Information in Browse Course Catalog is subject to change. Information is term specific. Please refer to the appropriate term when searching for course content. Key to Course Descriptions may be found at: **http://rcs.registrar.arizona.edu/course_descriptions_key**.

Information (INFO)

INFO 492: Directed Research (1 - 6 units)
Description: Individual or small group research under the guidance of faculty.
Grading basis: Regular Grades
Career: Undergraduate
Course Components: Independent Study   Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer
Online Campus: Fall, Spring, Summer

Recommendations and additional information: Consent of instructor.
Student Engagement Activity: Leadership
Student Engagement Competency: Professionalism

INFO 493: Internship (1 - 6 units)
Description: Specialized work on an individual basis, consisting of training and practice in actual service in a technical, business, or governmental establishment. Such work must be approved and supervised by a School of Information faculty member.
Grading basis: Alternative Grading: S, P, F
Career: Undergraduate
Course Components: Independent Study   Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer
Online Campus: Fall, Spring, Summer

Recommendations and additional information: Consent of instructor.
Student Engagement Activity: Professional Development
Student Engagement Competency: Professionalism

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

INFO 499: Independent Study (1 - 4 units)
Description: Qualified students working on an individual basis with professors who have agreed to supervise such work.
Grading basis: Alternative Grading: S, P, F
Career: Undergraduate
Course Components: Independent Study   Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer
Online Campus: Fall, Spring, Summer

Recommendations and additional information: Consent of instructor.
Student Engagement Activity: Leadership
Student Engagement Competency: Innovation and Creativity

INFO 501: Designing an Installation (3 units)
Description: This course is a hands-on, project-based approach to understanding and designing art installations. Enrollees will learn principles, tools, and techniques of rapid prototyping and installation design, and will collaborate to design and implement a large-scale installation by the end of the semester. The course lectures will also provide an overview of the history, theory, and aesthetics of installation art. Graduate-level requirements include writing an analytical paper comparing several recent installation projects in relation to themes found in contemporary art (e.g., Artificial Life, Body/Identity Politics, Social Media/Hacktivism, Virtual or Augmented Reality, Databases and Information Visualization). The paper should be 15-20 pages in length.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $97
Course Components: Laboratory   Required
                          Lecture   Required
Co-convened with: ISTA 401
Course typically offered:
Main Campus: Spring

INFO 505: Foundations of Information (3 units)
Description: This course introduces fundamental ideas of the Information Age, focusing on the value, organization, use, and processing of information. The course is organized as a survey of these ideas, with readings from the research literature. Specific topics (e.g., visualization, retrieval) will be covered by guest faculty who research in each of these areas.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Course typically offered:
Main Campus: Fall

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

INFO 507: Information Research Methods (3 units)
Description: This seminar introduces fundamental methods for both qualitative and quantitative research in information studies. Additionally, the seminar introduces the student to established and emerging areas of scholarly research in Schools of Information to encourage her to identify a personal research agenda. The seminar is organized in two main parts: the first part introduces relevant research methods (quantitative and qualitative), whereas the second part overviews specific research directions currently active in the School of Information. The second part of the seminar will be covered by guest faculty who research in each of the covered areas.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Course typically offered:
Main Campus: Spring

Enrollment requirement: Prerequisite or concurrent enrollment in IRLS 505.

INFO 510: Bayesian Modeling and Inference (3 units)
Description: Bayesian modeling and inference is a powerful modern approach to representing the statistics of the world, reasoning about the world in the face of uncertainty, and learning about it from data. It cleanly separates the notions of representation, reasoning, and learning. It provides a principled framework for combining multiple source of information such as prior knowledge about the world with evidence about a particular case in observed data. This course will provide a solid introduction to the methodology and associated techniques, and show how they are applied in diverse domains ranging from computer vision to molecular biology to astronomy. Graduate-level requirements include different exams requiring greater depth of understanding of topics, and will be assigned questions based on graduate-student specific assignments topics.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Co-convened with: ISTA 410
Course typically offered:
Main Campus: Spring

Recommendations and additional information: 1) ISTA 350, or equivalent; 2) MATH 215 or equivalent; and3) ISTA 311,or MATH 362, or ISTA 421/521 or equivalent4) Or permission of the instructor

INFO 514: Computational Social Science (3 units)
Description: This course will guide students through advanced applications of computational methods for social science research. Students will be encouraged to consider social problems from across sectors, like health science, education, environmental policy and business. Particular attention will be given to the collection and use of data to study social networks, online communities, electronic commerce and digital marketing. Students will consider the many research designs used in contemporary social research and will learn to think critically about claims of causality, mechanisms, and generalization in big data studies. Graduate requirements include additional readings and a more in-depth final paper than is required at the undergraduate level.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: POL 514
Course typically offered:
Main Campus: Spring

