Information Management and Systems

The School of Information (I School) offers a doctoral degree (PhD) program in Information Management and Systems and a professional Master of Information Management and Systems (MIMS) degree.

The Doctoral Program

The doctoral program is a research-oriented program in which the student chooses specific fields of specialization, prepares sufficiently in the literature and the research of those fields to pass a qualifying examination, and completes original research culminating in the written dissertation. The degree of Doctor of Philosophy is conferred in recognition of a candidate's grasp of a broad field of learning and distinguished accomplishment in that field through contribution of an original piece of research revealing high critical ability and powers of imagination and synthesis.

The Master's Program

The Master of Information Management and Systems (MIMS) program is a two-year full time program, designed to train students in the skills needed to succeed as information professionals. Such professionals must be familiar with the theory and practice of storing, organizing, retrieving, and analyzing information in a variety of settings in business, the public sector, and the academic world. Technical expertise alone is not sufficient for success; I School graduates will be expected to perform and manage a multiplicity of information related tasks.

Graduates of the MIMS program will be able to:

- Identify and address user and stakeholder information and resource needs in context.
- Make and assess information design decisions iteratively.
- Intentionally organize collections of information and other resources to support human and/or machine-based interactions and services.
- Understand and apply foundational principles and debates of information law, policy, and ethics.
- Analyze complex relationships and practical choices at the intersection of technical design, policy frameworks, and ethics.
- Understand and apply fundamental principles and debates of information economics.
- Understand and apply architectural, computational, and algorithmic thinking and principles of concurrency to the design of information systems.
- Scope, plan, and manage open-ended projects, both individually and in teams.
- Present findings and conclusions persuasively.

Such a profession is inherently interdisciplinary, requiring aspects of computer science, cognitive science, psychology, sociology, economics, business, law, library/information studies, and communications.

The I School also offers a master's in Information and Data Science (http://guide.berkeley.edu/archive/2016-17/graduate/degree-programs/information-data-science) (MIDS).

Admission to the University

Minimum Requirements for Admission

The following minimum requirements apply to all graduate programs and will be verified by the Graduate Division:

1. A bachelor's degree or recognized equivalent from an accredited institution;
2. A grade point average of B or better (3.0);
3. If the applicant comes from a country or political entity (e.g., Quebec) where English is not the official language, adequate proficiency in English to do graduate work, as evidenced by a TOEFL score of at least 90 on the iBT test, 570 on the paper-and-pencil test, or an IELTS Band score of at least 7 (note that individual programs may set higher levels for any of these); and
4. Sufficient undergraduate training to do graduate work in the given field.

Applicants Who Already Hold a Graduate Degree

The Graduate Council views academic degrees not as vocational training certificates, but as evidence of broad training in research methods, independent study, and articulation of learning. Therefore, applicants who already have academic graduate degrees should be able to pursue new subject matter at an advanced level without need to enroll in a related or similar graduate program.

Programs may consider students for an additional academic master's or professional master's degree only if the additional degree is in a distinctly different field.

Applicants admitted to a doctoral program that requires a master's degree to be earned at Berkeley as a prerequisite (even though the applicant already has a master's degree from another institution in the same or a closely allied field of study) will be permitted to undertake the second master's degree, despite the overlap in field.

The Graduate Division will admit students for a second doctoral degree only if they meet the following guidelines:

1. Applicants with doctoral degrees may be admitted for an additional doctoral degree only if that degree program is in a general area of knowledge distinctly different from the field in which they earned their original degree. For example, a physics PhD could be admitted to a doctoral degree program in music or history; however, a student with a doctoral degree in mathematics would not be permitted to add a PhD in statistics.
2. Applicants who hold the PhD degree may be admitted to a professional doctorate or professional master's degree program if there is no duplication of training involved.

Applicants may apply only to one single degree program or one concurrent degree program per admission cycle.

Required Documents for Applications

1. **Transcripts:** Applicants may upload *unofficial* transcripts with your application for the departmental initial review. *If the applicant is admitted,* then *official* transcripts of all college-level work will be required. Official transcripts must be in sealed envelopes as issued by the school(s) attended. If you have attended Berkeley, upload your unofficial transcript with your application for the departmental initial review. *If you are admitted,* an official transcript with evidence of degree conferral *will not* be required.

