INFORMATION SCIENCE

Information science considers the relationships between people, places and technology and the information those interactions yield. The internet is a broad example of a socio-technical system that is comprised of hardware and software, but in daily life is better understood as a constantly changing social infrastructure upon which complex forms of human-human and human-information interaction rest. Scholars and students of information science develop new methods to study these socio-technical phenomena, and translate those findings to the design and development of useful and meaningful technology.

The department will equip students with the conceptual machinery to succeed in a future characterized by new ways of working with information and communication technology. The knowledge and skills of our graduates will enable them to participate in and shape new structures of enterprise. Customized, creative production—as in the "maker culture" movement—is expanding notions of the enterprise, as are distributed and mobile workforces.

The MS (under development) and PhD degrees align with standards set by other universities. Both include liberal arts education combined with empirical work and computing knowledge, and both incorporate the grant-driven, collaborative "lab model" research that characterizes the natural and engineering sciences.

Course code for this program is INFO.

Doctoral Degree

- Information Science - Doctor of Philosophy (PhD)
  (catalog.colorado.edu/graduate/colleges-schools/media-communication-information/programs-study/information-science/information-science-doctor-philosophy-phd/)

Faculty

While many faculty teach both undergraduate and graduate students, some instruct students at the undergraduate level only. For more information, contact the faculty member’s home department.

Aspray, William (https://experts.colorado.edu/display/fisid_157989/)
Professor, PhD, University of Wisconsin–Madison

Barker, Lecia Jane (https://experts.colorado.edu/display/fisid_101367/)
Associate Professor, PhD, University of Colorado Boulder

Brubaker, Jed Richards (https://experts.colorado.edu/display/fisid_156193/)
Assistant Professor, PhD, University of California, Irvine

Burke, Robin D. (https://experts.colorado.edu/display/fisid_165005/)
Professor, PhD, Northwestern University

Devendorf, Laura (https://experts.colorado.edu/display/fisid_158564/)
Assistant Professor, PhD, University of California, Berkeley

Fiesler, Casey Lynn (https://experts.colorado.edu/display/fisid_155950/)
Assistant Professor, PhD, Georgia Institute of Technology

Keegan, Brian (https://experts.colorado.edu/display/fisid_158122/)
Assistant Professor, PhD, Northwestern University

Palen, Leysia A. (https://experts.colorado.edu/display/fisid_114604/)
Chair, Professor, PhD, University of California, Irvine

Paul, Michael J. (https://experts.colorado.edu/display/fisid_156070/)
Assistant Professor, PhD, Johns Hopkins University

Roque, Ricarose (https://experts.colorado.edu/display/fisid_158315/)
Assistant Professor, PhD, Massachusetts Institute of Technology

Szafrir, Danielle N. (https://experts.colorado.edu/display/fisid_156317/)
Assistant Professor, PhD, University of Wisconsin–Madison

Voida, Amy Kathryn Mitchell (https://experts.colorado.edu/display/fisid_155855/)
Associate Chair, Assistant Professor, PhD, Georgia Institute of Technology

Voida, Stephen A. (https://experts.colorado.edu/display/fisid_158566/)
Assistant Professor, PhD, Georgia Institute of Technology

Courses

INFO 5301 (3) Computation for Research in Information Science
Introduces principles of computational thinking through the manipulation, transformation and creation of data artifacts used in research. Students will be exposed to a high-level overview of algorithms, functions, data structures, recursion and object-oriented computer programming through a series of assignments that emphasize the use of computation as a means of scholarship.

Grading Basis: Letter Grade

INFO 5501 (3) Investigations in Information Science: Online Collaboration
Analyzes the mechanisms of peer production and crowdsourcing systems like Wikipedia and OpenStreetMap. Students will investigate how these crowdsourced platforms work socially and technically, develop skills using tools for their analysis and critically evaluate platform and community limitations.