INFO 515: Organization of Information (3 units)
Description: Introduction to the theories and practices used in the organization of information. Overview of national and international standards, practices and ethical challenges for access to information in collections.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 515
Course typically offered:
Main Campus: Fall, Spring
Online Campus: Fall, Spring

Recommendations and additional information: IRLS 504
Home department: School of Information

INFO 516: Introduction to Human Computer Interaction (3 units)
Description: The field of Human-Computer Interaction (HCI) encompasses the design, implementation, and evaluation of interactive computing systems. This course will provide a survey of HCI theory and practice. The course will address the presentation of information and the design of interaction from a human-centered perspective, looking at relevant perceptive, cognitive, and social factors influencing in the design process. It will motivate practical design guidelines for information presentation through Gestalt theory and studies of consistency, memory, and interpretation. Technological concerns will be examined that include interaction styles, devices, constraints, affordances, and metaphors. Theories, principles and design guidelines will be surveyed for both classical and emerging interaction paradigms, with case studies from practical application scenarios. As a central theme, the course will promote the processes of usability engineering, introducing the concepts of participatory design, requirements analysis, rapid prototyping, iterative development, and user evaluation. Both quantitative and qualitative evaluation strategies will be discussed. This course is co-convened: Upper-level undergraduates and graduate students are encouraged to enroll. Graduate students will be expected to complete more substantial projects and will be given more in-depth reading assignments.
Grading basis: Regular Grades
Career: Graduate
Course Components:　　Lecture　　　　　　　　Required
Co-convened with: ISTA 416
Course typically offered:
Main Campus: Fall, Spring

Recommendations and additional information: ISTA 130. Intermediate to advanced programming skills with the permission of the instructor.

INFO 517: Introduction to Digital Cultures (3 units)
Description: Digital information technologies shape our lives. The benefits and the possible dangers of digital information technologies will be explored from a multidisciplinary perspective, looking at the insights into our digital age from history, linguistics sociology, political theory, information science, and philosophy. Students will have opportunities for active reflection on the ways in which digital technology shapes learning and social interaction. Graduate-level requirements include different percent break-down of requirements and more stringent expectations in work produced.
Grading basis: Regular Grades
Career: Graduate
Course Components:　　Lecture　　　　　　　　Required
Also offered as: LIS 517
Course typically offered:
Main Campus: Spring
Online Campus: Spring

Home department: School of Information

INFO 519: Knowledge in a Digital World (3 units)
Description: We do all sorts of things with information technology: we play games, we listen to music, we watch movies, and we communicate with other people. But one of the main things that we use information technology for is to learn things. Toward this end, we visit Wikipedia, Ask.com, The New York Times, and other such sites. Or we just Google stuff that we want to know about.This course is about how information technology is affecting the ability of individuals and institutions to acquire and share knowledge. We will look at the following sorts of questions: * What impact are Google, iPhones, and iPads having on how we know things?* Should we trust the information that we find on social networking sites like Wikipedia and Ask.com?* How do people try to deceive us on the web?* Do intellectual property laws, such as the Digital Millennium Copyright Act, promote or impede our ability to acquire knowledge?* Can we really be informed citizens if the blogosphere completely replaces traditional journalism?* In a digital world, what things do we have a right to know and what things do we have an obligation to know?Graduate-level requirements include more in-depth projects and group presentations.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 519
Course typically offered:
Main Campus: Fall
Online Campus: Fall

Home department: School of Information

INFO 520: Ethics for Library and Information Professionals (3 units)
Description: Study of the basics of ethical theory and its application to problems in information management. Application and development of ethical codes in cases studies.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 520
Course typically offered:
Main Campus: Fall, Spring
Online Campus: Fall, Spring

Home department: School of Information

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

INFO 521: Introduction to Machine Learning (3 units)
Description: Machine learning describes the development of algorithms which can modify their internal parameters (i.e., "learn") to recognize patterns and make decisions based on example data. These examples can be provided by a human, or they can be gathered automatically as part of the learning algorithm itself. This course will introduce the fundamentals of machine learning, will describe how to implement several practical methods for pattern recognition, feature selection, clustering, and decision making for reward maximization, and will provide a foundation for the development of new machine learning algorithms.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Co-convened with: ISTA 421
Course typically offered:
Main Campus: Fall

Recommendations and additional information: Must have taken ISTA 311, MATH 129, AND MATH 313, or equivalent, or consent of instructor. ISTA 116 or comparable is recommended.

