

# COMPUTER SCIENCE (COSC)

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## COSC 1172 Thinking, Speaking, and Writing 1 Credit

**Department:** College of Arts and Sciences

The objective of this course is to give students experiences that convey the five main activities of a person working in the area of computer science: reading, listening, thinking, speaking, writing and cooperative interaction. Designed for incoming freshmen.

**Corequisite(s):** COSC 1173, COSC 1336

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

## COSC 1173 Programming Lab 1 Credit

**Department:** College of Arts and Sciences

Practical applications of concepts learned in Computer Science 1336 (COSC 1336). Hands-on instruction in programming in an object-oriented language, developing, debugging, and testing programming projects.

**Corequisite(s):** COSC 1172, COSC 1336

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

## COSC 1174 Fundamentals of Computing II Lab 1 Credit

**Department:** College of Arts and Sciences

This course is the lab which accompanies COSC 1337. the topics covered include advanced concepts of Java programming, such as inheritance, polymorphism, Graphical and graphics, exceptions, events, etc.

**Prerequisite(s):** COSC 1173 and COSC 1336

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

## COSC 1324 The Art of Computer Game Development 3 Credits

**Department:** College of Arts and Sciences

The synthesis of computer games with a focus on the artistic elements of games, including graphics, animation, audio and narrative.

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

## COSC 1336 Programming Fundamentals I 3 Credits

**Department:** College of Arts and Sciences

Introduces the fundamental concepts of structured programming.

Topics include software development methodology, data types, control structures, functions, arrays, and the mechanics of running, testing and debugging. This course assumes computer literacy.

**Corequisite(s):** COSC 1172, COSC 1173

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

## COSC 1337 Programming Fundamentals II 3 Credits

**Department:** College of Arts and Sciences

Review of control structures and data types with emphasis on structured data types. Applies the object-oriented programming paradigm, focusing on the definition and use of classes along with the fundamentals of object-oriented design. Includes basic analysis of algorithms, searching and sorting techniques, and an introduction to software engineering.

**Prerequisite(s):** COSC 1336

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

## COSC 1371 Microcomputers 3 Credits

**Department:** College of Arts and Sciences

The objective of this course is to teach students to solve realistic problems using the most readily available off-the-shelf general applications software: word processing, spreadsheets and database systems. The course familiarizes the student with Internet resources. Students learn the basic components of computer systems and networks. (This course may not be taken as a COSC/CPSC elective).

**Restriction(s):**

Students cannot enroll who have a major in Computer and Info Science or Computer Science.

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

## COSC 1381 Intro to Game Programming 3 Credits

**Department:** College of Arts and Sciences

The objective of the course is to teach students from any discipline to write software to design interesting 3-D games that are fun to play. Students will learn how a high level programming language can produce exciting virtual world.

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

## COSC 2324 Mobile Computer Game Development 3 Credits

**Department:** College of Arts and Sciences

This is an introductory course in Android game development.

**Prerequisite(s):** COSC 1337

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

## COSC 2325 Computer Organization 3 Credits

**Department:** College of Arts and Sciences

This course introduces the computer organization and assembly language. The system software includes loaders, assemblers, input-output devices and programming.

**Prerequisite(s):** COSC 1336

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

## COSC 2330 Web 2.0 3 Credits

**Department:** College of Arts and Sciences

This course is designed to use various Web 2.0 technologies such as social networks, blogs, wikis and podcasts. Subject matter will consist of projects, quizzes, discussions and a portfolio project. This is a project based course and will require several hours of your time each week. Web cam and microphone required.

**Prerequisite(s):** COSC 1371 or COSC 1381

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

## COSC 2336 Programming Fundamentals III 3 Credits

**Department:** College of Arts and Sciences

This course describes applications of programming techniques, introducing the fundamental concepts of data structures and algorithms.

**Prerequisite(s):** COSC 1337

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

**COSC 2372 Computer Organization Assembly Language 3 Credits****Department:** College of Arts and Sciences

This course introduces the computer organization and assembly language.

**Prerequisite(s):** COSC 1336**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 2375 Discrete Structures 3 Credits****Department:** College of Arts and Sciences

This course presents discrete mathematical structures for computer science and mathematics. Topics include: logic and methods of proof, structures of sets and functions, Boolean algebra, recursion, fundamentals of algorithms, permutations and combinations, discrete probability, graphs and trees, randomized search and optimization, and their applications.

**Prerequisite(s):** MATH 2312**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 3301 Special Lang Topic 3 Credits****Department:** College of Arts and Sciences

The study of the theory and applications of specialized computer languages and language packages. This course may be repeated for different languages and language packages. This course is an academic elective and will not be counted as a COSC/CPSC elective.