Equivalent - Duplicate Degree Credit Not Granted: INFO 3501

Grading Basis: Letter Grade

INFO 5502 (3) Investigations in Information Science: Online Communities
Explores practical and theoretical topics in online communities through inquiry into one or more particular online communities. Student projects will explore online communities as social and technical systems, including their alignment with conceptualizations of community, expressed and apparent interests, nature of membership and participation, history, participants’ motivations for involvement, and explicit, implicit, and infrastructural features that enable and constrain behaviors.

Equivalent - Duplicate Degree Credit Not Granted: INFO 3502

Grading Basis: Letter Grade

INFO 5503 (3) Investigations in Information Science: Everyday Information Behavior
Familiarizes students with practical and theoretical topics in the discipline of information behavior and its application to everyday events, activities and environments. Explores the information dimension of various everyday activities such as buying a car, playing a game or looking up health information on line. Students learn to analyze the informational dimensions that occur in their everyday lives.

Equivalent - Duplicate Degree Credit Not Granted: INFO 3503

Grading Basis: Letter Grade
INFO 5504 (3) Investigations in Information Science: Digital Identity
Explores and analyzes identity in a digital era. Through applied research, students investigate both social and technical aspects of how identity is captured, represented and experienced through technology using theoretical, empirical and design-based inquiry. Methods and platforms studied vary by semester. "Problems in Information Science" is a series that brings contemporary research to the classroom in the form of progress, project-based inquiry.

Equivalent - Duplicate Degree Credit Not Granted: INFO 3504
Grading Basis: Letter Grade

INFO 5505 (3) Investigations in Information Science: Designing for Creativity and Learning
Analyzes learning technologies, discusses learning theories and develops prototypes to investigate strategies for engaging people in creative and inclusive learning experiences. Students explore design, learning and technology by examining sociotechnical systems like construction kits, online communities and makerspaces with a critical lens on equity and inclusion. Studio format enables students to apply constructivist ideas into the design of technology-enabled environments.

Equivalent - Duplicate Degree Credit Not Granted: INFO 3505
Grading Basis: Letter Grade

INFO 5506 (3) Investigations in Information Science: Online Fandom
Explores and analyzes fan communities in a digital context. Through applied research, students will investigate online spaces devoted to participatory and remix culture, media fandom, and fan creation. This class will draw concepts and methods from fan studies, social computing, ethnography, data science, and sociology to drive project-based inquiry.

Equivalent - Duplicate Degree Credit Not Granted: INFO 3506
Grading Basis: Letter Grade

INFO 5507 (3) Investigations in Information Science: Data and the Humanities
Introduces students to foundational computing and statistical concepts for analyzing humanities data. This course discusses the influence of digitization and data on humanist inquiry and exposes students to techniques for working with data in different areas of the humanities, including literature, history, and art. The course emphasizes technical practices involved in human data analysis. Comfort with programming is strongly encouraged.

Equivalent - Duplicate Degree Credit Not Granted: INFO 5507
Grading Basis: Letter Grade

INFO 5602 (3) Mastery in Information Science: Information Visualization
Explores the design, development and evaluation of information visualizations. Covers visual representations of data and provides hands-on experience with using and building exploratory tools and data narratives. Students create visualizations for a variety of domains and applications, working with stakeholders and their data. Covers interactive systems, user-centered and graphic design, perception, data storytelling and analysis, and insight generation. Programming knowledge is strongly encouraged.

Equivalent - Duplicate Degree Credit Not Granted: INFO 4602
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

INFO 5603 (3) Mastery in Information Science: Survey Research Design
Familiarizes students with practical and theoretical topics in using survey methods for conducting information science research. Through discussion and real world assignments, students will learn when and why to use surveys for collecting data; effective, efficient and ethical approaches to maximizing response; sampling issues; development of valid items and scales; and how to implement, analyze and report on survey data collection.