INFO 523: Data Mining and Discovery (3 units)
Description: This course will introduce students to the concepts and techniques of data mining for knowledge discovery. It includes methods developed in the fields of statistics, large-scale data analytics, machine learning, pattern recognition, database technology and artificial intelligence for automatic or semi-automatic analysis of large quantities of data to extract previously unknown interesting patterns. Topics include understanding varieties of data, data preprocessing, classification, association and correlation rule analysis, cluster analysis, outlier detection, and data mining trends and research frontiers. We will use software packages for data mining, explaining the underlying algorithms and their use and limitations. The course include laboratory exercises, with data mining case studies using data from many different resources such as social networks, linguistics, geo-spatial applications, marketing and/or psychology
Grading basis: Regular Grades
Career: Graduate
Course Components: Discussion   May Be Offered
                          Laboratory   May Be Offered
                          Lecture   Required
Course typically offered:
Main Campus: Fall, Spring

INFO 524: Virtual Reality (3 units)
Description: Virtual reality is an emerging technology that has been widely used in recent years in various areas, such as education, training, well-being, and entertainment. Virtual reality offers a highly immersive experience as the head mounted displays replace the vision of the users with digital imagery. It encompasses many disciplines, such as computer science, human computer interaction, game design and development, information science, and psychology. This course merges a theoretical and practical approach to give students the necessary knowledge to design, develop, and critique virtual reality games and applications.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Co-convened with: ISTA 424
Course typically offered:
Main Campus: Spring

Recommendations and additional information: Permission from instructor is required, permission will be given based-on prior object-oriented programming knowledge at a sufficient level.

INFO 525: Algorithms for Games (3 units)
Description: Algorithms is a crucial component of game development. This course will provide students with an in-depth introduction to algorithm concepts for game development. The course will cover basic algorithm and data structures concepts, basic math concepts related to game algorithms, physics and artificial intelligence based game algorithms that are supplemented with modern examples. Unity Game Engine along with C# programming language will be used throughout the class.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Co-convened with: ISTA 425
Course typically offered:
Main Campus: Spring

INFO 529: Applied Cyberinfrastructure Concepts (3 units)
Description: Students will learn from experts from projects that have developed widely adopted foundational Cyberinfrastrcutrue resources, followed by hands-on laboratory exercises focused around those resources. Students will use these resources and gain practical experience from laboratory exercises for a final project using a data set and meeting requirements provided by domain scientists. Students will be provided access to computer resources at: UA campus clusters, iPlant Collaborative and at NSF XSEDE. Students will also learn to write a proposal for obtaining future allocation to large scale national resources through XSEDE. Graduate-level requirements include reading a paper related to cyberinfrastructure, present it to the class, and lead a discussion on the paper.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: BE 529, PLS 529
Co-convened with: ISTA 420
Course typically offered:
Main Campus: Fall

Recommendations and additional information: Programming experience at the level of CSC 227 (Program Design and Development) is preferred. Consent of instructor required.

INFO 533: Medical On-Line Searching (3 units)
Description: This course will focus on the online retrieval and evaluation of medical literature and the issues surrounding provision of timely, relevant, peer-reviewed medical information. Emphasis will be on the development of the intellectual acuity required to provide physicians, nurses, pharmacists, allied health professionals, medical researchers and consumers with targeted responses to medical queries. Current search modalities such as Evidence-Based Medicine will be covered both in readings and in class discussions.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 533
Course typically offered:
Main Campus: Fall
Online Campus: Fall

Home department: School of Information

INFO 539: Statistical Natural Language Processing (3 units)
Description: This course introduces the key concepts underlying statistical natural language processing. Students will learn a variety of techniques for the computational modeling of natural language, including: n-gram models, smoothing, Hidden Markov models, Bayesian Inference, Expectation Maximization, Viterbi, Inside-Outside Algorithm for Probabilistic Context-Free Grammars, and higher-order language models. Graduate-level requirements include assignments of greater scope than undergraduate assignments. In addition to being more in-depth, graduate assignments are typically longer and additional readings are required.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Equivalent to: CSC 539
Also offered as: CSC 539, LING 539
Co-convened with:
Course typically offered:
Main Campus: Fall

Recommendations and additional information: LING 538.
Home department: Linguistics

INFO 540: Introduction to Archives (3 units)
Description: Provides an introduction to the archival profession with focus on theory and practice in the areas of appraisal and acquisition, arrangement and description, reference, preservation, exhibitions, outreach, and electronic resource development.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 540
Course typically offered:
Main Campus: Fall
Online Campus: Fall

Home department: School of Information

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INFO 550: Artificial Intelligence (3 units)
Description: The methods and tools of Artificial Intelligence used to provide systems with the ability to autonomously problem solve and reason with uncertain information. Topics include: problem solving (search spaces, uninformed and informed search, games, constraint satisfaction), principles of knowledge representation and reasoning (propositional and first-order logic, logical inference, planning), and representing and reasoning with uncertainty (Bayesian networks, probabilistic inference, decision theory). Graduate-level requirements include additional reading of supplementary material, more rigorous tests and homework assignments, and a more sophisticated course project.sophisticated application and technique.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Co-convened with: ISTA 450
Course typically offered:
Main Campus: Fall

Recommendations and additional information: CSC 345 or equivalent or consent of instructor. Probability and statistics helpful but not required.

