

School of Informatics

The School of Informatics offers programs that study the inter-relationship of people, information and technology to prepare students for today's digital, global economy. Informatics builds solid technology skills on a traditional liberal arts foundation. As such, Informatics may be viewed as an academic bridge that connects information technology to other "cognate disciplines" such as those within hotel administration, fine arts, public health, the humanities, business and engineering. One of the strengths of Informatics is this interdisciplinary focus. Students who matriculate the program will be able to take advantage of a unique educational experience that integrates Informatics with another academic discipline of interest.

Accreditation

Northwest Commission on Colleges and Universities

Undergraduate Major

Bachelor of Science in Informatics

Mission

The mission of the School of Informatics is to provide an academic path for students who are interested in pursuing a career that combines computing and information technology with another academic discipline. The curriculum is inherently interdisciplinary and recognizes that the human, information, and technology dimensions of problem solving are equal contributors in advanced informatics applications areas. The School of Informatics will produce graduates who become successful and internationally competitive educators, entrepreneurs, innovators and leaders in the global information economy.

Graduates from the School of Informatics will possess the skills to apply information technology deeply and effectively in related disciplines, referred to as "cognate" areas. These graduates will be ideally suited to achieve profound advances in these cognate areas. They will also possess general knowledge in the discipline of informatics, which will equip them with the principles and conceptual framework necessary to invigorate any discipline using advanced information technology.

The School of Informatics responds directly to the objectives of UNLV's macrotheme in informatics (www.unlv.edu/pubs/planning/macrothemes.html).

Goals

The School of Informatics will accomplish its mission by achieving the following goals:

1. Achieve and sustain a world-class academic program at the undergraduate and graduate levels in Informatics.
2. Prepare students for 21st century careers, both integrating and applying advanced information technologies to innovate new methods, and also increase the efficiency of knowledge creation in other disciplines.
3. Provide graduates with a competitive advantage in the workplace by guiding the development of diverse skill sets to meet the complex and variegated challenges of the information technology industry.

4. Build an internationally recognized faculty in Informatics through aggressive recruiting, retention, and advancement based primarily upon the relevance, demonstrated excellence, and international recognition of their work in Informatics.

Program Objectives

The following objectives will enable us to accomplish our goals and satisfy our mission:

1. Build the instructional models around the project-based education, with particular emphasis toward the interrelationships between humans and technology; the centrality of current and future digital media; and the organizational, societal and cultural implications of what humans do with information and the technology that supports its use.
2. Selectively hire and retain faculty with a history of, or strong potential for, transdisciplinary research and a commitment to our instructional model.
3. Create learning environments and laboratories that are qualitatively compatible with the development and production environments in the most advanced technology industries.
4. Maintain objectively documented nationally competitive programs in selective high-profile/high-demand areas such as entertainment informatics, digital media, health information technology, human-computer interaction, and information systems security.
5. Become the focal point in selected research areas that directly support such critical components of the private sector in Las Vegas and Nevada as entertainment, gaming, hospitality, healthcare, and security.
6. Establish close relationships with the local industry executives through advisory boards and cooperative programs.
7. Work with local industry and government agencies to facilitate student transition into the employment market.
8. Encourage strategic research partnerships between faculty and students.

Additional information may be found on the School of Informatics website at www.informatics.unlv.edu.

Admission to the Major:

Entering Freshmen - minimum 3.0 GPA from high school;
Transfer students - minimum 2.75 GPA cumulative from all schools, as calculated by UNLV Student Enrollment Services;
Students changing majors at UNLV - 2.75 UNLV GPA based on at least 12 academic credits earned at UNLV.

School Policies

1. Students must complete a minimum of 30 credit hours in informatics courses at the 300–400 (junior–senior) level.
2. Students must maintain a minimum GPA of 2.75. Any course taken to satisfy the requirements of the major must be completed with a minimum grade of C.

3. Students are expected to complete the requirements for their undergraduate degree within eight years of admission to the School of Informatics. Students are allowed to continue beyond this time period only at the discretion of the director. If a student has not taken classes for three years or more, that student must satisfy program requirements of the School of Informatics in effect at the time of reactivation. Requests for deviation from requirements listed in the catalog must be approved in writing by the director, whose decision is final.
4. Courses that fulfill the requirements for a cognate area may also meet the general education distribution requirements.
5. Cognate area courses may not count as informatics core courses or informatics elective courses.
6. If a cognate-area course is equivalent to an informatics core course, students must substitute additional informatics elective courses in place of informatics core courses with the concurrence of the director of the School of Informatics, to meet the 30 credit hour requirement.
7. Courses that fulfill the requirements for a bachelor's degree in informatics may also apply to a minor outside of the School of Informatics.

