

Information Technology

- IT 500 Introduction to Programming I** 2 Cr.
A first course in problem-solving through algorithm development and analysis, with an introduction to software design. Students design algorithms for the solution of elementary problems, and write, document, and debug programs for the implementation of those algorithms.
- IT 501 Introduction to Programming II** 2 Cr.
A continuation of IT 500, with an emphasis on developing more skills in complex program development, data structures, and object orientation. Topics include stacks, queues, and linked lists. Students design and write intermediate-sized programs. Prerequisite: IT 500, or placement test result.
- IT 502 Programming** 4 Cr.
A first course in problem-solving through algorithm development and analysis and software design. Students design and write elementary and intermediate sized programs. Includes an intensive study of Java or another similar programming language.
- IT 530 Operating Systems** 2 Cr.
An introduction to the concepts of modern operating systems. Topics include processes, scheduling, synchronization, virtual memory, file systems, shells, and security. Lab topics include common operating system utilities and commands, as well as programming to use OS facilities.
- IT 535 Networking** 2 Cr.
An introduction to the concepts of computer networks, with an emphasis on Internet Protocol. Topics include the OSI layered model, network and transport layer protocols, design goals, and security. Lab topics include common network information and configuration utilities, as well as programming to use network facilities. Prerequisite: IT 500.
- IT 540 Web Programming** 2 Cr.
An introduction to web technology covering a number of specific systems such as html, php, SQL, javaScript, and XML. A laboratory component provides hands-on experience. Prerequisite: IT500.
- IT 558 Software Development and Programming** 3 Cr.
Students explore the specification, design, implementation, documentation, testing, and management of software systems, and fundamentals of graphics and graphical user interfaces. The course includes a group project, directed by the instructor, to design and develop a usable software system.
- IT 560 Mobile Computing** 2 Cr.
This class provides experience creating applications in a mobile device environment such as Android, IOS, or Windows Mobile. Topics include the model, view, controller paradigm, user interaction, hardware device interaction, and common patterns of application behavior. Prerequisite: IT500.
- IT 590 Topics in Information Technology** 1-3 Cr.
Study of special and timely topics in information technology. May be repeated more than once when topics differ. Prerequisite: instructor approval.
- IT 602 Introduction to Information Technology** 2 Cr.
Reviews the academic discipline of IT, including pervasive IT themes, IT history, organizational issues, and relationship of IT to other computing disciplines. Prerequisite or concurrent enrollment: IT500.
- IT 603 Information Management** 3 Cr.
Builds a deeper understanding of how databases work, including the topics of database theory and architecture, data modeling, normalization, query languages, security, and web applications. May be repeated more than once when topics differ. Prerequisite: IT 500.
- IT 604 Project Management** 3 Cr.
Development of skills and concepts of project management. Emphasis on learning and applying concepts in the Project Management Body of Knowledge (PMBOK) and how those concepts relate to the field of Information Technology management.
- IT 630 User Interface** 3 Cr.
Discussion and application of the concepts of human-computer interaction, including human factors, performance analysis, cognitive processing, usability studies, environment, and training.