INFO 551: Game Development (3 units)
Description: This course provides an introduction to video game development. We will explore game design (not just computer games, but all games) and continue with an examination of game prototyping. Once we have working prototypes, we will continue with the development of a complete 2D computer game. The remaining course topics include: designing the game engine, rendering the graphics to the screen, and artificial intelligence. Students will be given periodic homework that reinforces what was learned in class. Homework will include developing a game prototype, game design documentation, some programming tasks. Students will work in small teams to develop a working game as a term project. Grades will be primarily based on the term project with some small amount of weight to homework. The examples provided in class will be programmed in Java and available for execution on any operating system. Programming homework assignments will be done in either Java or the language chosen by the instructor. The term project can be written in any programming language with instructor permission.
Grading basis: Regular Grades
Career: Graduate
Flat Fee: $97
Course Components: Lecture   Required
Co-convened with: ISTA 451
Course typically offered:
Main Campus: Fall, Spring

Recommendations and additional information: CSC 335 and 345 or consent of instructor.

INFO 554: Informatics in Biology (3 units)
Description: Analyze genomic sequences through understanding and using a variety of bioinformatics algorithms and software tools. Interdisciplinary approach integrating informatics, statistics, and biology. Graduate-level requirements include leading a discussion on a current paper or give a tutorial on a bioinformatics tool as part of the Major Concept Exercises category.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Co-convened with: ISTA 454
Course typically offered:
Main Campus: Summer

INFO 555: Applied Natural Language Processing (4 units)
Description: Most of web data today consists of unstructured text. This course will cover the fundamental knowledge necessary to organize such texts, search them a meaningful way, and extract relevant information from them. This course will teach natural language processing through the design and development of end-to-end natural language understanding applications, including sentiment analysis (e.g., is this review positive or negative?), information extraction (e.g., extracting named entities and their relations from text), and question answering (retrieving exact answers to natural language questions such as "What is the capital of France" from large document collections). We will use several natural language processing toolkits, such as NLTK and Stanford's CoreNLP. The main programming language used in the course will be Python, but code written in Java or Scala will be accepted as well. Graduate-level requirements include implementing more complex, state-of-the-art algorithms for the three proposed projects. This will require additional reading of conference papers and journal articles.
Grading basis: Regular Grades
Career: Graduate
Course Components: Laboratory   Required
                         Lecture   Required
Co-convened with: ISTA 455
Course typically offered:
Main Campus: Spring

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May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

INFO 556: Text Retrieval and Web Search (3 units)
Description: Most of the web data today consists of unstructured text. Of course, the fact that this data exists is irrelevant, unless it is made available such that users can quickly find information that is relevant for their needs. This course will cover the fundamental knowledge necessary to build such systems, such as web crawling, index construction and compression, boolean, vector-based, and probabilistic retrieval models, text classification and clustering, link analysis algorithms such as PageRank, and computational advertising. The students will also complete one programming project, in which they will construct one complex application that combines multiple algorithms into a system that solves real-world problems. Graduate level requirements include implementing more complex, state-of-the-art algorithms for the programming project, which might require additional reading of research articles. Written assignments will have additional questions for graduate students.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Co-convened with: ISTA 456
Course typically offered:
Main Campus: Fall

INFO 557: Neural Networks (3 units)
Description: Neural networks are a branch of machine learning that combines a large number of simple computational units to allow computers to learn from and generalize over complex patterns in data. Students in this course will learn how to train and optimize feed forward, convolutional, and recurrent neural networks for tasks such as text classification, image recognition, and game playing.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Co-convened with: ISTA 457
Course typically offered:
Main Campus: Spring

Recommendations and additional information: Basic programming skills and some experience with analysis of algorithms and data structures. Basic linear algebra skills recommended.

INFO 558: Social Justice in Information Services (3 units)
Description: This course considers the ethical issues that arise in serving diverse user groups and their members, including but not limited to, children, women, people with disabilities, the LGBTQ community, the poor, ethnic groups, and Indigenous peoples. Differing information needs and ways of knowing are considered. The role of library and information professionals in promoting and supporting the rights of such groups to access and control information is emphasized. The course explores the ways in which groups of persons may be knowers and what information rights this knowledge might give them, within groups defined by their ethnic or cultural origin, e,g., indigenous peoples, ethnic and racial groups. In addition, libraries and other information services can be designed so as to foster the development and preservation of group knowledge and respect for group information rights.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 558
Course typically offered:
Main Campus: Fall, Spring, Summer

Home department: School of Information

INFO 565: Information Architecture and Controlled Vocabularies (3 units)
Description: Introduction to organization systems that use controlled vocabularies. Principles, standards, design and maintenance of thesauri using computer software are studied. The use of controlled vocabularies in website design and digital libraries is also explored.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 565
Course typically offered:
Main Campus: Spring