2. **Letters of recommendation:** Applicants may request online letters of recommendation through the online application system. Hard copies of recommendation letters must be sent directly to the program, not the Graduate Division.
3. **Evidence of English language proficiency:** All applicants from countries or political entities in which the official language is not English are required to submit official evidence of English language proficiency. This applies to applicants from Bangladesh, Burma, Nepal, India, Pakistan, Latin America, the Middle East, the People's Republic of China, Taiwan, Japan, Korea, Southeast Asia, most European countries, and Quebec (Canada). However, applicants who, at the time of application, have already completed at least one year of full-time academic course work with grades of B or better at a US university may submit an official transcript from the US university to fulfill this requirement. The following courses will not fulfill this requirement:
   - courses in English as a Second Language,
   - courses conducted in a language other than English,
   - courses that will be completed after the application is submitted, and
   - courses of a non-academic nature.

   If applicants have previously been denied admission to Berkeley on the basis of their English language proficiency, they must submit new test scores that meet the current minimum from one of the standardized tests.

Where to Apply

Visit the Berkeley Graduate Division application page (http://grad.berkeley.edu/admissions/apply) .

Admission to the MIMS Program

The I School's Master of Information Management and Systems (MIMS) program welcomes students from a diverse set of backgrounds; some will be technically educated, some educated in the humanities and social sciences. Our goal each year is to bring in a talented class of students from a broad range of academic and professional backgrounds.

Applications are evaluated holistically on a combination of grade point average, GRE score, work experience, statement of purpose, and letters of recommendation. As much as possible, applicants are judged on a combination of these factors. A minimum of two years of job experience is preferred, although not required. All successful applicants must have statements of purpose that demonstrate goals and interests consistent with the mission of the I School.

To be eligible to apply to the Master of Information Management and Systems program, applicants must meet the following requirements:

- A bachelor's degree or its recognized equivalent from an accredited institution.
- Superior scholastic record, normally well above a 3.0 GPA.
- Successful work experience in relevant fields.
- Clear indication of professional career goals and reasons for seeking the degree, described in the Statement of Purpose.
- Results of the General Test of the Graduate Record Examination (GRE) (http://www.gre.org) or the Graduate Management Admission Test (GMAT) (http://www.mba.com/mba/thegmat) .

- For applicants whose academic work has been in a language other than English, the Test of English as a Foreign Language (TOEFL) (http://www.toefl.org) or International English Language Testing System (IELTS) (http://www.ielts.org) .
- Programming competency and proficiency.

Admission to the PhD Program

We welcome students from a diverse set of backgrounds; some will be technically educated, some educated in the humanites and social sciences.

The I School accepts only 3-5 PhD students each year from more than 80 applications. Applications are reviewed by a committee of faculty.

Applicants are judged on a number of factors. Good scores and a high GPA are necessary, but not sufficient. The deciding factor is the ability to demonstrate a research record and agenda that fit well with specific I School faculty. In a small, interdisciplinary program, it is important that applicants clearly indicate in their statement of purpose which faculty member(s) they are interested in researching with, and why.

To be eligible to apply to the PhD in Information Management and Systems program, applicants must meet the following requirements:

- A bachelor's degree or its recognized equivalent from an accredited institution.
- Superior scholastic record, normally well above a 3.0 GPA.
- Clear indication of appropriate research goals, described in the Statement of Purpose.
- Results of the General Test of the Graduate Record Examination (GRE) (http://www.gre.org) .
- For applicants whose academic work has been in a language other than English, the Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS).

To Apply

For further information and application instructions, please visit the School of Information Application Instructions page (http://www.ischool.berkeley.edu/admissions) .

Program Design

The School of Information is an interdisciplinary school examining the design, organization, and management of information and information systems. The School of Information draws on the expertise not only of its own faculty but of the full Berkeley campus. We encourage students to take full advantage of being at this world-class University and not feel bound by disciplinary boundaries.

The PhD degree program at the School of Information is a research program. Each student is expected to work with his or her adviser to ensure that the program of study includes:

- A thorough understanding of research methods and research design.
- The ability to review current research critically.
- The ability to understand emerging trends from an inter-disciplinary perspective.

Expected PhD Timeline:

- **Semester 1:** Identify a faculty adviser
- **Semesters 1–4:** Complete breadth courses; complete major and minor requirements
- **Semester 4:** Complete the preliminary research paper
- **Semester 5:** Complete preliminary exam
- **Semester 6–8:** Complete qualifying exam; advance to candidacy
- **Four semesters after qualifying exam:** Complete dissertation and give presentation

Please refer to the School of Information website (http://www.ischool.berkeley.edu/programs/phd/degreerequirements) for more information.