May be Repeated for a maximum of 15 hours

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 3302 Intro to Computer Theory 3 Credits****Department:** College of Arts and Sciences

Preliminary review/introduction of the mathematics and logic for the course. Programs and computable functions, primitive recursive functions, the universal program, Turing machines and regular languages.

**Prerequisite(s):** COSC 1337 and MATH 2413**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 3304 Algorithms Design and Analysis 3 Credits****Department:** College of Arts and Sciences

This course is intended as an intermediate course to the design and analysis of algorithms for some of the most frequently encountered combinatorial problems. The course aims to provide familiarity with general algorithmic techniques, performance measures, analysis tools and problem areas. In this course, we will focus on developing an understanding of the algorithmic design process: how to identify the algorithmic needs of an application and apply algorithmic design techniques to solve those problems. The students will also learn how to identify problems for which no exact, efficient algorithm is known. More specifically, topics include: Fundamentals (Basic Programming Model, Data Abstraction, Bags, Queues, and Stacks, Analysis of Algorithms), Sorting (Elementary Sorts, Mergesort, Quicksort, Priority Queues, applications), Searching (Symbol Tables, Binary Search Trees, Balanced Search Trees, Hash Tables, applications), Graphs (Undirected Graphs, Directed Graphs, Minimum Spanning Trees, Shortest Paths), Strings (String Sorts, Tries, Substring Search, Regular Expressions, Data Compression), Context (applications).

**Prerequisite(s):** COSC 2336 and COSC 2375**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 3306 UNIX/C++ 3 Credits****Department:** College of Arts and Sciences

Programming in C++ in a UNIX environment.

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 3307 Data Analytics in Python 3 Credits****Department:** College of Arts and Sciences

This course covers data science, analytics, visualization in Python by including the foundations of Python programming in machine learning. The primary focus is on hands-on experience and working knowledge of Python for data representation, manipulation, visualization, regression, convolutional and recurrent neural networks.

**Prerequisite(s):** COSC 2336**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 3308 Design Programming Languages 3 Credits****Department:** College of Arts and Sciences

The organization of programming languages, especially run-time behavior of programs; the formal study of programming language specification and analysis, and the continued development of problem solution and programming skills.

**Prerequisite(s):** COSC 2336**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 3320 Web Design/XHTML 3 Credits****Department:** College of Arts and Sciences

Web design with XHTML. The course emphasizes coding at the XHTML level rather than using a WYS/WYG editor. The course also covers information related to WEB design, intellectual property, and the internet. There are no prerequisites. The course may NOT be used as a computer science or computer information sciences elective.

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 3323 Fundamentals of Digital Media 3 Credits****Department:** College of Arts and Sciences

This is a course for students from all disciplines interested in learning the foundational concepts and basic techniques in digital media production.

Topic areas: capturing and editing digital images, capturing and editing digital audio, capturing and editing digital video and interactive multimedia. The course will consist of project based assignments, quizzes and a portfolio project to showcase student work.

**Prerequisite(s):** COSC 2330 or COSC 1371**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 3325 Computer Law and Ethics 3 Credits****Department:** College of Arts and Sciences

This course introduces the ethical style of good writing in computer science and presents the social, legal, philosophical, and economic issues related to computers.

**Prerequisite(s):** COSC 1336**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

**COSC 4272 Senior Assessment 2 Credits****Department:** College of Arts and Sciences

The one credit hour version of this course called COSC 4172 (Senior Assessment). The objective of COSC 4272 is to assist students in their preparation for searching a permanent position after graduation or in their application for a more advanced graduate degree. It will survey students completing their degrees as part of its assessment obligations by ABET.

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4301 Special Topics 3 Credits****Department:** College of Arts and Sciences

An investigation into specialized areas of computer science under the guidance of a faculty member. This course may be repeated for credit when topics of investigation differ.

May be Repeated for a maximum of 12 hours

**Prerequisite(s):** COSC 2336 and COSC 2375**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4302 Operating Systems 3 Credits****Department:** College of Arts and Sciences

To introduce the major concept areas of operating systems principles develop an understanding of the organization and architecture of computer systems at the register-transfer and programming levels of system description and the inter-relationships between the operating system and the architecture of computer systems.

**Prerequisite(s):** COSC 2336**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4304 Foundations of Programming 3 Credits****Department:** College of Arts and Sciences

This is an accelerated introductory computer programming course using a high-level programming language. Topics include algorithms, pseudocode, structured techniques of problem solving and program design, data structures, sorting, searching and object-oriented design. Prior programming experience is not needed but is highly recommended. The course is designed for graduate students who lack the necessary preparation necessary for graduate-level programming courses.

