

COMPUTER SCIENCE

Admission to Computer Science Major

The student must have completed 30 credits and have the approval of the Dean of the College. In addition, the student must have completed:

Code	Title	Hours
3450:208	Introduction to Discrete Mathematics	4
3460:209	Computer Science I	4
3460:210	Computer Science II	4
3450:221	Analytic Geometry-Calculus I	4

- Computer Information System, Programming Option, AAB (<https://bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/computer-science/computer-information-system-programming-option-aab/>)
- Computer Information Systems Programming Specialist, Minor (<https://bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/computer-science/computer-information-systems-programming-specialist-minor/>)
- Computer Information Systems Programming, Certificate (<https://bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/computer-science/computer-information-systems-programming-certificate/>)
- Computer Information Systems, Computer Networking Option, Cisco Track, AAB (<https://bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/computer-science/computer-information-systems-computer-networking-option-cisco-track-aab/>)
- Computer Information Systems, Cybersecurity Option, BS (<https://bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/computer-science/computer-information-systems-cybersecurity-option-bs/>)
- Computer Information Systems, Networking Option, BS (<https://bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/computer-science/computer-information-systems-networking-option-bs/>)
- Computer Information Systems, Programming Option, BS (<https://bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/computer-science/computer-information-systems-programming-option-bs/>)
- Computer Science, Certificate (<https://bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/computer-science/computer-science-certificate/>)
- Computer Science, Management, BSCS (<https://bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/computer-science/computer-science-management-bscs/>)
- Computer Science, Minor (<https://bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/computer-science/computer-science-minor/>)
- Computer Science, Systems, BSCS (<https://bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/computer-science/computer-science-systems-bscs/>)
- Computer Security, Certificate (<https://bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/computer-science/computer-security-certificate/>)

- Computer Security, Minor (<https://bulletin.uakron.edu/undergraduate/colleges-programs/engineering-polymer-science/computer-science/computer-security-minor/>)

Computer Information Systems (2440)

2440:105 Introduction to Computers and Application Software (3 Credits)

Overview of basic computer concepts, electronic mail and Internet terminologies. Introductory-level instruction and hands-on experience in word processing, spreadsheet, database and presentation software.

2440:121 Introduction of Logic/Programming (3 Credits)

Prerequisite: 2440:105 with a grade of C or better or placement test. An introduction to business problem solving using computer-based solutions. Topics include structured design, documentation and modularity. Includes a component of hands-on programming.

2440:125 Spreadsheet Software (2 Credits)

Prerequisite: 2440:105 with a grade of C or better or placement test. Emphasizes mastery of spreadsheet applications using Excel.

2440:140 Internet Tools (3 Credits)

Prerequisite: 2440:105 with a grade of C or better or placement test. Students will learn to create web pages using HTML and enhance their documents by including hyperlinks, tables, forms, frames and images in their HTML code.

2440:141 Web Server Administration (3 Credits)

Prerequisite: 2440:105 with a grade of C or better or placement test. Provides Web server administration guidelines such as selecting software/hardware, domain name registration, analyzing security/legal issues, and implementing marketing strategies.

2440:145 Introduction to Unix/Linux (3 Credits)

Prerequisite: 2440:105 with a grade of C or better or placement test. This course explores the vital functions that an operating system performs. A multi-user operating system is studied from a functional and hands-on approach.

2440:160 JAVA Programming (3 Credits)

Prerequisite: 2440:121 with a grade of C or better. Course introduces the JAVA programming language. Programming techniques are demonstrated through the coding, testing and debugging of JAVA applications and applets.

2440:170 Visual BASIC (3 Credits)

Prerequisite: 2440:121 with a grade of C or better. Course includes hands-on experience with Visual BASIC, design of Graphical User Interface (GUI) applications, event-driven programming, linking of windows, and accessing relational databases.

2440:180 Introduction to Database Management (3 Credits)

Prerequisite: 2440:121 with a grade of C or better. Overview of database system models and functions. Covers introduction to database design and relational database definition and manipulation using SQL.

2440:201 Networking Basics (3 Credits)

Prerequisite: 2440:105 with a grade of C or better or placement exam. The introductory course in networking. It includes study of the common network protocols, structures, and models. Basic router and switch configurations are introduced.