Degree Requirements

Informatics — Bachelor of Science

1) English Composition	6 credits
ENG 101 and 102	
2) English Literature	3 credits
ENG 231 or 232	
3) Constitutions	3-6 credits
4) Mathematics	3 credits
MATH 126 or higher (except MATH 132)	
5) Distribution Requirement (Life & Physical Sciences & Analytical Thinking), Humanities and Fine Arts	9 credits
Social Science	9 credits
6) Multicultural	(see note 1)
International	(see note 1)
7) Degree Requirements:	
Mathematics	6 credits
MATH 132, and STAT 152 or ECON 261	
Philosophy	3 credits
PHIL 114	
Natural Sciences	3 credits
Informatics Core Courses	30 credits
INF 100, 110, 200, 210, 220, 300, 310, 320, 400, and 499	
Cognate Area Courses	15 credits
(See note 2.)	
Informatics Electives:	18 credits
(15 credits from 300 or higher level)	
Free Electives to ensure that minimum total credits are 124	13-16 credits
Total	124 credits

Notes:

1. Every student must complete a three-credit multicultural course and a three-credit international course. Courses satisfying other requirements may simultaneously satisfy the multicultural and international requirements except one course cannot satisfy both multicultural and international requirements.
2. Cognate area is a multidisciplinary program of courses selected outside the School of Informatics. The area of study must be chosen in consultation with a School of Informatics advisor.

Informatics

INF 100

Introduction to Informatics I - Basic Concepts

Deals with the nature of Informatics within the information technology space. The core concept of integration of people, technology and information will be addressed. The emphasis will be on the practical dimension of Informatics, real problems, and the socio-economic situations in which they arise. A variety of Informatics tools will be presented from a variety of domains, and their implications for science, engineering, art, the humanities and society will be discussed. 3 credits.

INF 110

Intro to Informatics II - Information Infrastructures

Extension of the outcomes of the White House National information infrastructure task force. Basic concepts of computing and network hardware; software architecture of information systems; systems and applications programming. Fundamental data constructs. General problem-solving techniques. Building secure and reliable information infrastructures. Prerequisite: INF 100. 3 credits.

INF 200

Social Informatics

Social and behavioral foundations of informatics. Theoretical approaches to how technology is used from psychological and sociotechnical perspectives. Examples of how current and emerging technologies such as games, e-mail, and electronic commerce are affecting daily lives, social relations, work, and leisure time. Prerequisites: INF 110 and PHIL 114. 3 credits.

INF 202

Introduction to Healthcare Informatics

Introduces the fields of informatics within the healthcare sector. Emphasizes core concept of the integration of people, technology and information. Focuses on the applications of informatics within healthcare delivery settings, from hospitals to provider offices to long-term care facilities to the home care setting. Informatics domains in various healthcare fields are presented, and changes in healthcare practice due to technology integration and deployment are highlighted. 3 credits.

INF 210**Organizational Informatics**

Needs, uses, and consequences of information in organizational contexts. Topics include organizational types and characteristics, functional areas and business processes, information-based products and services, use of and redefining role of information technology, changing character of work and organizational practices, socio-technical structures, and rise and transformation of information-based industries. Prerequisites: INF 110 and PHIL 114. 3 credits.

INF 220**Human-Computer Interaction**

The analysis of human factors and the design of computer application interfaces. A survey of current best practices with an eye toward the evolutionary path of future technologies. Prerequisites: INF 110 and PHIL 114. 3 credits.

INF 300**Digital Media**

Studies how the paradigm shift to a digital world will affect humanity. Considers the evolution of media arts and its underlying principles of communications. Introduction to, and comparison between, digital media for secure storage of disparate media types. Secure media management. Students will study application development paradigms in current practice. Prerequisite: INF 220. 3 credits.

INF 310**Information and Computer Systems Security**

Current information and computer systems security issues, tools and practices. Basic cryptography, operations security, personnel and administrative security. Legal issues in information, computing and networked systems. Technical aspects of information and computer systems security required for optimal decision making. Risk analysis. Risk management. Information warfare. Information economics. Privacy. Maintaining continuous operation. Incident response. Security training. Security certifications. Case studies. Prerequisite: INF 210. 3 credits.

INF 320**Informatics Project Management**

Fundamentals of project management, planning, reporting, team building, and team leadership. The project lifecycle; planning, analysis, design, implementation, testing, evaluation, and maintenance. Security risks and controls. Responding to changes in market conditions, resources, requirements, and schedules. Securing systems and processes. Security risks, risk management, and controls. Budgeting for information security, reliability and privacy. Prerequisite: INF 210 and MATH 132. 3 credits.

INF 340**Web Design Concepts**

Introduction to the fundamentals of Web Design. Introduces students to HyperText Markup Language (HTML), Cascaded Style Sheets (CSS), SharePoint 2007, and Scripting Languages such as Hypertext Preprocessor (PHP) and Common Gateway Interface (CGI). Prerequisites: INF 100 or CS 115 or IS 101 and junior standing. 3 credits.