A minimum grade of B is required in this course to meet degree requirements

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4305 Internship-1 3 Credits****Department:** College of Arts and Sciences

Student works off-campus for at least 20 hours per week for an entire semester. Work must be similar to work done in industry by computer science graduates. Requires approval of department chair.

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4306 Internship-2 3 Credits****Department:** College of Arts and Sciences

Student works off-campus for at least 20 hours per week for an entire semester. Work must be similar to work done in industry by computer science graduates. Requires approval of department chair.

**Prerequisite(s):** COSC 4305**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4310 Introduction to Computer Architecture 3 Credits****Department:** College of Arts and Sciences

This course describes in-depth understanding of the inner workings of modern digital computer systems and trade-offs present at the hardware-software interface. (Organization and Assembly language)

**Prerequisite(s):** COSC 2336**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4319 Computer Graphics 3 Credits****Department:** College of Arts and Sciences

This is an introductory course in graphics programming using C++ and Microsoft Windows.

**Prerequisite(s):** COSC 2336 and MATH 2414 and MATH 3328**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4320 Advanced Web Design 3 Credits****Department:** College of Arts and Sciences

This course will build off of the fundamentals of HTML and CSS to teach the student how to build dynamic and engaging websites. The course will cover the standards associated with web technologies including HTML, CSS, JavaScript, PHP, and Python. The course will also cover how to implement these technologies in applicable "real-world" situations. The course will consist of projects, quizzes, discussions and a portfolio project. This is a project-based course and will require several hours of a student's time each week.

**Prerequisite(s):** COSC 3320**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4324 Computer Game Development I 3 Credits****Department:** College of Arts and Sciences

This is an introductory course in game programming using the PC platform.

**Prerequisite(s):** COSC 2336 and COSC 3306**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4325 Computer Game Development II 3 Credits****Department:** College of Arts and Sciences

Continuation of COSC 4324. Advanced game programming techniques, including 3-D graphics, 3-D audio, game physics and networking for multi-player games.

**Prerequisite(s):** COSC 4324**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4332 Programming Mobile Devices 3 Credits****Department:** College of Arts and Sciences

This course will cover the beginning topics of Android, and teach basic Android application development using Eclipse Development Environment. It is designed to get the student up to writing apps for Android devices. By the end of the course, the student will be able to write simple GU applications, use built-in widgets and components.

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

**COSC 4333 Distributed Systems 3 Credits****Department:** College of Arts and Sciences

This course will explore the fundamental issues in designing and implementing distributed systems, such as the architectures of distributed systems, processes and threads, interprocess communication and synchronization, name solution, data consistency and replication, fault tolerance, representative distributed computing systems, and file systems.

**Prerequisite(s)/Corequisite(s):** COSC 4302**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4334 Computer Vision 3 Credits****Department:** College of Arts and Sciences

This course is an introduction in image segmentation, image representation and description, feature detection and matching, machine learning, and object recognition. The goal of this course is to give students the understanding of how computer vision algorithms work and what algorithms can be used to solve given problems, as well as the necessary foundation to develop new computer vision algorithms.

**Prerequisite(s):** COSC 2336**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4345 Cybersecurity Networks 3 Credits****Department:** College of Arts and Sciences

This course provides a hands-on study of various network attacks and defending techniques, including main vulnerabilities of TCP/IP protocols, attacks on DNS servers, DoS attacks, Firewalls, VPN's, TLS and Blockchain. Basics of TCP/IP protocols and cryptography will also be covered.

**Prerequisite(s):** COSC 2336**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4350 Parallel Programming and Algorithms 3 Credits****Department:** College of Arts and Sciences

This course focuses on scalable parallelism, that is, the ability of a parallel program to run well on any number of processors focusing on algorithm design techniques that are hardware independent. The course describes the principles that underlie effective and efficient parallel programs that will remain true even as the state of the art changes with an emphasis on fundamental principles of computer science such as algorithms for parallel computation.

**Prerequisite(s):** COSC 2336**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4360 Career Development V 3 Credits****Department:** College of Arts and Sciences

Student works full-time during the semester for an off-campus enterprise in work that exposes the student to a work environment similar to that which will be encountered upon graduation. Prerequisites: COSC 2336 with a minimum grade of C

**Prerequisite(s):** COSC 2336**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 4365 Computer Crime Analysis 3 Credits****Department:** College of Arts and Sciences

This course analyzes the phases, processes and challenges of cybercrime investigations, and it examines technical, legal and social issues relating to the search and seizure of digital evidence and computer forensics.

