

Computing

Mission: The mission of the Division of Computing is to provide students with an opportunity to obtain the knowledge of computing necessary to succeed in today's increasingly technical world. The division's curriculum focuses on both theoretical knowledge and practical applications that enrich analytic, creative, and research capabilities essential to success in various computing fields. Our curriculum provides students the opportunities to pursue individual interests through special topic courses, internships, and projects that further enhance their learning experience outside the traditional classroom setting. Introductory courses in various computer-related topics are offered for non-major students.

Student Learning Outcomes

Students will:

- Understand and be able to demonstrate analytic and critical reasoning ability through algorithmic development and software implementation.
- Communicate effectively utilizing current technology in information systems. This includes the acquisition, summarization, and presentation of existing and synthesized knowledge.
- Demonstrate an understanding of computer and communication systems and hardware and software systems, including the design, development, implementation, and integration into an organization.

Students may earn a Bachelor of Science degree with a major in computer science, cybersecurity, management information systems, or applied artificial intelligence. These programs integrate both scientific and business perspectives of computing, preparing students with the knowledge and skills needed to excel as technology professionals. Upper-division coursework in each major provides specialized training that equips graduates for careers in a wide range of computing fields.

Students within all majors experience a variety of programming environments including many microcomputer systems as well as multi-user environments. Students are exposed to modern programming languages appropriate to their selected majors and gain valuable experience with a wide selection of computer hardware and resources. This variety of resources coupled with elective courses allows students to personalize the specialized knowledge they wish to obtain.

The division also offers minors in computer science and applied artificial intelligence. Students who complete the required courses for the minor can expect to obtain technical skills and general computing knowledge.

COMPUTER SCIENCE

■ **Major: 57 credit hours**

■ **Minor: 22 credit hours**

PROGRAM REQUIREMENTS:

■ **Major/Minor GPA required for graduation: 2.25**

■ **Must take any two science courses with a laboratory requirement**

■ **All courses for the major and minor must be completed with a grade of C- or better**

Description of Major: Computer science majors are provided with the systems programming and problem-solving skills commonly expected in technical positions at employers that require strong analytical and interpersonal skills. In addition, they obtain the necessary theoretical background required to pursue further education and advanced degrees. Majors in computer science should expect employment in both the industrial sector and scientific lab environments.

**COMPUTER SCIENCE
 MAJOR REQUIREMENTS** **57 crs.**
REQUIRED COURSES **48 crs.**

CSI 131	COMPUTATIONAL THINKING	2
CSI 132	INTRODUCTION TO PROGRAMMING	3
CSI 230	INTRODUCTION TO COMPUTING	5
CSI 235	MATHEMATICS OF COMPUTING	3
CSI 300	COMPUTER ORGANIZATION AND ARCHITECTURE	3
CSI 330	DATA STRUCTURES AND ALGORITHMS	3
CSI 335	ANALYSIS OF ALGORITHMS	3
CSI 345	THE STRUCTURE OF OPERATING SYSTEMS	3
CSI 410	SOFTWARE ENGINEERING	3
CSI 450	COMPUTER NETWORKING AND COMMUNICATIONS	3
CSI 475	NATURAL LANGUAGE PROCESSING AND GENERATIVE AI	3
CSI 497	SENIOR SEMINAR I	1
CSI 498	SENIOR SEMINAR II	2
MTH 210	CALCULUS I	4
MTH 211	CALCULUS II	4
MTH 170	STATISTICS	3

THREE COURSES FROM THE FOLLOWING **9 crs.**

CSI 337	INFORMATION SECURITY	3
CSI 341	APPLIED MACHINE INTELLIGENCE	3
CSI 366	NUMERICAL ANALYSIS	3
CSI 369	SOCIAL, LEGAL, AND ETHICAL ISSUES OF COMPUTING (W)	3
CSI 380-389	SPECIAL TOPICS IN COMPUTING AND INFORMATION SYSTEMS	3
CSI 415	ADVANCED DATABASE CONCEPTS	3
CSI 440	ARTIFICIAL INTELLIGENCE	3
CSI 445	DATA SCIENCE AND MACHINE LEARNING	3
CSI 470	INTERNSHIP IN COMPUTING AND INFORMATION SCIENCE	3
CSI 480	INDEPENDENT STUDY IN COMPUTING AND INFORMATION SCIENCE	3

**COMPUTER SCIENCE
 MINOR REQUIREMENTS** **22 crs.**

CSI 131	COMPUTATIONAL THINKING	2
CSI 132	INTRODUCTION TO PROGRAMMING	3
CSI 230	INTRODUCTION TO COMPUTING	5
CSI 300	COMPUTER ORGANIZATION AND ARCHITECTURE	3
CSI 330	DATA STRUCTURES AND ALGORITHMS	3
TWO UPPER-LEVEL CSI ELECTIVES		6

CYBERSECURITY

■ **Major: 58 credits**

PROGRAM REQUIREMENTS:

- **Major GPA required for graduation: 2.25**
- **All courses for the major must be completed with a grade of C- or better**

Mission: The mission of this program is to educate students in technology and in securing cyber systems with both technical and non-technical methods.