2440:202 Router and Routing Basics (3 Credits)

Prerequisite: 2440:201 with a grade of C or better. The second course to networking. It covers basic router configuration as well as routed and routing protocols.

2440:203 Switching Basics and Wireless (3 Credits)

Prerequisites: 2440:201 and 2440:202 with a grade of C or better in both. The third of four courses leading to the CCNA certification. The course covers switching basics and basic wireless networking.

2440:204 WAN Technologies (3 Credits)

Prerequisites: 2440:202 and 2440:203 (each with a grade of C or better). The fourth of four courses leading to the CCNA certification. Topics covered include IP services and Wide Area Network theory and design.

2440:210 Client/Server Programming (3 Credits)

Prerequisite: 2440:180 with a grade of C or better. Introduces student to client/server programming. Includes hands-on experience using a Rapid Application Development (RAD) tool to show integration of database and program development.

2440:211 Interactive Web Programming (3 Credits)

Prerequisites: 2440:121 and 2440:140 (each with a grade of C or better). Provides students with instruction on interactive Web programming using XML and DHTML (HTML/XHTML/HTML5, CSS, and Web scripting).

2440:212 Multimedia & Interactive Web Elements (3 Credits)

Prerequisite: 2440:140 with a grade of C or better. Reviews and demonstrates web tools and techniques like RealAudio, Shockwave, QuickTime, video conferencing and other dynamic graphical elements to enhance Web-based communication. Multimedia software may change to reflect current technology.

2440:240 Computer Information Systems Internship (3 Credits)

Prerequisite: 2440:241, [2440:202 and 2440:247], or [2440:282 and 2440:247], each with a grade of C or better. Provides student experience in computing/information technology in the workplace. Students meet with instructor to discuss and examine experiences.

2440:241 Systems Analysis & Design (3 Credits)

Prerequisites: 2440:180 and [2440:160 or 2440:170 or 2440:256], each with a grade of C or better. Covers all phases of business systems analysis, design, development, and implementation. Such principles as system flowcharting and file and document design emphasized.

2440:247 Hardware Support (3 Credits)

Prerequisite: Admission to program or permission of the program director. This course introduces the student to the basic skills required to troubleshoot, maintain and repair computers.

2440:248 Server Hardware Support (3 Credits)

Prerequisite: 2440:247 with a grade of C or better. This course introduces the student to server hardware and expands student knowledge of client hardware.

2440:251 CIS Projects (3 Credits)

Prerequisite: 2440:241 with a grade of C or better or permission. Using a simulated work environment, project teams are set up and required to analyze an unstructured problem, prepare alternative designs and implement a solution.

2440:256 C++ Programming (3 Credits)

Prerequisite: 2440:121 with a grade of C or better. This course explores object-oriented programming through C++ program development.

2440:282 Microsoft Networking II (3 Credits)

Prerequisite: 2440:281 with a grade of C or better. Provides the knowledge and skills necessary to manage and maintain computers with the Windows Server 2008 Network Operating System. This course will also help prepare you to pass the MCTS Exam.

2440:283 Microsoft Networking III (3 Credits)

Prerequisite: 2440:282 with a grade of C or better. Provides the knowledge and skills necessary to manage and maintain an active directory service hosted by the Server 2008 Network Operating System. This course also helps prepare the student to pass the MCTS Exam.

2440:284 Microsoft Networking IV (3 Credits)

Prerequisite: 2440:283 with a grade of C or better or passing score on the 70-640 Microsoft Certification Exam. This course will provide you with the knowledge and skill necessary to install, configure, manage and maintain the server services provided with Server 2008.

2440:290 Special Topics: Computer Information Systems (1-5 Credits)

Selected topics or subject areas of interest in computer information systems.

2440:300 Network Authentication and Security (3 Credits)

Prerequisites: 2440:204 with a grade of C or better and junior or better standing. This course focuses on network security issues related to conducting business over the Internet, including authentication, authorization, and firewalls.

2440:303 Voice, Data, and Video (3 Credits)

Prerequisites: 2440:204 with a grade of C or better and junior or better standing. This course focuses on network issues related to the integration of voice, data, and video over the same network media and equipment.