Unit Requirements

The Master of Information Management and Systems (MIMS) program requires at least 48 semester units of study. The first year of the program consists mostly of a core curriculum; the second year involves further study in core areas along with additional electives, with the expectation that the student will specialize in particular aspects of information management and systems, as well as complete a final project requirement.

Curriculum

Required Courses

INFO 202	Information Organization and Retrieval	4
INFO 203	Social Issues of Information	4
INFO 205	Information Law and Policy	3

Technology Requirement

INFO 206	Software Prototyping for Data Science and Information Management (Students with substantial technical backgrounds can waive 206 by exam.)	4

Elective: Additional two- or three-unit course, taken from an approved list of technology courses — 2-3

Management Requirement

Elective: Two- or three-unit course, taken from an approved list of management courses. — 2-3

Electives

Further courses to satisfy the 48 unit requirement may be chosen from the school's course catalog; up to 10 units of the 48 may be used from courses in other departments, with approval from student's faculty adviser. — 25+

Final Project

INFO 298A	Directed Group Work on Final Project	2

Internship Participation

During the summer between the two years, students are strongly encouraged to participate in an internship program in order to use their newly acquired skills in real-world settings. Assistance in arranging internships will be provided whenever possible, but the ultimate responsibility of obtaining the internship will be that of the student. Past internships have been in corporate, academic, government, and nonprofit institutions.

Please refer to the School of Information website (http://www.ischool.berkeley.edu/programs/mims/degreerequirements) for more information.

INFO 202 Information Organization and Retrieval 2 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015
This course introduces the intellectual foundations of information organization and retrieval: conceptual modeling, semantic representation, vocabulary and metadata design, classification, and standardization, as well as information retrieval practices, technology, and applications, including computational processes for analyzing information in both textual and non-textual formats.
Information Organization and Retrieval: Read More [+]

Rules & Requirements

Prerequisites: Students should have a working knowledge of the Python programming language

Hours & Format

Fall and/or spring: 8 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Bamman

Information Organization and Retrieval: Read Less [-]

INFO 203 Social Issues of Information 2 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016
This course is designed to be an introduction to the topics and issues associated with information and information technology and its role in society. Throughout the semester we will consider both the consequence and impact of technologies on social groups and on social interaction and how society defines and shapes the technologies that are produced. Students will be exposed to a broad range of applied and practical problems, theoretical issues, as well as methods used in social scientific analysis. The four sections of the course are: 1) theories of technology in society, 2) information technology in workplaces 3) automation vs. humans, and 4) networked sociability.
Social Issues of Information: Read More [+]

Hours & Format

Fall and/or spring: 8 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Burrell

Social Issues of Information: Read Less [-]

INFO 205 Information Law and Policy 2 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016
This course uses examples from various commercial domains—retail, health, credit, entertainment, social media, and biosensing/quantified self—to explore legal and ethical issues including freedom of expression, privacy, research ethics, consumer protection, information and cybersecurity, and copyright. The class emphasizes how existing legal and policy frameworks constrain, inform, and enable the architecture, interfaces, data practices, and consumer facing policies and documentation of such offerings; and, fosters reflection on the ethical impact of information and communication technologies and the role of information professionals in legal and ethical work.
Information Law and Policy: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor required for nonmajors

Hours & Format

Fall and/or spring: 7 weeks - 4 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Mulligan

Information Law and Policy: Read Less [-]

INFO 206 Software Prototyping for Data Science and Information Management 2 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015
This course introduces software skills used in building prototype scripts for applications in data science and information management. The course gives an overview of procedural programming, object-oriented programming, and functional programming techniques in the Python scripting language, together with an overview of fundamental data structures, associated algorithms, and asymptotic performance analysis. Students will watch a set of instructional videos covering material and will have four hours of laboratory-style course contact each week.
Software Prototyping for Data Science and Information Management: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor for nonmajors

Credit Restrictions: Course must be completed for a letter grade to fulfill degree requirements.

Hours & Format

Fall and/or spring: 7 weeks - 4 hours of laboratory per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Tygar

Software Prototyping for Data Science and Information Management: Read Less [-]

INFO 213 User Interface Design and Development 4 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015
User interface design and human-computer interaction. Examination of alternative design. Tools and methods for design and development. Human computer interaction. Methods for measuring and evaluating interface quality.
User Interface Design and Development: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

User Interface Design and Development: Read Less [-]

INFO 214 Needs and Usability Assessment 3 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016
Concepts and methods of needs and usability assessment. Understanding users' needs and practices and translating them into design decisions. Topics include methods of identifying and describing user needs and requirements; user-centered design; user and task analysis; contextual design; heuristic evaluation; surveys, interviews, and focus groups; usability testing; naturalistic/ethnographic methods; managing usability in organizations; and universal usability.
Needs and Usability Assessment: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Needs and Usability Assessment: Read Less [-]

