social Change Practicum		
U.S. Copyright Law		
STS 4040	Digital Due Process Clinic	4

* Number of required concentration courses is dependent on the student's college.

[1] The below INFO 4940 topics can be used to fulfill the Core Requirement:

- Clockwork: Infrastructure
- Work, and Time
- Law, Policy, and Politics of AI
- U.S. Copyright Law

Information Ethics, Law, and Policy

Code	Title	Hours
Core Requirement		
INFO 1200	Information Ethics, Law, and Policy	3
or INFO 1260	Choices and Consequences in Computing	
Concentration Courses *		**2-3 Courses**
COMM 4940	Special Topics in Communication	1-3
Human-Algorithm Behavior		
HADM 4890	The Law of the Internet and E-Commerce	3
INFO 2921	Inventing an Information Society	3
INFO 3200	Technology, Behavior and Society	3
INFO 3300	Visual Data Analytics for the Web	3
INFO 3350	Text Mining History and Literature	3
INFO 3370	Studying Social Inequality Using Data Science	3
INFO 4100	Learning Analytics	3
INFO 4113	Technology and Law Colloquium	3
INFO 4120	Ubiquitous Computing	3
INFO 4140	Law, Policy, and Politics of Cybersecurity	3
INFO 4145	Privacy and Security in the Data Economy	3
INFO 4200	Information Policy: Applied Research and Analysis	3
INFO 4240	Designing Technology for Social Impact	4
INFO 4250	Surveillance and Privacy	3
INFO 4260	Computing On Earth: Planetary Dimensions and Consequence of Computing	3
INFO 4300	Language and Information	3
INFO 4301	Ethics in New Media, Technology, and Communication	3
INFO 4350	Conversations and Information	3
INFO 4390	Practical Principles for Designing Fair Algorithms	3
INFO 4561	Evaluation and Society	4
INFO 4940	Special Topics in Information Science	1-4
Clockwork: Infrastructure, Work, and Time		
Technology and Social Change Practicum		
U.S. Copyright Law		
Law, Policy, and Politics of Artificial Intelligence (AI)		
PUBPOL 2300	Introduction to Policy Analysis	4
or PUBPOL 2301	Introduction to Public Policy	
PUBPOL 3460	Culture, Law, and Politics of Information Policy	3

* Number of required Concentration Courses is dependent on the student's college.

Interactive Technologies

Code	Title	Hours
Core Requirement		
INFO 4120	Ubiquitous Computing	3
or INFO 4320	Introduction to Rapid Prototyping and Physical Computing	
Concentration Courses *		**2-3 Courses**
CS 3780	Introduction to Machine Learning	4
CS 4620	Introduction to Computer Graphics	3
CS 4758	Autonomous Mobile Robots	3
CS 5150	Software Engineering	4
INFO 3300	Visual Data Analytics for the Web	3
INFO 4120	Ubiquitous Computing	3
INFO 4152	Advanced Topics in Computer Game Design	3
INFO 4310	Interactive Information Visualization	3
INFO 4320	Introduction to Rapid Prototyping and Physical Computing	4
INFO 4340	App Design and Prototyping	3
INFO 4410	Re-Designing Robots	3
INFO 4430	Teams and Technology	3
INFO 4505	Computing and Global Development	3
INFO 4555	Business Intelligence Systems	4
INFO 4940	Special Topics in Information Science	1-4
Human-AI Interaction Design Research		
Producing Culture About, With, and Through Tech		

ORIE 3120	Practical Tools for Operations Research, Machine Learning and Data Science	4
ORIE 3741	Learning with Big Messy Data	4
ORIE 4740	Statistical Data Mining I	4
STSCI 3740	Data Mining and Machine Learning	4

* Number of required Concentration Courses is dependent on the student's college.