Home department: School of Information

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

INFO 567: Leadership and the Information Organization (3 units)
Description: All information organizations (libraries, archives, museums, and public and corporate organizations involved in information management) have leadership expectations of their professional employees whether they are in management positions or not. This course focuses the theories, principles, and practices of leadership in these organizations. The course will cover what is leadership and how it differs from management. It will identify what it means to be a professional-- career versus job orientation; understanding personal strengths and management styles (Myers-Briggs, Emotional Intelligence); and professional values-- customer focus, continual learning, diversity. It will also cover understanding organizations and organizational cultures; working on teams; collaboration and negotiation; project management; data based decisions; program development and budgeting, assessment and evaluation; communication skills and interpersonal skills-- including giving and receiving constructive feedback; managing conflict; relationship building and networking; leading change and managing up; and what to look for in a new position.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 567
Course typically offered:
Main Campus: Fall
Online Campus: Fall

Home department: School of Information

INFO 570: Data Base Development and Management (3 units)
Description: This course covers theory, methods, and techniques widely used to design and develop a relational database system and students will develop a broad understanding of modern database management systems. applications of fundamental database principles in a stand-alone database environment using MS Access and Windows are emphasized. Applications in an Internet environment will be discussed using MySQL in the Linux platform. Graduate-level requirements include a group project consisting of seven sections: Database Design; Implementation (Tables); Forms; Data Retrieval (Queries/Reports); Project Presentation; Project Report; and, Peer Evaluation.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 570
Course typically offered:
Main Campus: Fall
Online Campus: Fall

Home department: School of Information

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

INFO 571: Introduction to Information Technology (3 units)
Description: This course is designed to introduce the basic concepts and applications of Internet-related information technology and its impacts on individual users, groups, organizations, and society. The topics in this survey course include computing basics, network applications, human computer interactions, computer-support cooperative work, social aspects of information systems, information ethics, and other economic legal issues and ethical issues related to digital services and products.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 571
Co-convened with: LIS 471
Course typically offered:
Main Campus: Spring
Online Campus: Spring

Home department: School of Information

INFO 575: User Interface and Website Design (3 units)
Description: Study of the user interface in information systems, of human computer interaction, and of website design and evaluation.   Graduate-level requirements include group work and longer examinations.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 575
Course typically offered:
Main Campus: Fall, Spring
Online Campus: Fall, Spring

Home department: School of Information

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

INFO 577: Information Security (3 units)
Description: Security is about protecting assets, such as money and physical possessions. For instance, we use walls, locks, burglar alarms, and even armed guards to keep other people from stealing and/or destroying our stuff. These days, information is typically one of our most important assets. Thus, we have to worry about the possibility of other people stealing and/or destroying it. For instance, criminals threaten our data with scareware or ransomware in order to extort money from us. Also, they use phishing scams and spyware in order to steal our personal information (including passwords), which they can then use to access our computer systems and even steal our identities.The Group Presentation requires those taking the graduate course to participate in creating an online presentation on a topic within the scope of digital security.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Co-convened with: ESOC 477
Course typically offered:
Main Campus: Fall

INFO 578: Science Information and its Presentation (3 units)
Description: In today's digital society, people have access to a wide variety of information sources and scientific data. In this course, students will learn about the role of science and scientific data in society, and they will consider means for making science information findable and understandable for a wide variety of audiences. This course will provide students an interdisciplinary experience for considering science data and how that information gets shared across contexts.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 578
Co-convened with: ESOC 478
Course typically offered:
Main Campus: Spring

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

INFO 580: Data Standards for the Semantic Web (3 units)
Description: Organizing information in electronic formats requires standard machine readable languages. This course covers recent standards including XML(eXtensible Markup Language) and related technologies (XPath and XSLT) which are used widely in current information organization systems. Building on a sounding understanding of XML technologies, the course also introduces students to newer standards that support the development of the Semantic Web. These standards include RDF (Resource Description Framework), RDFS (RDF Schema), and OWL (Web Ontology Language) and their application under the Linked Data paradigm. While the application of many specific XML schemas used in libraries and other information setting such as science and business will be used to provide the context for various topics, the main focus of the course is on understanding the concepts of XML and Semantic Web technologies and on applying practical skills in various settings, including but not limiting to libraries. The course is heavy with hands-on assignments and requires students complete a final group project.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 580
Course typically offered:
Main Campus: Spring

Recommendations and additional information: Prerequisite met with completion of INFO/LIS 515 OR instructor's permission.