2440:306 Ethics & Law in Information Technology (3 Credits)

Prerequisite: Junior or greater standing. This course is designed to introduce the student to the central issues concerning intellectual property, privacy, and copyright law as it pertains to the development and distribution of software systems.

2440:310 Wireless Networking (3 Credits)

Prerequisite: 2440:204 with a grade of C or better or permission. This course provides students with various wireless networking technologies.

2440:311 Client/Server Programming II (3 Credits)

Prerequisite: 2440:210 with a grade of C or better. Discusses tools for client-server programming, distributed computing, socket programming, and security implementation.

2440:321 Server-Side Scripting (3 Credits)

Prerequisites: 2440:121 and 2440:140, both with a grade of C or better. This course provides students with instruction on using server-side scripting languages to develop interactive client/server web-based applications.

2440:331 Programming for Cybersecurity (3 Credits)

Prerequisites: 2440:121 and 2440:145 with grades of C or better. This course will introduce basic programming techniques used for ethical hacking using the Linux Operating System and other tools that are commonly used in cybersecurity.

2440:360 Java Programming II (3 Credits)

Prerequisite: 2440:160 with a grade of C or better. This course covers advanced object-oriented programming concepts, GUI programming, web application programming, network and security programming, JavaBeans and explores aggregations.

2440:365 E-Business Application Development (3 Credits)

Prerequisites: 2440:211 and 2440:321, both with a grade of C or better. This course covers web programming techniques to develop Web-based e-business solution and covers e-business models and business issues.

2440:370 Visual Basic Programming II (3 Credits)

Prerequisite: 2440:170 with a grade of C or better. This course explores object-oriented programming through Visual Basic program development at a more advanced level, with more attention to business applications.

2440:388 Advanced UNIX/Linux (3 Credits)

Prerequisites: 2440:145 with a grade of C or better and junior or greater standing. This course provides students with the necessary knowledge and skills to perform basic administrative tasks on a UNIX/Linux operating system.

2440:400 Advanced Routing (4 Credits)

Prerequisites: 2440:201, 2440:202, 2440:203, 2440:204, 2440:300, all with a grade of C or better, and 2030:154; or possess a current CCNA certification and be able to configure a router to the CCNA standards. This course focuses on advanced routing protocols and features and complies with the content of the Cisco Academy Cisco Certified Network Profession (CCNP) Advanced Routing course.

2440:401 Multilayer Switching (3 Credits)

Prerequisites: Must have a current CCNA certification and be able to program a router to the CCNA standards (requires permission), or must have successfully completed all four Cisco Networking Academy CCNA courses from an accredited academy (2440:201, 2440:202, 2440:203, 2440:204, all with a grade of C or better). This course focuses on switching protocols and features. This course complies with the content of the Cisco Academy Cisco Certified Network Profession (CCNP) Switching course.

2440:402 Troubleshooting Complex IP-based Networks (4 Credits)

Prerequisites: 2440:400 and 2440:401 with grades of C or better or permission. This course focuses on methodologies and hands-on skills needed to maintain and troubleshoot complex IP networks.

2440:430 Network Monitoring and Management (3 Credits)

Prerequisite: 2440:204 with a grade of C or better, or junior or greater standing. This course provides students the basic theory and practical application of network monitoring and management skills.

2440:431 UNIX-based Systems Security (3 Credits)

Prerequisites: 2440:388 with a grade of C or better and junior or greater standing. This course will introduce the various methods used to secure UNIX-based operating systems (Apple iOS and Android Operating System) on a computer network.

2440:441 Cyber Security (3 Credits)

Prerequisites: 2030:361, 2235:441, and 2440:388 with a grade of C or better and junior or greater standing. This course will address issues involving hacking, malware, social theories, protocols, firewalls, intrusion detection, the prevention and containment of intrusion incidents, the incident response process, and computer forensic examination.

2440:450 Applied Data Mining (3 Credits)

Prerequisites: 2030:345 and junior or greater standing. This course is designed to introduce the student to the central issues in business data mining.

2440:451 Senior Programming Projects (3 Credits)

Prerequisite: Senior or greater standing. This course is the capstone course where senior students will apply learned material by simulating a realistic work environment.

2440:452 CIS Practicum (3 Credits)

Prerequisite: Permission. Provides students with experience in computer information systems operation and maintenance in the workplace. Practicum must be relevant to the specialization area.