Student Learning Outcomes

Students will:

- Demonstrate analytic and critical reasoning ability through the analysis, development, and implementation of security solutions to cyber systems.
- Communicate effectively utilizing current technology in information systems, which includes the acquisition, summarization, and presentation of existing and synthesized knowledge.
- Demonstrate an understanding of security issues in regards to computer and communication systems. This includes both hardware and software systems, including the design, development, implementation, and integration of security systems into an organization's Infrastructure.

Description of Major: Students majoring in cybersecurity are provided with analytical and problem-solving skills to evaluate and summarize fundamental cybersecurity concepts, theories, and strategies. Additionally, they are prepared to recommend technical and non-technical security solutions on various cyber systems, interpret and apply cyber incident response plans, and assess risks, vulnerabilities and threats to cyber systems. They obtain the necessary theoretical background required to pursue further education and advanced degrees. With a major in cybersecurity, students should expect employment in both the industrial sector and in government agencies.

CYBERSECURITY

MAJOR REQUIREMENTS		58 crs.
CSI 131	COMPUTATIONAL THINKING	2
CSI 132	INTRODUCTION TO PROGRAMMING	3
CSI 205	DATA VISUALIZATION	3
CSI 215	INTRODUCTION TO DATABASES	3
CSI 230	INTRODUCTION TO COMPUTING	5
CSI 235	MATHEMATICS OF COMPUTING	3
CSI 300	COMPUTER ORGANIZATION AND ARCHITECTURE	3
CSI 330	DATA STRUCTURES AND ALGORITHMS	3
CSI 337	INFORMATION SECURITY	3
CSI 345	THE STRUCTURE OF OPERATING SYSTEMS	3
CSI 357	ETHICAL HACKING	3
CSI 369	SOCIAL, LEGAL AND ETHICAL ISSUES OF COMPUTING (W)	3
CSI 410	SOFTWARE ENGINEERING	3
CSI 434	INTRODUCTION TO CRYPTOGRAPHY	3
CSI 445	DATA SCIENCE AND MACHINE LEARNING	3
CSI 450	COMPUTER NETWORKING AND COMMUNICATIONS	3
CSI 467	DIGITAL FORENSICS	3
CSI 497	SENIOR SEMINAR I	1
CSI 498	SENIOR SEMINAR II	2
MTH 170	STATISTICS	3

MANAGEMENT INFORMATION SYSTEMS

■ **Major: 41 credits**

PROGRAM REQUIREMENTS:

- **Major GPA required for graduation: 2.25**
- **All courses for the major must be completed with a grade of C- or better**
- **Capstone: Senior Seminar I (CSI 497) and Senior Seminar II (CSI 498)**

Description of Major: Management information systems majors complete coursework in computing and business. They are prepared for graduate study; for employment as information technology managers, systems analysts, or tech consultants; or for other positions requiring an understanding of information technology in a business setting.

MANAGEMENT INFORMATION SYSTEMS

MAJOR REQUIREMENTS		41 crs.
CSI 131	COMPUTATIONAL THINKING	2
CSI 132	INTRODUCTION TO PROGRAMMING	3
CSI 141	PYTHON PROGRAMMING	3
CSI 215	INTRODUCTION TO DATABASES	3
CSI 315	SYSTEMS ANALYSIS AND DESIGN	3
CSI 337	INFORMATION SECURITY	3
CSI 417	PROJECT MANAGEMENT	3
CSI 497	SENIOR SEMINAR I	1
CSI 498	SENIOR SEMINAR II	2
MGT 204	PRINCIPLES OF MANAGEMENT	3
ACC 205	PRINCIPLES OF FINANCIAL ACCOUNTING	3
BUS 310	QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS	3
MGT 314	ORGANIZATIONAL BEHAVIOR	3
BUS 410	MANAGEMENT INFORMATION SYSTEMS	3
MTH 170	STATISTICS	3

APPLIED ARTIFICIAL INTELLIGENCE

- **Major: 44 credit hours**
- **Minor: 18 credit hours**

PROGRAM REQUIREMENTS:

- **Major/Minor GPA required for graduation: 2.25**
- **All courses for the minor must be completed with a grade of C- or higher.**

Mission: The mission of this major is to equip students with the knowledge and skills to harness AI and machine learning, developing tools and systems that drive innovation and transform the future of work and technology.