- IT 632 Instructional Design in Information Technology** 3 Cr.
Discussion and hands-on application of instructional design methodology. Students will work individually and in teams to apply instructional design concepts to real-world situations in order to gain experience designing instruction.
- IT 633 Data Mining** 3 Cr.
Data mining is a broad area that integrates techniques from several fields, including machine learning, statistics, pattern recognition, artificial intelligence, and database systems, for the analysis of large volumes of data. This course gives a wide exposition of these techniques and their software tools. Prerequisite: IT 500.
- IT 640 System Integration and Administration** 3 Cr.
Development of skills and concepts essential to the administration of operating systems, networks, software, file systems, file servers, web systems, database systems, and system documentation, policies, and procedures, including education and support of the users of these systems. Also involves skills to gather requirements, source, evaluate, and integrate components into a single system, and validate the system. May be repeated more than once when topics differ. Prerequisite: IT 501.
- IT 642 Information Security** 3 Cr.
Concepts of data security, including policies, attacks, vulnerabilities, encryption, information states, and forensics. Prerequisite: IT 501.
- IT 644 Technology, Law, and Policy** 3 Cr.
This course explores the legal, regulatory, and policy framework of information technology, cybersecurity, cyber warfare, and cybercrime. Students will be exposed to professional standards and practices, national and international laws governing this field, and organizations involved in the formulation of such laws and policies. Additionally, this course will examine topics related to privacy, intellectual property, and regulations used to mitigate cyber threats and cyber-attacks in both governmental and non-governmental organizations.
- IT 646 Hacking Techniques and Counter-Measures** 3 Cr.
The study of several ethical hacking techniques and principles needed for a security expert in today's world. Students will acquire in-depth knowledge of network security. Prerequisite: IT500.
- IT 648 Risk Management** 3 Cr.
This course examines the essential business issues, information technology infrastructure, and the foundations of information technology risk management. Students apply IT risk management topics to information security and assurance and focus on managerial policy and strategies used in the selection of technology solutions.
- IT 652 Integrative Programming and Technologies** 3 Cr.
Integration of applications and systems, and examination of the various types of programming languages and their appropriate use. This course also addresses the use of scripting languages, architectures, application programming interfaces, and programming practices to facilitate the management, integration, and security of the systems that support an organization. May be repeated more than once when topics differ. Prerequisite: IT500.
- IT 654 Internet and Web Technologies** 3 Cr.
Introduction to web technologies and systems, including hypertext, self-descriptive text, web page design, web navigational systems, and digital media. Includes a laboratory component providing hands-on experience related to Internet and web technologies. One or more projects required.
- IT 664 Natural Language Technologies** 2 Cr.
This course looks at a variety of IT applications that process language with an overview of how each can be applied in ordinary IT, how the technology is obtained, and the mathematical and algorithmic principles behind each. Topics vary each time, but may include spelling correction, text summarization, information retrieval, speech recognition, interactive voice response, fonts and character sets, internationalization of software and web sites, machine translation, chatterbots, IP telephony, and opinion mining. Prerequisite: IT 501.
- IT 670 Professional Development** 3 Cr.
Understanding the social and professional context of information technology and computing, and developing skills relevant to professional conduct and advancement. Prerequisite: IT 500.
- IT 686 Internship** 1-3 Cr.
A supervised work experience in an IT organization or IT-related position. No more than 4 credits of IT 786 and 787 may be applied to the degree. Prerequisite: IT 689 and approval by the IT Director and/or Dean of the Graduate

School.

- IT 689 Professional and Career Development** 0-1 Cr.
(Also offered as ICP 689, KIN 689, LS 689, or PSY 689.) Encourages students to reflect upon their career goals, strengths, and challenges as they plan their entry into the job market, and to develop successful skills and strategies for a job search. Includes resume and cover letter preparation, networking, interviewing, approaching referees, and other topics relevant to preparation for career advancement, including further graduate study. S/U grade only.
- IT 787 Advanced Internship** 1-3 Cr.
A second supervised work experience in an IT organization or IT-related position. Responsibilities and experience must differ from IT 786. No more than 4 credits of IT 786 and 787 may be applied to the degree. Prerequisite: IT 786 and approval by the IT director and/or dean of the Graduate School.
- IT 790 Advanced Topics in Information Technology** 1-3 Cr.
Study of special advanced topics in information technology. May be repeated more than once when topics differ. Prerequisite: 9 credits of IT coursework.
- IT 792 Research Project** 1-3 Cr.
Research on a topic of special interest to the student under the supervision of a faculty adviser. Major paper or evidence of project completion is required. Prerequisite: 9 credits of IT coursework and the project must be approved prior to registration. No more than 6 credits of IT 792 and IT 795 may be applied toward the degree.
- IT 795 Independent Study** 1-3 Cr.
Investigation of IT topics under a faculty supervisor. Requires a research or concluding paper, or evidence of project completion. Prerequisite: 9 credits of IT coursework and the project must be approved prior to registration. No more than 6 credits of IT 792 and IT 795 may be applied toward the degree.