2440:456 C++ Programming II (3 Credits)

Prerequisite: 2440:256 with a grade of C or better. This course explores object-oriented programming through C++ program development at a more advanced level. Also considers Visual programming and connection to databases.

2440:465 Data Communications & Networking (3 Credits)

Prerequisite: Junior or greater standing. Introduces students to business data communication and networking concepts. The OSI model, various network configuration and popular industry communication protocols are explored at an advanced level.

2440:470 Database Management II (3 Credits)

Prerequisite: 2440:180 with a grade of C or better. Covers advanced database design, definition, manipulation, and administration tasks with emphasis placed on the relational model, the object-oriented model, and client/server systems.

2440:480 Current Topics in Computer Information Systems (3 Credits)

Prerequisite: Permission. Seminar in topics of current interest in information technology or special individual topics in information technology.

2440:490 CIS Senior Networking Projects (3 Credits)

Prerequisites: 2440:388, 2440:400, and 2440:401 with grades of C or better or permission. The capstone course is used to research, document and implement current and advanced IT topics using knowledge and skills developed from networking courses.

2440:491 CIS Senior Cybersecurity Project (3 Credits)

Prerequisites: 2235:442, 2235:443, and 2440:388 with grades of C or greater or permission. This is the capstone course for the CIS Digital Forensics and Cybersecurity degree options.

Computer Science (3460)

3460:101 Essentials of Computer Science (3 Credits)

Explore major topics in Computer Science - computing systems, data representation, hardware, programming topics, and important applications such as networks, robotics, databases, and gaming.

3460:125 Descriptive Computer Science (2 Credits)

Computer literacy: terminology; methods, media for data representation, storage; elements of a computing system; data organization.

3460:126 Introduction to Visual Basic Programming (3 Credits)

Windows GUI and Microsoft's Visual BASIC programming environment. Design of user interfaces, event-driven programming, basic control structures, simple variables, arrays, and sequential files.

3460:200 Programming for Data Science (4 Credits)

Prerequisite: 3450:145 or 3450:149. Introductory programming for data-intensive applications including data collection, pre-processing/cleansing, analysis, and visualization, using libraries for processing of large data sets. Designed as a first programming course for non-majors in the sciences.

3460:209 Computer Science I (4 Credits)

Prerequisite: Completion of 3450:145 or 3450:149 with a grade of C- or better or equivalent. Introduction to problem-solving methods and algorithms. Programming in a high-level language including how to design, code, debug and document programs with good programming style.

3460:210 Computer Science II (4 Credits)

Prerequisites: 3460:209 and 3450:208 with a grade of C- or better. Dynamic memory allocation methods, elementary data structures, internal representations, and associated algorithms. Topics include lists, stacks, queues, trees, and sorting methods.

3460:289 Selected Topics in Computer Science (1-3 Credits)

Prerequisite: Permission. Selected topics of interest in computer science.

3460:306 Assembly and System Programming (4 Credits)

Prerequisite: Completion of 3460:210 or equivalent with a grade of C- or better. Basic computer organization, digital logic, and data representation. Programming in assembly and C languages on a typical digital computer.

3460:307 Internet Systems Programming (3 Credits)

Prerequisite: Completion of 3460:210 or equivalent with a grade of C- or better. Overview of current programming languages, tool and scripting technologies for the Internet and World Wide Web.

3460:316 Data Structures (3 Credits)

Prerequisites: 3460:210 and [3450:221 or 3450:210] with grades of C- or better. A continuation of topics in 3460:210. Topics include: graphs and graph algorithms, external sorting, hashing, advanced tree and file structures.

3460:389 Intermediate Topics in Computer Science (1-3 Credits)

Prerequisite: Permission of instructor. Selected topics of interest in computer science at an intermediate level.

3460:395 Internship in Computer Science (1-12 Credits)

Prerequisites: Completion of 3460:209 and 3460:210 with grades of C- or better, and permission of a faculty supervisor. Placement in industry for experience related to computer science. (May be repeated to a maximum of 12 credit hours. No more than three credits may be applied towards a computer science major.)