Student Learning Outcomes

Students will:

- Demonstrate analytic and critical reasoning by applying AI and Machine Learning (ML) tools to data-driven problem-solving and system development.
- Communicate effectively using current technologies to convey AI and ML concepts to both technical and non-technical audiences.
- Design, develop, and integrate AI and ML systems using platforms such as Python, TensorFlow, and Keras, while evaluating their ethical and social implications.

Description of Minor: The applied artificial intelligence major prepares students to think critically, solve problems, and apply core concepts in AI. Students build a strong foundation in AI theories, tools, and strategies, learning both how to use existing AI and how to develop new systems. Graduates are ready to apply their AI and computing knowledge to real-world challenges across many fields and to pursue advanced study in computing, machine learning, or artificial intelligence.

APPLIED ARTIFICIAL INTELLIGENCE

MAJOR REQUIREMENTS 44 crs.

CSI 112	ARTIFICIAL INTELLIGENCE LITERACY	1
CSI 131	COMPUTATIONAL THINKING	2
CSI 132	INTRODUCTION TO PROGRAMMING	3
CSI 141	PYTHON PROGRAMMING	3
CSI 205	DATA VISUALIZATION	3
CSI 215	INTRODUCTION TO DATABASES	3
CSI 230	INTRODUCTION TO COMPUTING	5
CSI 235	MATHEMATICS OF COMPUTING	3
CSI 341	APPLIED MACHINE INTELLIGENCE	3
CSI 369	SOCIAL, LEGAL, AND ETHICAL ISSUES OF COMPUTING (W)	3
CSI 440	ARTIFICIAL INTELLIGENCE	3
CSI 445	DATA SCIENCE AND MACHINE LEARNING	3
CSI 475	NATURAL LANGUAGE PROCESSING AND GENERATIVE AI	3
CSI 497	SENIOR SEMINAR I	1
CSI 498	SENIOR SEMINAR II	2
MTH 170	STATISTICS	3

APPLIED ARTIFICIAL INTELLIGENCE

MINOR REQUIREMENTS 18 crs.

CSI 112	ARTIFICIAL INTELLIGENCE LITERACY	1
CSI 131	COMPUTATIONAL THINKING	2
CSI 141	PYTHON PROGRAMMING	3
CSI 205	DATA VISUALIZATION	3
CSI 341	APPLIED MACHINE INTELLIGENCE	3
CSI 440	ARTIFICIAL INTELLIGENCE	3
MTH 170	STATISTICS	3

Computing (CSI)

