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.

Anderson, Kenneth M (https://experts.colorado.edu/display/fisid_113566)
Professor; PhD, University of California-Irvine

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

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

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

Kane, Shaun Kevin (https://experts.colorado.edu/display/fisid_154603)
Assistant Professor; PhD, University of Washington

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

Larsen, Kai Rune (https://experts.colorado.edu/display/fisid_118160)
Associate Professor; PhD, SUNY at Albany

Lewis, Clayton H (https://experts.colorado.edu/display/fisid_100307)
Professor; PhD, University of Michigan Ann Arbor

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

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

Robinson, Rick Emery (https://experts.colorado.edu/display/fisid_156556)
Senior Instructor; PhD, University of Chicago

Szafr, Danielle N (https://experts.colorado.edu/display/fisid_156317)
Assistant Professor; PhD, Georgia Institute of Technology

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

Voida, Stephen A (https://experts.colorado.edu/display/fisid_155856)
Assistant Professor; PhD, Georgia Institute of Technology

**Courses**

**INFO 5000 (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.

**Grading Basis:** Letter Grade

**INFO 5101 (3) Theories and Concepts in Information Science**
Surveys foundational theories in Information Science. Students will learn to read and reflect critically about seminal texts, tracking 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 5201 (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.

**Grading Basis:** Letter Grade

**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 5401 (3) Information and Ideas in Design Disciplines
Introduces 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. Project provide direct experience with common design tools and processes.
Grading Basis: Letter Grade

INFO 5501 (3) Problems in Information Science: Peer Production and Crowdsourcing
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. Problems in Information Sciences is a series that brings contemporary research to the classroom in the form of progressive, project-based inquiry.
Equivalent - Duplicate Degree Credit Not Granted: INFO 3501
Requisites: Restricted to graduate students only.
Grading Basis: Letter Grade

INFO 5502 (3) Problems 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) Problems 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) Problems 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) Problems 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 constructionist ideas into the design of technology-enabled environments.
Equivalent - Duplicate Degree Credit Not Granted: INFO 3505
Grading Basis: Letter Grade

INFO 5601 (3) Ethical and Policy Dimensions of Information, Technology and New Media
Explores ethical and legal complexities of information and communication technology. By combining real-world inquiry with creative speculation, students will probe everyday ethical dilemmas they face as digital consumers, creators and coders, as well as relevant policy. Explores themes such as privacy, intellectual property, social justice, free speech, artificial intelligence, social media and ethical lessons from science fiction.
Equivalent - Duplicate Degree Credit Not Granted: INFO 4601
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
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) 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: 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 5611 (3) Mastery in Information Science: 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.
Equivalent - Duplicate Degree Credit Not Granted: INFO 4611
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
Introduces principles of computational thinking through the manipulation, transformation and creation of data artifacts used in research. Students will be exposed to 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 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
Enculturates 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.
Repeatable: 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 7541 (1-3) Independent Study
Independent Study
Repeatable: 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.
Repeatable: Repeatable for up to 15.00 total credit hours. Allows multiple enrollment in term.
Requisites: Restricted to PhD students only.

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