3460:406 Introduction to C & UNIX (3 Credits)

Prerequisite: Programming experience. Syntax of C with flow structures, pointers, and command line concepts. For UNIX, shell scripts, UNIX file structure, system calls and interprocess communication protocols. (Not an approved mathematics and computer science major, minor, or certificate elective.)

3460:408 Windows Programming (3 Credits)

Prerequisites: Completion of 3460:208 or 3460:210 or 3460:406 with a grade of C- or better or permission. Windows operating systems, integrated development environment, event-driven programming, graphical user interface design, object libraries, component object model, object linking, embedding, client-server objects.

3460:411 Human-Computer Interaction (3 Credits)

Prerequisite: 3460:316. This course introduces the basic concepts and technologies of Human-Computer Interaction (HCI). Students will learn how to design and implement systems for human to interact with computers. Topics include: Categories of HCI, CLI, GUI, NUI, Design, Implementation and Evaluation of HCI, HCI Devices, Virtual Device Drive, HCI Toolkits, HCI Standards, Categories of Interactive Tasks, EDP and Multi-Threading in HCI, VR/AR/MR/XR in HCI, APP HCI, 3D Printing.

3460:418 Introduction to Discrete Structures (3 Credits)

Prerequisite: Completion of 3460:210 with a grade of C- or better or permission. Introduction to a number of structures in algebra of particular use to student in computer science. Topics include algorithms and flow chart language, graphs and digraphs, trees, lattices codes.

3460:421 Object-Oriented Programming (3 Credits)

Prerequisite: Completion of 3460:210 with a grade of C- or better. Object-oriented design, analysis, and programming using different development models. Comparison with other programming paradigms.

3460:426 Operating Systems (3 Credits)

Prerequisites: Completion of 3460:316 and 4450:320 or equivalents with grades of C- or better. Introduction to aspects of all modern operating systems: types; storage management; process and resource control; interacting process synchronization.

3460:428 UNIX System Programming (3 Credits)

Prerequisite: Completion of 3460:210 with a grade of C- or better and knowledge of C. An overview of the UNIX operating system. Shell programming. Process management, processor management, storage management, scheduling algorithms, resource protection, and system programming.

3460:430 Theory of Programming Languages (3 Credits)

Prerequisite: Completion of 3460:210 with a grade of C- or better. Advanced concepts underlying programming languages and their applications, formal definitions of programming languages, Backus Normal Form, semantics. Alternative programming paradigms including functional programming.

3460:435 Algorithms (3 Credits)

Prerequisite: Completion of 3460:316 with a grade of C- or better. Design and analysis of efficient algorithms for random access machines; derivation of pattern classification algorithms.

3460:436 Applied Machine Learning (3 Credits)

Prerequisite: 3460:210 with a grade of C- or higher. Machine learning studies algorithms and models that enable computers to complete task without explicit instructions. These algorithms rely on rules, associations, and patterns presented in large data sets gathered or generated through self-learning. This course will introduce students the fundamentals of machine learning, and concepts of deep learning. Topics include machine learning concepts, tasks, and workflow; supervised learning methods for classification and prediction; unsupervised learning methods for pattern recognition; concepts of advanced supervised learning methods including deep learning algorithms such as neural networks and convolutional neural networks. The main focus of the course is the application of industry-leading machine learning algorithms and the enabling techniques that make the implementation of the algorithms practical.

3460:438 Interactive Game & Game Engine Design (3 Credits)

Prerequisite: 3460:316. This course will introduce the basic concepts and techniques of game and game engine design. Students will learn how to design and implement interactive computer games and game engines. Topics include: Interactive Animation, Game Engines, EDP in Game Development, Procedural Animation and Physics Engine, Decision Making and AI Games, Surface & Volume Representation, VR, AR, MR, APP Games, Game Engine Development, and Voxel-Engine.

3460:440 Compiler Design (3 Credits)

Prerequisites: Completion of 3460:210 and (4450:320 or 3460:306), with a grade of C- or better. Techniques used in constructing compilers, including lexical and syntactic analysis, parsing techniques, object code generation and optimization. Course requires a compiler implementation project.

3460:445 Introduction to Bioinformatics (3 Credits)

Prerequisite: Completion of 3460:210 with a grade of C- or better or permission. Introduce major themes in bioinformatics. Topics include concepts of molecular genetics, biological databases, database searching, sequence alignments, phylogenetic trees, structure prediction, and microarray data analysis.