INFO 216 Computer-Mediated Communication 3 Units

Terms offered: Fall 2016, Spring 2016, Spring 2015
This course covers the practical and theoretical issues associated with computer-mediated communication (CMC) systems (e.g., email, newsgroups, wikis, online games, etc.). We will focus on the analysis of CMC practices, the relationship between technology and behavior, and the design and implementation issues associated with constructing CMC systems. This course primarily takes a social scientific approach (including research from social psychology, economics, sociology, and communication).
Computer-Mediated Communication: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Cheshire

Computer-Mediated Communication: Read Less [-]

INFO 218 Concepts of Information 3 Units

Terms offered: Spring 2018, Spring 2016, Spring 2015
As it's generally used, "information" is a collection of notions, rather than a single coherent concept. In this course, we'll examine conceptions of information based in information theory, philosophy, social science, economics, and history. Issues include: How compatible are these conceptions; can we talk about "information" in the abstract? What work do these various notions play in discussions of literacy, intellectual property, advertising, and the political process? And where does this leave "information studies" and "the information society"?
Concepts of Information: Read More [+]

Rules & Requirements

Prerequisites: Graduate standing

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructors: Duguid, Nunberg

Concepts of Information: Read Less [-]

INFO 219 Privacy, Security, and Cryptography 3 Units

Terms offered: Fall 2017, Fall 2013, Fall 2012
Policy and technical issues related to insuring the accuracy and privacy of information. Encoding and decoding techniques including public and private key encryption. Survey of security problems in networked information environment including viruses, worms, trojan horses, Internet address spoofing.
Privacy, Security, and Cryptography: Read More [+]

Rules & Requirements

Prerequisites: Graduate standing in the School of Information or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Tygar

Privacy, Security, and Cryptography: Read Less [-]

INFO 225 Managing in Information-Intensive Companies 3 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015
This course focuses on managing people in information-intensive firms and industries, such as information technology industries. Topics include managing knowledge workers; managing teams (including virtual ones); collaborating across disparate units, giving and receiving feedback; managing the innovation process (including in eco-systems); managing through networks; and managing when using communication tools (e.g., tele-presence). The course relies heavily on cases as a pedagogical form.
Managing in Information-Intensive Companies: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Hansen

Managing in Information-Intensive Companies: Read Less [-]

INFO 232 Applied Behavioral Economics for Information Systems 3 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015
"Behavioral Economics" is one important perspective on how information impacts human behavior. The goal of this class is to deploy a few important theories about the relationship between information and behavior, into practical settings — emphasizing the design of experiments that can now be incorporated into many 'applications' in day-to-day life. Truly 'smart systems' will have built into them precise, testable propositions about how human behavior can be modified by what the systems tell us and do for us. So let's design these experiments into our systems from the ground up! This class develops a theoretically informed, practical point of view on how to do that more effectively and with greater impact.
Applied Behavioral Economics for Information Systems: Read More [+]
Rules & Requirements

Credit Restrictions: Students will receive no credit for Information 232 after completing Information 290 sect 6 (Fall 13).

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Weber

Applied Behavioral Economics for Information Systems: Read Less [-]

INFO 234 Information Technology Economics, Strategy, and Policy 3 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016
Application of economic tools and principles, including game theory, industrial organization, information economics, and behavioral economics, to analyze business strategies and public policy issues surrounding information technologies and IT industries. Topics include: economics of information; economics of information goods, services, and platforms; strategic pricing; strategic complements and substitutes; competition models; network industry structure and telecommunications regulation; search and the "long tail"; network cascades and social epidemics; network formation and network structure; peer production and crowdsourcing; interdependent security and privacy.
Information Technology Economics, Strategy, and Policy: Read More [+]
Objectives Outcomes

Course Objectives:
INFO234 is a graduate level course in the school's topical area of Information Economics and Policy, and can be taken by the masters and doctoral students to satisfy their respective degree requirements.