Equivalent - Duplicate Degree Credit Not Granted: INFO 4603
Grading Basis: Letter Grade

INFO 5604 (3) Mastery in Information Science: Applied Machine Learning
Introduces algorithms and tools for building intelligent computational systems. Methods will be surveyed for classification, regression and clustering in the context of applications such as document filtering and image recognition. Students will learn the theoretical underpinnings of common algorithms (drawing from mathematical disciplines including statistics and optimization) as well as the skills to apply machine learning in practice.

Equivalent - Duplicate Degree Credit Not Granted: INFO 4604
Grading Basis: Letter Grade

INFO 5605 (3) Mastery in Information Science: Ethnographic Research in Applied Settings
Familiarizes students with ethnography as a research tool as it is used in corporate and consulting research. Systematically explores issues and topics in research for the purposes of product design and development.

Equivalent - Duplicate Degree Credit Not Granted: INFO 4605
Grading Basis: Letter Grade

INFO 5606 (3) Critical Technical Practice
Surveys design theory and methods that can be used to question relationships between technology, culture, and the environment. Students will discuss readings and synthesize those readings through design exercises. The course will equip students with resources for thinking more critically and creatively about design and possible future human-technology relationships. Counts as Mastery in Information Science.

Equivalent - Duplicate Degree Credit Not Granted: INFO 4606, ATLS 4606, and ATLS 5606
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade
INFO 5607 (3) Software Engineering for Data-Centered Systems
Explores design and engineering of systems for data storage and analysis. Introduces fundamental development concepts used in real-world data systems. By combining software engineering with knowledge from data science and human-centered computing, prepares students to develop systems, interpret and modify codebases, understand modern concepts for managing data at scale, and work in teams to create cutting-edge applications for consumer use. Counts as Mastery in Information Science.
Equivalent - Duplicate Degree Credit Not Granted: INFO 4607
Requisites: Requires prerequisites of INFO 2201 or CSCI 2270 (all minimum grade C-). Restricted to students with 57-180 credits (Junior or Senior)
Grading Basis: Letter Grade

INFO 5608 (3) Community-Based Design
Surveys techniques in participatory and cooperative design with community members as collaborators rather than subjects. Students will explore and critique the approaches of designing for, with, and by communities such as user-centered design, participatory design, and co-design. Students will engage in design exercises in class and will work in teams to design and develop a project in partnership with community partners. Counts as Mastery in Information Science.
Equivalent - Duplicate Degree Credit Not Granted: INFO 4608
Grading Basis: Letter Grade

INFO 5609 (3) User-Centered Design
Surveys the theoretical and practical foundations of human-computer interaction and user-centered design. Students learn theories of interaction (including cognitive, organizational, collaborative, and task-based approaches), user interface design techniques, design guidelines, and usability testing in the context of developing technology. Course content is explored through a variety of interfaces (desktop, mobile, touch, vision, audio, etc.) and contexts (personal, organizational, cross-cultural, etc.). Counts as Mastery in Information Science.
Equivalent - Duplicate Degree Credit Not Granted: INFO 4609
Grading Basis: Letter Grade

INFO 5611 (3) Ubiquitous Computer Experience Design
Introduces the field of ubiquitous computing, including sensors, ambient displays, tangibles, mobility, location awareness and context awareness. These topics are explored from a user-centered design perspectives, focusing on how a situated models of computing affect requirements gathering, interaction design, prototyping and evaluation. Students gain mastery with contemporary "UbiComp" technologies and learn to incorporate them into a user-centered design process. Counts as Mastery in Information Science.
Equivalent - Duplicate Degree Credit Not Granted: INFO 4611
Grading Basis: Letter Grade

INFO 5613 (3) Network Science
Introduces theories and methods for analyzing relational data in social, information, and other complex networks. Students will understand the processes and theories explaining network structure and dynamics as well as develop skills analyzing and visualizing real-world network data. No math or statistics training required, but course will assume familiarity with Python. Counts as Mastery in Information Science.
Equivalent - Duplicate Degree Credit Not Granted: INFO 4613
Grading Basis: Letter Grade

INFO 5841 (1-3) Independent Study
Independent Study
Repeatable: Repeatable for up to 9.00 total credit hours. Allows multiple enrollment in term.
Requisites: Restricted to graduate students only.