INFO 584: Introduction to Copyright (3 units)
Description: Introduces the basics of copyright law and fair use, also discusses the theoretical foundations and history of copyright and the public domain. These issues are placed within a broader multicultural and international context. By the end of the course students will: (a) know the basics of copyright law and fair use as they apply to libraries and related information services, and (b) understand the importance of balancing the rights of intellectual property owners with the societal need for a robust public domain. Graduate-level requirements include an individual project on a topic chosen in consultation with the professor.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 584
Course typically offered:
Main Campus: Fall, Summer
Online Campus: Fall, Summer

Home department: School of Information

-SA represents a Student Abroad & Student Exchange offering
-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

INFO 587: Information Seeking Behaviors (3 units)
Description: Information-seeking theories, methods, and user behaviors will be covered in order to gain an understanding of how people seek, gather, retrieve and use information. Information-seeking behavior draws on literature from library and information science, psychology, and communications. Graduate-level requirements include conducting a real-world experience or evaluation of information seeking behaviors in a self selected social context and information system. The project will include a two-page proposal of the experience due at the mid term and an online presentation to the class of the findings of the study, including; problem/issue studies, research question, data collected and analyzed, significance to the social context, and a statement of personal relationships to the topic and participants.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 587
Course typically offered:
Main Campus: Summer
Online Campus: Summer

Home department: School of Information

INFO 589: Scholarly Communication (3 units)
Description: Structure and workings of scholarly communication and products in the U.S. Examines the content and technology of scholarly communication in various disciplines.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Equivalent to: COMM 589, LIS 589
Also offered as: COMM 589, LIS 589
Course typically offered:
Main Campus: Fall
Online Campus: Fall

Home department: School of Information

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-CC represents a Correspondence Course offering
May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

INFO 595: Special Topics in Information Science, Technology, and Arts (1 - 6 units)
Description: Special topics courses are offered to allow students to explore specialized topics not covered in the program curriculum. Multiple topics might be offered in any given year, and specialized topic descriptions will be advertised by the School for students interested in enrolling in the course. A specific course syllabus will be published prior to the offer of a special topic course.
Grading basis: Regular Grades
Career: Graduate
Course Components: Colloquium Required
Repeatable: Course can be repeated a maximum of 6 times.
Co-convened with: ISTA 495
Course typically offered:
Main Campus: Fall, Spring
Online Campus: Fall, Spring

Field trip: None.

INFO 597: Biodiversity Informatics (1 - 6 units)
Description: Modern science has always been data driven but advances in data gathering tools from ground sensors to aerial-based remote sensing increase the researchers' opportunities and responsibility for the professional management of data to support the reproducibility and validity of science. In this course, biology, engineering, and information science students will learn to design and implement research methodologies for field research that effectively combine 1) the discovery and use of existing data with 2) the collection, organization, analysis, dissemination, and preservation of field generated research data. These research methodologies will be implemented/studied within the motivating context of behavioral wildlife observation research. Working in teams, students will build, program and deploy microcontroller-based field sensors to gather animal behavioral information in challenging field conditions. Students will use tools such as R and Jupyter Notebooks to add metadata, document data for publication and deposit the data in a trusted data repository.
Grading basis: Regular Grades
Career: Graduate
Course Components: Workshop Required
Co-convened with: ISTA 497
Course typically offered:
Main Campus: Summer

Field trip: Students will make a trip to the Santa Rita Experimental Range (Tucson, Arizona) and the Organization for Tropical Studies (Costa Rica) to conduct field research. Details to be provided.

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INFO 601: Intro to Geographic Information Systems & Tech I (6 units)
Description: This course will introduce the fundamental concepts of geographic information systems technology (GIST). It will emphasize equally GISystems and GIScience. Geographic information systems are a powerful set of tools for storing and retrieving at will, transforming and displaying spatial data from the real world for a particular set of purposes. In contrast, geographic information science is concerned with both the research on GIS and with GIS.   As Longley et.al., notes (2001, vii) ¿GIS is fundamentally an applications-led technology, yet science underpins successful applications.¿ This course will combine an overview of the general principles of GIScience and how this relates to the nature and analytical use of spatial information within GIS software and technology. Students will apply the principles and science of GIST through a series of practical labs using ESRI¿s ArcGIS software.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: GIST 601
Course typically offered:
Main Campus: Spring
Online Campus: Fall, Spring

Home department: School of Geography and Development

INFO 608: Managing the Information Organization (3 units)
Description: This course is designed to provide new information professionals with a basic understanding of ethical dilemmas and management concepts and theories as they are practiced in information organizations and to build some beginning management skills and competencies. By the end of the course, students should have a broad understanding and be able to discuss the difference between leadership and management, the types of organizational structures and cultures, the value of diversity and inclusion to organizational effectiveness, strategic planning and decision-making structures and ethical decision-making. Basic development in budgeting, project management, human resource management, and effective self-management are part of the course. Students will develop an awareness of personal strengths, professional values and leadership styles and competencies. The course is intended to help students be effective in a variety of organizations and build skills that will lead to middle level management positions and beyond.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 608
Course typically offered:
Main Campus: Spring
Online Campus: Spring