Student Learning Outcomes:
Students will learn to identify, describe, and analyze business strategies and public policy issues of particular relevance to the information industry. Students will learn and apply economic tools and principles to analyze phenomena such as platform competition, social epidemics, and peer production, and current policy issues such as network neutrality and information privacy. Through integrated assignments and project work, the students will apply the theoretical concepts and analytic tools learned in lectures and readings to develop and evaluate a business model, product, or service of their choosing, e.g., a start-up idea they are pursuing.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Chuang

Information Technology Economics, Strategy, and Policy: Read Less [-]

INFO 239 Technology and Delegation 3 Units

Terms offered: Fall 2017

The introduction of technology increasingly delegates responsibility to technical actors, often reducing traditional forms of transparency and challenging traditional methods for accountability. This course explores the interaction between technical design and values including: privacy, accessibility, fairness, and freedom of expression. We will draw on literature from design, science and technology studies, computer science, law, and ethics, as well as primary sources in policy, standards and source code. We will investigate approaches to identifying the value implications of technical designs and use methods and tools for intentionally building in values at the outset.

Technology and Delegation: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Mulligan

Technology and Delegation: Read Less [-]

INFO 247 Information Visualization and Presentation 4 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016

The design and presentation of digital information. Use of graphics, animation, sound, visualization software, and hypermedia in presenting information to the user. Methods of presenting complex information to enhance comprehension and analysis. Incorporation of visualization techniques into human-computer interfaces. Course must be completed for a letter grade to fulfill degree requirements.

Information Visualization and Presentation: Read More [+]

Rules & Requirements

Prerequisites: Information 206, Computer Science 160, or knowledge of programming and data structures with consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of laboratory per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Hearst

Information Visualization and Presentation: Read Less [-]

INFO 251 Applied Machine Learning 4 Units

Terms offered: Fall 2017

Provides a theoretical and practical introduction to modern techniques in applied machine learning. Covers key concepts in supervised and unsupervised machine learning, including the design of machine learning experiments, algorithms for prediction and inference, optimization, and evaluation. Students will learn functional, procedural, and statistical programming techniques for working with real-world data.

Applied Machine Learning: Read More [+]

Objectives Outcomes

Student Learning Outcomes: • Effectively design, execute, and critique experimental and non-experimental methods from statistics, machine learning, and econometrics.
• Implement basic algorithms on structured and unstructured data, and evaluate the performance of these algorithms on a variety of real-world datasets.
• Understand the difference between causal and non-causal relationships, and which situations and methods are appropriate for both forms of analysis.
• Understand the principles, advantages, and disadvantages of different algorithms for supervised and unsupervised machine learning.

Rules & Requirements

Prerequisites: Info 206, or equivalent course in Python programming; Info 271B, or equivalent graduate-level course in statistics or econometrics; or permission of instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Blumenstock

Applied Machine Learning: Read Less [-]

INFO 253 Web Architecture 3 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015
This course is a survey of Web technologies, ranging from the basic technologies underlying the Web (URI, HTTP, HTML) to more advanced technologies being used in the the context of Web engineering--for example, structured data formats and Web programming frameworks. The goal of this course is to provide an overview of the technical issues surrounding the Web today, and to provide a solid and comprehensive perspective of the Web's constantly evolving landscape.
Web Architecture: Read More [+]

Rules & Requirements

Prerequisites: Introductory programming

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Web Architecture: Read Less [-]

INFO 254 Data Mining and Analytics 3 Units

Terms offered: Spring 2018
This course introduces students to practical fundamentals of data mining and machine learning with just enough theory to aid intuition building. The course is project-oriented, with a project beginning in class every week and to be completed outside of class by the following week, or two weeks for longer assignments. The in-class portion of the project is meant to be collaborative, with the instructor working closely with groups to understand the learning objectives and help them work through any logistics that may be slowing them down. Weekly lectures introduce the concepts and algorithms which will be used in the upcoming project. Students leave the class with hands-on data mining and data engineering skills they can confidently apply.
Data Mining and Analytics: Read More [+]

Objectives Outcomes

Course Objectives: Conduct manual feature engineering (from domain knowledge) vs. machine induced featurization (representation learning).
Develop intuition in various machine learning classification algorithms (e.g. decision trees, neural networks, recurrent neural networks, support vector machines), and clustering techniques (e.g. k-means, spectral, skip-gram).
Foster critical thinking about real world actionability from analytics.
Provide an overview of issues in research and practice that will shape the complexion of data science across a variety of domains.