INFO 5871 (3) Special Topics
Topics will vary by semester.
Repeatable: Repeatable for up to 15.00 total credit hours. Allows multiple enrollment in term.
Requisites: Restricted to graduate students only.

INFO 5931 (1-3) Internship
Internship
Repeatable: Repeatable for up to 6.00 total credit hours.
Requisites: Restricted to graduate students only.

INFO 6101 (3) Theories and Concepts in Information Science
Surveys foundational theories and concepts in information science. Students will learn to read and reflect critically about seminal texts, tracing their intellectual genealogies from a variety of originating disciplines to their appropriation by information science. Students will apply these theories to contemporary issues and problems.
Requisites: Restricted to Information Science (INFO) Ph.D. graduate students only.
Grading Basis: Letter Grade

INFO 6201 (3) Interdisciplinary Ways of Knowing
Introduces principles of research design and surveys the breadth of research methods appropriated by the field of information science. Students will explore the diversity of epistemological orientations that make up the field, that influence the types of often mixed research methods applied and that shape the kinds of questions that are and are not explored.
Requisites: Restricted to Information Science (INFO) Ph.D. graduate students only.
Grading Basis: Letter Grade

INFO 6301 (3) Computation for Research in Information Science
Examines the diversity of roles that computation can play in information science research, ranging from an overview of some data-driven practices to prototyping and infrastructure development to computation-as-research-support. Provides students with a level of computational literacy to engage with the multiplicity of roles that computation serves in the different kinds of research work that is happening across the domain, including exemplars of different kinds of technical contributions and approaches.
Grading Basis: Letter Grade

INFO 6401 (3) Information and Ideas in Design Disciplines
Introduces fundamental principles and practices from user-centered design disciplines and examines how those principles and practices intersect with contemporary issues in information science. Theory, research and exemplary practices from interaction, graphic, product, communication and experience design are introduced through readings, problems and case histories. Projects provide direct experience with common design tools and exposure to leading practitioners.
Grading Basis: Letter Grade

INFO 6500 (1) Information Science Seminar
Encultivates graduate students in the discipline of Information Science through weekly seminar series that hosts guest speakers, internal faculty and graduate speakers and other community building and professional development activities.
Repeatable: Repeatable for up to 8.00 total credit hours.
Grading Basis: Letter Grade

INFO 6871 (3) Special Topics
Topics will vary by semester.
Repeatable: Repeatable for up to 15.00 total credit hours. Allows multiple enrollment in term.
Requisites: Restricted to graduate students only.
INFO 6950 (1-6) Master's Thesis
Designing, researching and writing a master’s thesis under the supervision of the student’s advisors.
Repeatability: Repeatable for up to 6.00 total credit hours.

INFO 7000 (3) Introduction to Doctoral Studies in Information Science
Introduces students to practices associated with successful advancement in a doctoral program, rigorous scholarship in information science and more expert and early participation in their scholarly community of practice.
Requisites: Restricted to Information Science (INFO) Ph.D. graduate students only.
Grading Basis: Letter Grade

INFO 7841 (1-3) Independent Study
Independent Study
Repeatability: Repeatable for up to 9.00 total credit hours. Allows multiple enrollment in term.
Requisites: Restricted to PhD students only.

INFO 7871 (3) Special Topics
Topics will vary by semester.
Repeatability: Repeatable for up to 15.00 total credit hours. Allows multiple enrollment in term.
Requisites: Restricted to PhD students only.

INFO 8991 (1-10) Doctoral Dissertation
Repeatability: Repeatable for up to 40.00 total credit hours.
Requisites: Restricted to PhD students only.