<p>CSI 109 SPECIAL TOPICS IN COMPUTER USE This course addresses topics related to the use of specific software packages and/or systems to explore issues related to a variety of academic disciplines.</p>	<p>1-3</p>	<p>CSI 205 DATA VISUALIZATION This course introduces the analysis and visual presentation of data. Students will learn to apply visualization tools, techniques, and concepts to explore large data sets, discover meaningful patterns and relationships, and explain complex data to various audiences. Fundamental statistics, as well as principles of color theory and visual perception, essential for crafting compelling graphic displays, are covered. Additionally, the course covers strategies for creating effective information designs, evaluating the evidence presented in tables, charts, and various forms of visual representation, and presenting quantitative information in a compelling manner. Students will gain hands-on experience using software to uncover meaningful data patterns and effectively communicate their findings. Examples, projects, and assignments are from subject areas, including biology, business, population studies, environmental science, and politics.</p>	<p>3</p>
<p>CSI 112 ARTIFICIAL INTELLIGENCE LITERACY An exploration into the field of artificial intelligence (AI), including historical events leading to the current state of AI, its impact on society, and ethical consideration in the use of AI. Technical developments, current AI systems, and the future of AI are investigated.</p>	<p>1</p>	<p>CSI 215 INTRODUCTION TO DATABASES This course covers the relational model, relational algebra, and SQL. In addition, the course covers relational design principles based on dependencies and normal forms. Additional database topics from the design and application-building perspective will also be covered. Prerequisite: CSI 132.</p>	<p>3</p>
<p>CSI 120 COMPUTER CONCEPTS AND APPLICATIONS This course is intended to provide students with a general perspective on computers and their role and other technology-related areas. The course provides an introduction to various common software packages (for example, word processors, spreadsheets, and presentation graphics), a history of computers, basic hardware components, commonly used number systems, logic, and algorithmic development. The course includes a required 1-hour laboratory component.</p>	<p>3</p>	<p>CSI 230 INTRODUCTION TO COMPUTING An introduction to software design techniques necessary for writing programs of moderate complexity. The course provides thorough coverage of control structures, functions, and arrays. File input and output, pointers, and recursive functions are introduced. Primary emphasis is on object-oriented programming including the development of classes, inheritance, operator overloading, and polymorphism. This course includes a required 2-hour lab component. Prerequisite: CSI 132.</p>	<p>5</p>
<p>CSI 131 COMPUTATIONAL THINKING An introduction to computational thinking. Topics to be discussed include computational thinking, algorithm development, problem solving, and professional disciplines in computing. Students will use flowcharts, code tracing, and control structures to implement algorithmic solutions to problems. Prerequisite of high school algebra proficiency, or a co-requisite of MTH 133 or MTH 210.</p>	<p>2</p>	<p>CSI 235 MATHEMATICS OF COMPUTING This course covers mathematical topics necessary for understanding concepts in computer science. Topics include sets, relations, functions, Boolean algebras, switching circuits, number theory, induction, recursion, solving recurrences, introduction to pseudo-code, probability, elementary counting techniques, and graphs. May not be taken for credit towards a major in mathematics. Pre/co-requisite: CSI 131.</p>	<p>3</p>
<p>CSI 132 INTRODUCTION TO PROGRAMMING An introduction to programming and problem solving. This course is a continuation of CSI 131. Topics to be discussed include more problem-solving strategies, programming, and software design techniques. Students will be introduced to arrays, functions, structs, external files, and searching and sorting strategies. Prerequisite: CSI 131.</p>	<p>3</p>	<p>CSI 240 INTRODUCTION TO COMPUTER SYSTEMS The course focuses on the operation and administration of the computer and its role in information systems. The course introduces topics common to all operating systems such as CPU scheduling, memory management, and virtual memory. This course covers an introduction to computer architecture and organization including memory organization, processor architecture, and instruction sets. Prerequisites: CSI 230 or 140, or equivalent, and CSI 121.</p>	<p>4</p>
<p>CSI 141 PYTHON PROGRAMMING This course offers a practical, hands-on exploration of Python programming, focusing on applications. Participants will engage in designing and constructing software tailored to solve problems across diverse fields using Python. Throughout the course, students will become proficient in utilizing packages and data structures and leveraging tools essential for data science. Prerequisite: CSI 131.</p>	<p>3</p>		

Computing (CSI)