Rules & Requirements

Prerequisites: Knowledge of basic Python programming

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Pardos

Data Mining and Analytics: Read Less [-]

INFO 256 Applied Natural Language Processing 3 Units

Terms offered: Fall 2016, Fall 2015, Fall 2014
This course examines the state-of-the-art in applied Natural Language Processing (also known as content analysis and language engineering), with an emphasis on how well existing algorithms perform and how they can be used (or not) in applications. Topics include part-of-speech tagging, shallow parsing, text classification, information extraction, incorporation of lexicons and ontologies into text analysis, and question answering. Students will apply and extend existing software tools to text-processing problems.
Applied Natural Language Processing: Read More [+]
Rules & Requirements

Prerequisites: Proficient programming in python (programs of at least 200 lines of code), proficient with basic statistics and probabilities

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Hearst

Applied Natural Language Processing: Read Less [-]

INFO 257 Database Management 3 Units

Terms offered: Spring 2018, Spring 2017, Fall 2015
Introduction to relational, hierarchical, network, and object-oriented database management systems. Database design concepts, query languages for database applications (such as SQL), concurrency control, recovery techniques, database security. Issues in the management of databases. Use of report writers, application generators, high-level interface generators.
Database Management: Read More [+]
Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Larson

Database Management: Read Less [-]

INFO 259 Natural Language Processing 3 Units

Terms offered: Fall 2017
This course introduces students to natural language processing and exposes them to the variety of methods available for reasoning about text in computational systems. NLP is deeply interdisciplinary, drawing on both linguistics and computer science, and helps drive much contemporary work in text analysis (as used in computational social science, the digital humanities, and computational journalism). We will focus on major algorithms used in NLP for various applications (part-of-speech tagging, parsing, coreference resolution, machine translation) and on the linguistic phenomena those algorithms attempt to model. Students will implement algorithms and create linguistically annotated data on which those algorithms depend.
Natural Language Processing: Read More [+]
Rules & Requirements

Prerequisites: Familiarity with data structures, algorithms, linear algebra, and probability

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Bamman

Natural Language Processing: Read Less [-]

INFO C260F Machine Learning in Education 3 Units

Terms offered: Fall 2017
This course covers computational approaches to the task of modeling learning and improving outcomes in Intelligent Tutoring Systems (ITS) and Massive Open Online Courses (MOOCs). We will cover theories and methodologies underpinning current approaches to knowledge discovery and data mining in education and survey the latest developments in the broad field of human learning research. The course is project based; teams will be introduced to online learning platforms and their datasets with the objective of pairing data analysis with theory or implementation. Literature review will add context and grounding to projects.
Machine Learning in Education: Read More [+]

Rules & Requirements

Prerequisites: Suggested background includes one programming course and familiarity with one statistical/computational software package

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Pardos

Also listed as: EDUC C260F

Machine Learning in Education: Read Less [-]

INFO C262 Theory and Practice of Tangible User Interfaces 4 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015
This course explores the theory and practice of Tangible User Interfaces, a new approach to Human Computer Interaction that focuses on the physical interaction with computational media. The topics covered in the course include theoretical framework, design examples, enabling technologies, and evaluation of Tangible User Interfaces. Students will design and develop experimental Tangible User Interfaces using physical computing prototyping tools and write a final project report.
Theory and Practice of Tangible User Interfaces: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of laboratory per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Ryokai

Also listed as: NWMEDIA C262

Theory and Practice of Tangible User Interfaces: Read Less [-]

INFO C263 Technologies for Creativity and Learning 3 Units

Terms offered: Spring 2015, Spring 2014
How does the design of new educational technology change the way people learn and think? How do we design systems that reflect our understanding of how we learn? This course explores issues on designing and evaluating technologies that support creativity and learning. The class will cover theories of creativity and learning, implications for design, as well as a survey of new educational technologies such as works in computer supported collaborative learning, digital manipulatives, and immersive learning environments.
Technologies for Creativity and Learning: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of seminar per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Ryokai

Also listed as: NWMEDIA C263

Technologies for Creativity and Learning: Read Less [-]

INFO C265 Interface Aesthetics 3 Units

Terms offered: Spring 2018, Spring 2017, Spring 2016
This course will cover new interface metaphors beyond desktops (e.g., for mobile devices, computationally enhanced environments, tangible user interfaces) but will also cover visual design basics (e.g., color, layout, typography, iconography) so that we have systematic and critical understanding of aesthetically engaging interfaces. Students will get a hands-on learning experience on these topics through course projects, design critiques, and discussions, in addition to lectures and readings.
Interface Aesthetics: Read More [+]

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Ryokai

Also listed as: NWMEDIA C265

Interface Aesthetics: Read Less [-]

INFO 271B Quantitative Research Methods for Information Systems and Management 3 Units