3460:453 Computer Security (3 Credits)

Prerequisites: Completion of 3460:210 with a grade of C- or better. Principles of computer security – cryptography, authentications, secure network protocols, intrusion detection and countermeasures.

3460:455 Data Communication & Computer Networks (3 Credits)

Prerequisites: Completion of 3460:210 with a grade of C- or better. ISO-OSI, TCP/IP, SNA data switching, protocols, flow and error control, routing, topology, Network trends, network taxonomies, and socket-based programming.

3460:457 Computer Graphics (3 Credits)

Prerequisite: Completion of 3460:210 with a grade of C- or better. Topics in vector and raster graphics, interactive graphics languages, scan conversion, clipping, geometric transformation, projection, shading, animation and virtual reality.

3460:460 Artificial Intelligence & Heuristic Programming (3 Credits)

Prerequisite: Completion of 3460:210 with a grade of C- or better. Study of various programs which have displayed some intelligent behavior. Exploration of level at which computers can display intelligence.

3460:463 Pervasive Computing (3 Credits)

Prerequisites: Completion of 3460:210 with a grade of C- or better. Computing from a wireless perspective. Topics include protocols, algorithms, security and sensor networks.

3460:465 Computer Architecture (3 Credits)

Prerequisite: Completion of 3460:210 and (4450:320 or 3460:306), with a grade of C- or better. An introduction to the hardware organization of the computer at the register, processor and systems level. In-depth study of the architecture of a particular computer system family.

3460:468 Mobile Robotics (3 Credits)

Prerequisites: Completion of 3460:210 with a grade of C- or better. Introduction to history, hardware and software components, and design of autonomous mobile robots. Multiple projects involving both physical robots and software emulation.

3460:475 Database Management (3 Credits)

Prerequisite: Completion of 3460:210 with a grade of C- or better. Fundamentals of database organization, data manipulations and representation, data integrity, privacy.

3460:476 Introduction to NoSQL Data Management (3 Credits)

Prerequisite: 3460:210. The widespread emergence of big data storage needs has driven the development and adoption of a new class of non-relational databases commonly referred to as NoSQL databases. This course will explore the origins of NoSQL databases and the characteristics that distinguish them from traditional relational database management systems. Core concepts of NoSQL databases will be presented, followed by an exploration of how different database technologies implement these core concepts. We will take a closer look at 1-2 databases from each of the four main NoSQL data models (key-value, column family, document, and graph), highlighting the business needs that drive the development and use of each database. Finally, we will present criteria that decision makers should consider when choosing between relational and non-relational databases and techniques for selecting the NoSQL database that best addresses specific use cases.

3460:477 Introduction to Parallel Processing (3 Credits)

Prerequisites: Completion of 3460:316 with a grade of C- or better and knowledge of C. Commercial processors: past and present. Parallel languages, models of parallel computation, parallel algorithm design and performance evaluation. Parallel paradigms with relation to real world applications.

3460:480 Software Engineering (3 Credits)

Prerequisite: Completion of 3460:210 with a grade of C- or better. Introduction to formal software specification and validation. Introduction of methodologies and tools of design, development and validation, and maintenance.

3460:489 Topics in Computer Science (1-3 Credits)

Prerequisite: Permission of instructor. Selected topics in computer science at an advanced level.

3460:490 Senior Seminar in Computer Science (3 Credits)

Prerequisites: Must have completed at least 30 hours of 3460 (computer science) courses. Corequisites: 3460:435 and [3460:426 or 4450:325]. Professional software development, surviving "Mission Impossible" projects, computer ethics, intellectual property rights (patents and copyrights), and other current topics.

3460:497 Individual Study in Computer Science (1-3 Credits)

(May be repeated. Can apply to degree, minor or certificate only with department approval.) Prerequisite: Permission. Directed studies designed as introduction to research problems under guidance of designated faculty member.

3460:498 Senior Honors Project: Computer Science (1-3 Credits)

Prerequisites: 3460:497 and Senior student in Honors Program. Directed study for senior student in the Honors Program who has completed 3460:497. An introduction to research problems in the computer science under the guidance of selected faculty.