Home department: School of Information

INFO 635: Data Standards for the Semantic Web (3 units)
Description: Organizing information in electronic formats requires standard machine readable languages. This course covers recent standards including XML(eXtensible Markup Language) and related technologies (XPath and XSLT) which are used widely in current information organization systems. Building on a sounding understanding of XML technologies, the course also introduces students to newer standards that support the development of the Semantic Web. These standards include RDF (Resource Description Framework), RDFS (RDF Schema), and OWL (Web Ontology Language) and their application under the Linked Data paradigm. While the application of many specific XML schemas used in libraries and other information setting such as science and business will be used to provide the context for various topics, the main focus of the course is on understanding the concepts of XML and Semantic Web technologies and on applying practical skills in various settings, including but not limiting to libraries. The course is heavy with hands-on assignments and requires students complete a final group project.
Grading basis: Regular Grades
Career: Graduate
Course Components:　　Lecture　　　　　　　　Required
Also offered as: LIS 635
Course typically offered:
Main Campus: Spring

Recommendations and additional information: It is recommended students take LIS 515 prior to LIS 635.

INFO 640: Advanced Archives: Archival Appraisal and Description (3 units)
Description: This course examines the archivist's `first' responsibility - the appraisal of records for long-term preservation. Appraisal is first in the sequence of archival functions and, therefore, influences all subsequent archival activities. Importantly, appraisal is integral in archiving as, through it, archivists determine what sliver of the total human documentary production will actually become `archives' and thus part of society's historical narrative and collective memory. By performing appraisal and selection, archivists are thereby actively shaping the future's history of our times.Topics covered in this course include: Historical Foundations, Key Ideas, and Debates in Appraisal; Appraisal Methods and Strategies; Appraisal for Specific Formats and Genres; and Issues Relating to Appraisal, Democratization, Ethics, and Social Justice. Course readings, assignments, lectures, and discussions will provide students with a thorough knowledge of the basic theories, strategies, professional practices and discourses concerning appraisal with an orientation to doing this job well as working archivists. This is a reading intensive course. Students are expected to attend all classes, do all assigned readings, and participate in in-class and online discussions. Discussions are an integral part of this class as we make sense of our readings and everyday practices together. Participation is absolutely necessary for success. Students are encouraged to integrate relevant prior classroom learning, and personal, professional, and research experiences and reflect upon how these might be utilized or translated in order to work with communities, their archives, and archival materials.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 640
Course typically offered:
Main Campus: Spring
Online Campus: Spring

Recommendations and additional information: LIS 540.
Home department: School of Information

INFO 671: **Introduction to Digital Curation and Preservation** (3 units)
Description: LIS/INFO 671 introduces the basic functions of:* digital curation, a term that refers to the full set of management processes needed to create, select, describe, preserve and facilitate access to all types of digital collections, and* digital preservation, a formal endeavor to ensure that digital information of continuing value remains accessible and usable.We will focus primarily on digital curation and preservation in archives, libraries and museums, but we will also explore and compare digital curation and preservation practices from other disciplines, such as e-commerce, government documents and various business document systems and collections, in order to understand both the differences and similarities in the organization, management and preservation of different digital collections. By concentrating on common principles of information organization and information life cycles, you will be able to translate your learning and skills to many kinds of digital collections across disciplines and institutional cultures.This course will also introduce the basic problems associated with digital preservation. It will give students a thorough orientation to the technological and organizational approaches, which have been developed to address long-term preservation concerns. Finally, the course will examine the current state of the art in digital preservation and assess what challenges remain in research and implementation, policy, and ethical challenges in digital curation and preservation efforts.This course is designed to help new information professionals identify roles to play in managing and preserving digital objects and collections, and at the same time to enhance their effectiveness in working across organizational and technical boundaries.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 671
Course typically offered:
Main Campus: Fall
Online Campus: Fall

Home department: School of Information

INFO 672: Introduction to Applied Technology (3 units)
Description: This course provides a basic understanding of technology in the digital information environment along with an introduction to practical hands-on skills needed to manage digital information. The course combines reading, discussion, collaboration, project work, independent study, and guided hands-on practice. The course covers the basic installation, setup and maintenance of key systems found in the digital information environment today. Linux is used as a foundation for learning while drawing parallels to the Windows server operating system, Unix operating systems, and other operating systems.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 672
Course typically offered:
Main Campus: Fall
Online Campus: Fall

Home department: School of Information

INFO 673: Managing the Digital Information Environment (3 units)
Description: This course provides you with a basic understanding of the theory and practical approaches to the management of information and technology in the digital information environment. Management topics considered in this course range from the strategic (planning, leadership, and policy development) to the tactical (project management, the acquisition and deployment of technology) and ethical challenges and decision making for administrators, group leaders and project managers. The course combines reading, discussion, collaboration, project work, independent study, and guided hands-on practice in order to reinforce the concepts described in the project objectives.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 673
Course typically offered:
Main Campus: Summer
Online Campus: Summer