Terms offered: Fall 2017, Spring 2017, Fall 2015
Introduction to many different types of quantitative research methods, with an emphasis on linking quantitative statistical techniques to real-world research methods. Introductory and intermediate topics include: defining research problems, theory testing, casual inference, probability, and univariate statistics. Research design and methodology topics include: primary/secondary survey data analysis, experimental designs, and coding qualitative data for quantitative analysis.
Quantitative Research Methods for Information Systems and Management: Read More [+]
Rules & Requirements

Prerequisites: Introductory statistics recommended

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Cheshire

Quantitative Research Methods for Information Systems and Management: Read Less [-]

INFO 272 Qualitative Research Methods for Information Systems and Management 3 Units

Terms offered: Fall 2016, Fall 2014, Fall 2012
Theory and practice of naturalistic inquiry. Grounded theory. Ethnographic methods including interviews, focus groups, naturalistic observation. Case studies. Analysis of qualitative data. Issues of validity and generalizability in qualitative research.
Qualitative Research Methods for Information Systems and Management: Read More [+]
Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Burrell

Qualitative Research Methods for Information Systems and Management: Read Less [-]

INFO 283 Information and Communications Technology for Development 3 Units

Terms offered: Spring 2017
This seminar reviews current literature and debates regarding Information and Communication Technologies and Development (ICTD). This is an interdisciplinary and practice-oriented field that draws on insights from economics, sociology, engineering, computer science, management, public health, etc.
Information and Communications Technology for Development: Read More [+]
Hours & Format

Fall and/or spring: 15 weeks - 3 hours of seminar per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Saxenian

Formerly known as: Information C283

Information and Communications Technology for Development: Read Less [-]

INFO 290 Special Topics in Information 1 - 4 Units

Terms offered: Spring 2018, Fall 2017, Spring 2017
Specific topics, hours, and credit may vary from section to section, year to year.
Special Topics in Information: Read More [+]
Rules & Requirements

Repeat rules: Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring:
7.5 weeks - 2-6 hours of lecture per week
15 weeks - 1-4 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Special Topics in Information: Read Less [-]

INFO 290A Special Topics in Information 1 or 2 Units

Terms offered: Fall 2016, Fall 2015, Fall 2014
Special Topics in Information: Read More [+]
Rules & Requirements

Prerequisites: Consent of instructor

Repeat rules: Course may be repeated for credit.

Hours & Format

Fall and/or spring:
5 weeks - 3 hours of lecture per week
6 weeks - 2 hours of lecture per week
8 weeks - 1.5-2 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Formerly known as: Information Systems and Management 290A

Special Topics in Information: Read Less [-]

INFO 290M Special Topics in Management 1 - 4 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015
Specific topics, hours, and credit may vary from section to section and year to year.
Special Topics in Management: Read More [+]
Rules & Requirements

Prerequisites: Consent of instructor

Repeat rules: Course may be repeated for credit as topics in management vary. Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring:
8 weeks - 2-6 hours of lecture per week
15 weeks - 1-4 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Special Topics in Management: Read Less [-]

INFO 290T Special Topics in Technology 1 - 4 Units

Terms offered: Spring 2018, Fall 2017, Spring 2017
Specific topics, hours, and credit may vary from section to section and year to year.
Special Topics in Technology: Read More [+]
Rules & Requirements

Prerequisites: Consent of instructor

Repeat rules: Course may be repeated for credit as topics in technology vary. Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring:
8 weeks - 2-7.5 hours of lecture per week
15 weeks - 1-4 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Special Topics in Technology: Read Less [-]

INFO 290TA Information Organization Laboratory 3 Units

Terms offered: Fall 2016, Spring 2016, Fall 2015
Students will build tools to explore and apply theories of information organization and retrieval. Students will implement various concepts covered in the concurrent 202 course through small projects on topics like controlled vocabularies, the semantic web, and corpus analysis. We will also experiment with topics suggested by students during the course. Students will develop skills in rapid prototyping of web-based projects using Python, XML, and jQuery.
Information Organization Laboratory: Read More [+]
Rules & Requirements

Prerequisites: It is recommended that students take 202 concurrently, or have taken it in the past

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Information Organization Laboratory: Read Less [-]

INFO 293 Curricular Practical Training for International Students 0.0 Units

Terms offered: Fall 2016, Summer 2016 10 Week Session, Spring 2016
This is a zero-unit independent study course for international students doing internships under the Curricular Practical Training program. The course will be individually supervised and must be approved by the head graduate adviser.
Curricular Practical Training for International Students: Read More [+]
Rules & Requirements

Repeat rules: Course may be repeated once.

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of independent study per week

Summer: 10 weeks - 0 hours of independent study per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Offered for satisfactory/unsatisfactory grade only.