<p>CSI 280-289 SPECIAL TOPICS IN COMPUTING AND INFORMATION SYSTEMS</p>	<p>3</p>	<p>CSI 337 INFORMATION SECURITY</p> <p>This course will provide an introduction to basic information security principles and practices. Topics covered will include the CIA (confidentiality, integrity, and availability) model, risk management, access controls, authentication models, intrusion detection, and vulnerabilities. In addition, basic legal and social issues will also be covered. Prerequisite: CSI 230.</p>	<p>3</p>
<p>CSI 299 PRACTICUM IN COMPUTING</p> <p>For students at the sophomore level or above who wish to arrange a practicum in a laboratory or appropriate business learning environment in computer science. Prerequisites: 15 hours of related coursework, grade point average consistent with departmental graduation requirements, and instructor consent. Note: No more than 9 credit hours combined total for this practicum, any internship, or any independent study may be counted toward the major.</p>	<p>1-3</p>	<p>CSI 341 APPLIED MACHINE INTELLIGENCE</p> <p>This course provides an overview of the field of artificial intelligence with emphasis on contemporary techniques and applications of machine learning. The course introduces fundamental concepts such as supervised, unsupervised, and reinforcement learning. Students will gain a conceptual introduction to regression, classification, and clustering. Students will complete projects in application areas such as biology, medicine, business, or social sciences. Prerequisites: MTH 170 and CSI 141 or 230.</p>	<p>3</p>
<p>CSI 300 COMPUTER ORGANIZATION AND ARCHITECTURE</p> <p>This course concentrates on the relationship between computing hardware and machine language instruction sets as well as introductory digital electronics. The course examines logic gates, machine language, and assembly language. Students will also study digital electronics and computer circuit design with small and medium scale integrated circuits. Several computer systems and microprocessors are used as examples. Prerequisite: CSI 230.</p>	<p>3</p>	<p>CSI 345 THE STRUCTURE OF OPERATING SYSTEMS</p> <p>The hardware and software requirements for modern operating systems are studied. Topics include operating system services, file systems, CPU scheduling, deadlock, memory management, virtual memory, disk scheduling, and concurrent programming. Prerequisites: CSI 300, 330.</p>	<p>3</p>
<p>CSI 315 SYSTEMS ANALYSIS AND DESIGN</p> <p>This course presents concepts, methodologies, and tools required for the successful analysis, design, and implementation of today's information systems. The entire system development life cycle will be covered. In addition, both structured and object-oriented techniques will be presented. Prerequisites: CSI 215, 230.</p>	<p>3</p>	<p>CSI 357 ETHICAL HACKING</p> <p>This course considers attacks, exploits, and techniques used to penetrate application security defenses and the reduction of vulnerabilities to such attacks. Students learn how to protect systems by first learning how attackers exploit systems. Topics covered include intrusion detection, policy creation, social engineering, DoS attacks, spearphishing, mobile code attacks, buffer overflows, firewalls, VPN's, and virus creation. Prerequisite: CSI 369.</p>	<p>3</p>
<p>CSI 330 DATA STRUCTURES AND ALGORITHMS</p> <p>A study of common and useful data structures such as lists, stacks, queues, trees, graphs, and variations of these structures along with the essential and necessary algorithms to manipulate these structures. Algorithms to be covered will include searching and sorting techniques, data traversals, graph algorithms, numerical algorithms, string algorithms, and hashing. Prerequisites: CSI 230 and CSI 235.</p>	<p>3</p>	<p>CSI 366 NUMERICAL ANALYSIS</p> <p>An introductory course in numerical methods, including computational techniques for locating roots of equations, interpolation, differentiation, integration, approximation, and systems of linear equations; to include detection, prediction, and control of computational errors. Problem solving using mathematical software and the design of algorithms is stressed. Prerequisites: MTH 212, CSI 230; Same as MTH 366.</p>	<p>3</p>
<p>CSI 335 ANALYSIS OF ALGORITHMS</p> <p>This course introduces the student to tools and techniques necessary in the analysis of algorithms. The course includes a systematic study of algorithms and their complexity with application to searching and sorting, pattern matching, geometric and graph algorithms, NP-complete, and intractable problems. The student will study mathematical concepts including summations, recurrence relations, introductory number theory, binomial coefficients, and generating functions. Prerequisites: CSI 330, MTH 210.</p>	<p>3</p>	<p>CSI 369 SOCIAL, LEGAL AND ETHICAL ISSUES OF COMPUTING (W)</p> <p>This course addresses the ethical, legal, and social issues which affect those involved in modern computing. Additionally, the course will examine privacy issues, civil, criminal, and administrative law, and information security governance. Specific topics will vary from semester to semester but general topics will include issues of privacy, security, and crime as they relate to computing. Prerequisite: Minimum of 12 hours of completed units in CSI or instructor consent.</p>	<p>3</p>

Computing (CSI)