Home department: School of Information

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INFO 675: Advanced Digital Collections (3 units)
Description: This three-credit course is one of six required for completion of the Certificate in Digital Information Management (DigIn). This course will provide an in-depth look at the processes involved in building and managing digital collections and institutional repositories. The course will have a strong hands-on component in which students will apply advanced resource description methods to a collection, and then build a prototype repository along with a basic access system. Students will also analyze and discuss case examples of digital collections, focusing on technology management issues and organizational strategies for building different types of collections.
Grading basis: Regular Grades
Career: Graduate
Course Components: Lecture   Required
Also offered as: LIS 675
Course typically offered:
Main Campus: Spring
Online Campus: Spring

Recommendations and additional information: IRLS 672. Students must have access to the server environment they built for the Applied Technology course.
Home department: School of Information

INFO 692: Directed Research (1 - 3 units)
Description: Directed Research courses are intended to cover advanced material outside of or beyond the scope of current course offerings. In such courses, the student will work on a research project under the direct supervision of a School of Information faculty member. The research topic should be relevant to MS degree competencies and contribute to the development of the student¿s knowledge and skill sets in the field of Information Science. The student should propose a research plan including the expected outcome and the faculty advisor should approve it before registration. The research plan should include a problem statement, proposed research methods, expected outcome, a schedule of research activities and meeting schedule between the student and the faculty advisor, and the assessment of the student performance. The amount of the work should be appropriate for the requested credits. The primary faculty advisor must be an SI faculty, but faculty members from other units may participate in advising the student.
Grading basis: Regular Grades
Career: Graduate
Course Components: Independent Study   Required
Repeatable: Course can be repeated a maximum of 4 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

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May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

INFO 693: Internship (1 - 6 units)
Description: Internship is intended to provide an opportunity for students to build on what they have mastered in the program and practice the knowledge and skills in the real world. The Internship should be relevant to student's degree competencies and contribute to the development and enforcement of the student's knowledge and skill sets in the field of Information Science. The student should propose an internship plan and the identify an internship site supervisor, who typically is external. The site supervisor and the graduate advisor of the school need to approve the plan prior to course registration. The plan should include goals for the internship, degree competencies addressed by the internship, expected tasks to be completed, work schedule, and the assessment plan. The amount of the work should be appropriate for the units registered (3 units = 135 hours). The internship may be paid or unpaid. Student may take an internship in the same organization where student is employed, but work planed for the internship need to have a clear separation from the work expected by the employment. At the conclusion of the internship, the site supervisor is expected to submit a written assessment of student's work.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study   Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

INFO 696E: Graduate Seminar (3 units)
Description: The development and exchange of scholarly information, usually in a small group setting. The scope of work shall consist of research by course registrants, with the exchange of the results of such research through discussion, reports, and/or papers.
Grading basis: Regular Grades
Career: Graduate
Course Components: Seminar   Required
Repeatable: Course can be repeated a maximum of 2 times.
Course typically offered:
Main Campus: Fall, Spring

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May Be Offered Departments may offer this component in some semesters. See the Schedule of Classes for term-specific offerings.

INFO 698: Capstone Project (1 - 3 units)
Description: Capstone Project is intended to provide an opportunity for students to show off what they have mastered in the program. The project should be relevant to MS degree competencies and contribute to the development and enforcement of the student's knowledge and skill sets in the field of Information Science. The student should propose a project plan and the faculty advisor should approve it before registration. The project plan should include goals for the project, MS competencies addressed by the project, system design, an implementation schedule, and the assessment plan. The project plan should also include reasonable milestones and check points. The amount of the work should be appropriate for a 3-unit course. The primary faculty advisor must be an SI faculty, but faculty members from other units may participate in advising the student.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study   Required
Course typically offered:
Main Campus: Fall, Spring, Summer

Recommendations and additional information: INFO MS students are eligible to take the course in their last term.

INFO 699: Independent Study (1 - 3 units)
Description: Independent studies are intended to cover advanced material outside of or beyond the scope of current course offerings. The topic should be relevant to MS degree competencies and contribute to the development of the student's knowledge and skill sets in the field of Information Science. The student should propose a study plan and the faculty advisor should approve it before registration. The study plan should include learning objectives, readings and/or activities, a schedule of the meetings between the student and the faculty advisor, and the learning outcome and its assessment. The amount of the work should be appropriate for the requested credits. The primary faculty advisor must be an SI faculty, but faculty members from other units may participate in advising the student.
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study   Required
Repeatable: Course can be repeated a maximum of 6 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

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INFO 920: Dissertation (1 - 9 units)
Description: Research for the doctoral dissertation (whether library research, laboratory or field observation or research, artistic creation, or dissertation writing).
Grading basis: Alternative Grading: S, P, F
Career: Graduate
Course Components: Independent Study   Required
Repeatable: Course can be repeated a maximum of 99 times.
Course typically offered:
Main Campus: Fall, Spring, Summer

Recommendations and additional information: Instructor consent only.