INF 341**Internet Concepts**

Designed to familiarize students with computer networks and the Internet and their effects on informatics systems and modern culture. Topics include how computers communicate, what the Internet is, how the Internet works, and what the Internet can do for people. Prerequisites: INF 100 or CS 115 or IS 101 and junior standing. 3 credits.

INF 342**Computer and Internet Forensics**

Basics of Computer Forensics and Internet Forensics. How to protect your privacy on the internet: E-mail, obfuscation, web sites and servers. Encryption, data hiding, and hostile code. Investigating Windows and Unix. Technical and legal issues regarding digital evidence collection and forensics analysis. Prerequisites: INF 100 or CS 115 or IS 101 and junior standing. 3 credits.

INF 345 (Formerly CS 345)**CyberWarfare**

Introduction to the principles of information security. Survey of information security technologies, management and administration techniques necessary to improve information security and respond to a security breach, legal and ethical issues relating to information security, case studies. Prerequisite: Junior standing. 3 credits.

INF 400**Advanced Topics in Informatics**

Variable topic. Emphasis is on new developments and research in informatics. Can be repeated twice for credit when topics vary. May be repeated to a maximum of six credits. Prerequisites: INF 300, 310, 320 and junior standing. 3 credits.

INF 420**Advanced HCI - Theory and Concepts**

Covers the cognitive theory relevant to interactive system design. Addresses multidisciplinary foundations of Human Computer Interaction varying from social and behavioral sciences to information and computer technologies. Prerequisite: INF 220. 3 credits.

INF 421**Advanced HCI - Design and Implementation**

Organized around readings in Human Computer Interaction and various design projects applying HCI interaction principles to the design, implementation, and evaluation of interactive systems. Reading topics include interactive design basics, design rules, implementation, and evaluation techniques. Prerequisites: INF 220 and CS 202. 3 credits.

INF 450**Digital Forensics**

Broad overview of digital forensics and cyber-crime scene analysis. Topics include: digital forensics in law enforcement; digital evidence collection and analysis; digital forensic tools; computer forensic laws, regulations, and international standards; and network forensics. Prerequisite: INF 110. 3 credits.

INF 451

Computer Forensics

Principles, process, procedures, and the technologies behind computer forensics. Topics include: structured cyber-crime scene investigations; media types; computer hardware and operating system dependent issues; data acquisition and analysis; and open source forensics tools. Prerequisite: INF 450. 3 credits.

INF 452

Network Forensics

Principles and the technologies behind Network Forensics. Topics include: digital evidence in network layers; intrusion detection/prevention systems; network forensics tools and investigation techniques, and various case studies in network forensics. Prerequisite: INF 450. 3 credits.

INF 499

Informatics Professional Internship

Students gain professional work experience in an industry or research organization setting, using skills and knowledge acquired in informatics course work. Prerequisites: INF 300, 310, 320 and junior standing. 3 credits.

Department of Mechanical Engineering

Mechanical engineering is a diverse and flexible engineering discipline. The program emphasizes math, science, engineering science, and engineering design and is geared to prepare students for the lifelong practice of mechanical engineering and for immediate entry to positions in industry or further study in graduate school. Mechanical engineers work in a number of areas, including mechanisms, controls, vibrations, acoustics, energy conversion, thermal comfort, energy conservation, fluid flow, heat transfer, and HVAC. The program provides electives in several general areas, including thermal-sciences, mechanical design and manufacturing, robotics and automation, mechanical and environmental systems, nuclear/hazardous waste management, aerospace engineering, and bioengineering. Students begin the practice of design in their freshman year and integrate it throughout their programs which culminate in a team-oriented capstone design project in the senior year.

Mission

It is the mission of the Department of Mechanical Engineering to prepare students for the lifelong practice of mechanical engineering and related engineering disciplines. This includes preparation for immediate entry into positions in industry or for further study in graduate school.

In addition, the department sustains an outstanding academic program, motivating the faculty to attain excellence in research by acquiring external funding and by incorporating students into their research programs.

Accreditation

Northwest Commission on Colleges and Universities
Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) — B.S.E. in Mechanical Engineering.

Undergraduate Major

Bachelor of Sciences in the Engineering — Mechanical Engineering

Program Goals

The goals of Bachelor of Sciences in the Engineering — Mechanical Engineering program are to:

- Prepare graduates for the lifelong learning of mechanical engineering.
- Provide graduates with solid academic preparation for professional positions and/or graduate study.

Program Objectives

The Bachelor of Sciences in Engineering — Mechanical Engineering program has several objectives:

1. Provide mechanical engineering graduates with technical capabilities.
2. Prepare mechanical engineering graduates to have effective work-place skills.
3. Instill a sense of responsibility as a professional member of society.