Curricular Practical Training for International Students: Read Less [-]

INFO 294 Doctoral Research and Theory Workshop 2 Units

Terms offered: Fall 2017
An intensive weekly discussion of current and ongoing research by Ph.D. students with a research interest in issues of information (social, legal, technical, theoretical, etc.). Our goal is to focus on critiquing research problems, theories, and methodologies from multiple perspectives so that we can produce high-quality, publishable work in the interdisciplinary area of information research. Circulated material may include dissertation chapters, qualifying papers, article drafts, and/or new project ideas. We want to have critical and productive discussion, but above all else we want to make our work better: more interesting, more accessible, more rigorous, more theoretically grounded, and more like the stuff we enjoy reading.
Doctoral Research and Theory Workshop: Read More [+]
Rules & Requirements

Prerequisites: PhD students only

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of workshop per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Instructor: Cheshire

Doctoral Research and Theory Workshop: Read Less [-]

INFO 295 Doctoral Colloquium 1 Unit

Terms offered: Spring 2018, Fall 2017, Spring 2017
Colloquia, discussion and readings designed to introduce students to the range of interests of the school.
Doctoral Colloquium: Read More [+]
Rules & Requirements

Prerequisites: Ph.D. standing in the School of Information

Hours & Format

Fall and/or spring: 15 weeks - 1 hour of colloquium per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Offered for satisfactory/unsatisfactory grade only.

Doctoral Colloquium: Read Less [-]

INFO 296A Seminar 2 - 4 Units

Terms offered: Spring 2018, Fall 2017, Spring 2017
Topics in information management and systems and related fields. Specific topics vary from year to year.
Seminar: Read More [+]
Rules & Requirements

Prerequisites: Consent of instructor

Repeat rules: Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 2-4 hours of seminar per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Seminar: Read Less [-]

INFO 298 Directed Group Study 1 - 4 Units

Terms offered: Spring 2016, Fall 2015, Spring 2015
Group projects on special topics in information management and systems.
Directed Group Study: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor

Repeat rules: Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of directed group study per week

Summer: 8 weeks - 1.5-7.5 hours of directed group study per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Directed Group Study: Read Less [-]

INFO 298A Directed Group Work on Final Project 1 - 4 Units

Terms offered: Spring 2016, Spring 2015, Spring 2014
The final project is designed to integrate the skills and concepts learned during the Information School Master's program and helps prepare students to compete in the job market. It provides experience in formulating and carrying out a sustained, coherent, and significant course of work resulting in a tangible work product; in project management, in presenting work in both written and oral form; and, when appropriate, in working in a multidisciplinary team. Projects may take the form of research papers or professionally-oriented applied work.
Directed Group Work on Final Project: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor. Course must be taken for a letter grade to fulfill degree requirements

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of directed group study per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Directed Group Work on Final Project: Read Less [-]

INFO 299 Individual Study 1 - 12 Units

Terms offered: Summer 2016 8 Week Session, Spring 2016, Fall 2015
Individual study of topics in information management and systems under faculty supervision.
Individual Study: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor

Repeat rules: Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1-12 hours of independent study per week

Summer: 8 weeks - 2-22.5 hours of independent study per week

Additional Details

Subject/Course Level: Information/Graduate

Grading: Letter grade.

Individual Study: Read Less [-]

INFO 375 Teaching Assistance Practicum 2 Units

Terms offered: Fall 2017, Fall 2016, Fall 2015
Discussion, reading, preparation, and practical experience under faculty supervision in the teaching of specific topics within information management and systems. Does not count toward a degree.
Teaching Assistance Practicum: Read More [+]

Rules & Requirements

Repeat rules: Course may be repeated for credit as topic varies.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture per week

Additional Details

Subject/Course Level: Information/Professional course for teachers or prospective teachers

Grading: Offered for satisfactory/unsatisfactory grade only.

Instructor: Duguid

Teaching Assistance Practicum: Read Less [-]

INFO 602 Individual Study for Doctoral Students 1 - 5 Units

Terms offered: Spring 2016, Fall 2015, Spring 2015
Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. degree.
Individual Study for Doctoral Students: Read More [+]

Rules & Requirements

Prerequisites: Consent of instructor

Repeat rules: Course may be repeated for credit.

Hours & Format

Fall and/or spring: 15 weeks - 1-5 hours of independent study per week

Additional Details

Subject/Course Level: Information/Graduate examination preparation

Grading: Offered for satisfactory/unsatisfactory grade only.

Individual Study for Doctoral Students: Read Less [-]