<p>CSI 380-389 SPECIAL TOPICS IN COMPUTING AND INFORMATION SYSTEMS</p>	<p>3</p>	<p>CSI 445 DATA SCIENCE AND MACHINE LEARNING</p> <p>This course is an introduction to data mining. Data mining is concerned with the extraction of knowledge from large data sets. The field encompasses techniques from artificial intelligence, statistics, and databases. Students are introduced to the concepts, issues, tasks, and techniques of data mining. Topics include data preparation, exploratory data analysis, pattern recognition, machine learning, classification, clustering, evaluation and validation, scalability, and data mining applications. Prerequisites: CSI 230, MTH 170.</p>	<p>3</p>
<p>CSI 410 SOFTWARE ENGINEERING (W)</p> <p>This course provides students with an opportunity to work on large-scale, group programming projects. It also introduces a set of general software security coding practices that can be integrated into the software development lifecycle. Topics will include tools for large-scale design, documentation techniques, programming paradigms (e.g. Object Oriented-Programming), and portability issues. Prerequisite: CSI 330.</p>	<p>3</p>	<p>CSI 450 COMPUTER NETWORKING AND COMMUNICATIONS</p> <p>This course concentrates on typical hardware interfaces, programming methods, and communication protocols. Topics considered in detail include electrical interfaces, data transmission, protocol basics, LAN's, WAN's, bridged networks, interworking, and application support. Students will develop an understanding of network security protocols used to prevent, detect, and correct potential vulnerabilities. Prerequisite: CSI 300 or instructor consent.</p>	<p>3</p>
<p>CSI 415 ADVANCED DATABASE CONCEPTS</p> <p>This course will build upon the concepts presented in CSI 215. Topics covered will include SQL tuning, and the implementation, support, and maintenance of relational databases. In addition, techniques for architecting, building, and scaling databases for future growth will be presented. Special emphasis will be given to database security, performance, and availability. Prerequisites: CSI 215, 300, 330.</p>	<p>3</p>	<p>CSI 467 DIGITAL FORENSICS</p> <p>This course covers detection and prevention of intrusions and attacks, digital evidence collection and evaluation, automatic intrusion detection, pattern matching and statistical techniques, firewalls, and vulnerability scanning. Additionally, topics regarding seizure, chain of custody, and technical issues in acquiring computer evidence are covered. Prerequisite: CSI 369.</p>	<p>3</p>
<p>CSI 417 PROJECT MANAGEMENT</p> <p>This course will cover topics and skills that are necessary for the successful management of today's complex information technology projects. Scheduling, cost control, and scope management will each receive extensive coverage. In addition, team building, risk management, and procurement activities will also be covered. Prerequisites: MGT 204 and either CSI 120 or CSI 132.</p>	<p>3</p>	<p>CSI 470 INTERNSHIP IN COMPUTING AND INFORMATION SCIENCE</p> <p>No more than three hours of this course may be applied towards the major.</p>	<p>3-8</p>
<p>CSI 434 INTRODUCTION TO CRYPTOGRAPHIC METHODS IN CYBERSECURITY</p> <p>This course provides an introduction to cryptographic methods in cybersecurity, including the design and implementation of cryptographic systems. Topics covered include principles of cryptography, classical ciphers, simple cryptanalysis, symmetric primitives, asymmetric encryption and digital signatures, and protocol design and analysis. Prerequisites: CSI 230, 235, MTH 170.</p>	<p>3</p>	<p>CSI 475 NATURAL LANGUAGE PROCESSING AND GENERATIVE AI</p> <p>This course introduces students to the core concepts and applications of Natural Language Processing (NLP) and Large Language Models (LLMs), with a focus on the rapidly expanding field of generative AI. Students will explore the foundations of text processing, supervised and unsupervised learning methods for language, and modern deep learning architectures that power state-of-the-art NLP systems. Topics will include tokenization, embeddings, sequence models, transformers, prompt engineering, and fine-tuning of pre-trained models. In addition, the course will address practical and ethical considerations, including dataset biases, fairness, and the responsible use of generative AI. Hands-on exercises will emphasize Python-based tools and frameworks for building and evaluating NLP applications. Prerequisites: CSI 230 and CSI 235.</p>	<p>3</p>
<p>CSI 440 ARTIFICIAL INTELLIGENCE</p> <p>A study of the techniques and issues related to the study of Artificial Intelligence. Software design techniques and algorithms specific to AI will be covered including neural networks, decision trees, game trees, probabilistic algorithms, rule-based systems, and search strategies. Applications are examined in game playing, pattern recognition, robotics, machine perception, expert systems, natural language understanding, and machine learning. Prerequisite: CSI 330 or 341.</p>	<p>3</p>		

Computing (CSI)

CSI 480 **1-3**

INDEPENDENT STUDY IN COMPUTING AND INFORMATION SCIENCE

No more than three hours of this course may be applied toward the major.

CSI 497 **1**

SENIOR SEMINAR I

This capstone course combines with CSI 498 and requires that students design and define a project. Projects will involve current topics in computing and information science and incorporate material from several of the courses required for their major. Projects will be researched and documented. Each student will lead a class discussion and make a presentation about their project proposal. Other current topics related to computing and information science as well as careers in those areas are presented. Prerequisites: Senior standing and 21 CSI credit hours.

CSI 498 **2**

SENIOR SEMINAR II

This capstone course combines with CSI 497 and requires that students implement a project that was defined in the previous course. Projects will involve current topics in computing and information science and incorporate material from several of the courses required for their major. Projects will be researched and documented with a formal paper completed at its conclusion. Each student will lead a class discussion and make a formal presentation about their project. Other current topics related to computing and information science as well as careers in those areas are presented. This course will concentrate on the definition and design of the project to be implemented. Prerequisite: CSI 497.