Networks, Crowds, and Markets

Code	Title	Hours
Core Requirement		
INFO 2024		
Concentration Courses *		**2-3 Courses**
COMM 3150	Organizational Communication: Theory and Practice	3
COMM 4940	Special Topics in Communication	1-3
Human-Algorithm Behavior		
CS 3780	Introduction to Machine Learning	4
CS 4740	Natural Language Processing	4
ECON 3120	Applied Econometrics	4
ECON 3140	Econometrics	4
ECON 3810	Decision Theory I	3
ECON 4020	Game Theory I	3
ECON 4022		3
ECON 4022		3
ECON 4610	Industrial Organization I	3
ECON 4660	Behavioral Economics	4
INFO 3300	Visual Data Analytics for the Web	3
INFO 3950	Data Analytics for Information Science	3
INFO 4140	Law, Policy, and Politics of Cybersecurity	3
INFO 4145	Privacy and Security in the Data Economy	3
INFO 4200	Information Policy: Applied Research and Analysis	3
INFO 4220	Networks II: Market Design	3
INFO 4240	Designing Technology for Social Impact	4
INFO 4250	Surveillance and Privacy	3
INFO 4300	Language and Information	3
INFO 4350	Conversations and Information	3
INFO 4940	Special Topics in Information Science	1-4
Applied Machine Learning: Methods and Applications		
Law, Policy, and Politics of Artificial Intelligence (AI)		
Social Dynamics and Network Analytics		
Technology and Social Change Practicum		
U.S. Copyright Law		
INFO 4360	Communication Networks and Social Capital	3
ORIE 4350	Introduction to Game Theory	4
PUBPOL 3460	Culture, Law, and Politics of Information Policy	3
SOC 3080	Social Networks and Power	3

* Number of required Concentration Courses is dependent on the student's college.

User Experience

Code	Title	Hours
Core Requirement		
INFO 2450	Communication and Technology	3
Concentration Courses *		**2-3 Courses**
COMM 4380	Communication in Virtual Worlds	3
CS 5150	Software Engineering	4
INFO 2921	Inventing an Information Society	3
INFO 3152	Introduction to Computer Game Design [1]	4
INFO 3450	Human-Computer Interaction Design	3
INFO 4125	Project Management	3
INFO 4152	Advanced Topics in Computer Game Design [1]	3
INFO 4240	Designing Technology for Social Impact	4
INFO 4310	Interactive Information Visualization	3
INFO 4320	Introduction to Rapid Prototyping and Physical Computing	4
INFO 4340	App Design and Prototyping	3
INFO 4400	Qualitative User Research and Design Methods	3
INFO 4410	Re-Designing Robots	3
INFO 4420	Human Computer Interaction Studio	4
INFO 4430	Teams and Technology	3
INFO 4450	Computer-Mediated Communication	3
INFO 4490	Social Behavior and Technology	3
INFO 4505	Computing and Global Development	3
INFO 4940	Special Topics in Information Science	1-4
Clockwork: Infrastructure, Work, and Time		
Design Thinking, Media, and Community		
Designing AI Products & Services		
Human-AI Interaction Design Research		
Technology and Social Change Practicum		
PSYCH 3420	Human Perception: Application to Computer Graphics, Art, and Visual Display	3

* Number of required Concentration Courses is dependent on the student's college.

[1] Cross-listed courses may count towards the IS Minor with the exception of INFO 3152 Introduction to Computer Game Design and INFO 4152 Advanced Topics in Computer Game Design. The INFO listing of those two courses must be taken in order to be applied towards the minor.

Graduation Requirements for Engineering Minor Degree Programs

Requirements

Students may pursue minors in any department in any college that offers them, subject to limitations placed by the department offering the minor or by the students' major. Completed minors will appear on the student's transcript. Not all departments offer minors. Additional information on specific minors can be found above, in the *Engineering Undergraduate Handbook*, in the undergraduate major office of the department or school offering the minor, and in Engineering Advising.

An engineering minor recognizes formal study of a particular subject area in engineering normally outside the major. Students undertaking a minor are expected to complete the requirements during the time of their continuous undergraduate enrollment at Cornell. Completing the requirements for an engineering minor (along with a major) may require more than the traditional eight semesters at Cornell. However, courses that fulfill minor requirements may also satisfy other degree requirements (e.g., distribution courses, advisor-approved, or major-approved electives), and completion within eight semesters is possible.

An engineering minor requires:

- successful completion of all requirements for an undergraduate degree.
- enrollment in a major that approves participation in the minor.
- satisfactory completion of six courses (at least 18 credits) in a college-approved minor.

Students may apply for certification of a minor at any time after the required course work has been completed in accordance with published standards. An official notation of certification of a minor appears on the Cornell transcript following graduation.