**Prerequisite(s)/Corequisite(s):** COSC 3325**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 5100 Graduate Seminar 1 Credit****Department:** College of Arts and Sciences

Topics include the scientific method and research process, library utilization and components and organization of various types of research papers. Writing exercises on the latter topics. Preparation, formal written report and presentation on a research topic.

**Restriction(s):**

Enrollment is limited to students with a major in Computer Science.

Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 5302 Advanced Operating Systems 3 Credits****Department:** College of Arts and Sciences

Current research issues and advanced topics involving both the principles and pragmatics of operating systems specification, design and implementation. Study of concurrent processes, support structures for modular programming, resource allocation and protection, telecommunications, networks and distributed processing.

**Prerequisite(s):** COSC 4302**Restriction(s):**Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 5310 Adv Computer Architecture 3 Credits****Department:** College of Arts and Sciences

Advanced topics in computer architecture such as RISC vs CISC, pipelined processors, vector processors, HDLs, language directed architectures and neural nets.

**Prerequisite(s):** (COSC 4310 or COSC 5308) and COSC 2336**Restriction(s):**Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 5311 Data Mining 3 Credits****Department:** College of Arts and Sciences

Data models, distributed databases, special databases, statistical databases, database machines, knowledge bases, database design theory and self-documenting databases.

**Prerequisite(s):** CPSC 5340**Restriction(s):**Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

**COSC 5313 Analysis of Algorithms 3 Credits****Department:** College of Arts and Sciences

Topics on what can and cannot be proven about computational complexity including algorithm design methodologies.

**Prerequisite(s):** COSC 2336**Restriction(s):**Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 5315 Foundations of Computer Science 3 Credits****Department:** College of Arts and Sciences

The foundations of computer science are studied in order to give a better understanding of the discipline. Topics include: logic, computational models, formal languages, computability and complexity theory.

**Restriction(s):**Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 5321 Computer Graphics 3 Credits****Department:** College of Arts and Sciences

Introduction to computer graphics programming. Topics include graphics programming standards, two-and three-dimensional rendering pipelines, geometric models (including primitives, fonts, curves, and surfaces), affine transformations, orthogonal and perspective views, shading and lighting models, images and texture mapping, interactions and animations. A major project is given encompassing some or all of these concepts.

**Prerequisite(s):** COSC 4319**Restriction(s):**Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 5322 Computer Vision 3 Credits****Department:** College of Arts and Sciences

This is an introductory course in computer vision that covers the basic theory, algorithms and applications.

**Prerequisite(s):** COSC 2336**Restriction(s):**Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 5324 Computer Game Development I 3 Credits****Department:** College of Arts and Sciences

Introduction to the design and implementation of computer games, including real-time graphics, audio and interactive multimedia programming techniques.

**Prerequisite(s):** COSC 2336 and COSC 4319**Restriction(s):**Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 5325 Computer Game Development II 3 Credits****Department:** College of Arts and Sciences

Continuation of COSC 5324. Advanced game programming techniques, including 3-D graphics, 3-D audio, game physics and networking for multi-player games.

**Prerequisite(s):** COSC 5324**Restriction(s):**Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 5328 Computing Networks 3 Credits****Department:** College of Arts and Sciences

A study of networks of interacting computers. The problems, rationales and possible solutions for distributed databases will be examined. Major national and international protocols including SNA, S.21 and X.25 will be presented.

**Prerequisite(s):** COSC 4341 and COSC 4302**Restriction(s):**Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 5333 Distributed Comp Systems 3 Credits****Department:** College of Arts and Sciences

The study of the characteristics of a collection of autonomous computers linked by a network, with software designed to produce an integrated computing facility that intends to present a transparent virtual machine to application programmers.

**Prerequisite(s):** COSC 5328 and CPSC 5340**Restriction(s):**Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**COSC 5340 Special Topics 3 Credits****Department:** College of Arts and Sciences

Special topics in all areas of Computer Science with emphasis on topics not covered in other courses. May be repeated for credit when topics vary.

May be Repeated for a maximum of 18 hours

**Restriction(s):**Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS



**COSC 5345 Cybersecurity: Networks 3 Credits**

**Department:** College of Arts and Sciences

This course provides a hands-on study of various network attacks and defending techniques, including main vulnerabilities of TCP/IP protocols, attacks on DNS servers, DoS attacks, firewalls, VPNs, TLS and Blockchain. Basics of TCP/IP protocols will also be covered.

**Restriction(s):**

Undergraduate level students may **not** enroll.

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

**COSC 5350 Parallel Algorithms 3 Credits**

**Department:** College of Arts and Sciences

Taxonomy of parallel computers, shared-memory vs. message-passing architectures, theoretical models, parallel algorithm design strategies, parallel data structures, automatic parallelization of sequential programs, communication, synchronization and granularity.

**Prerequisite(s):** COSC 5313

**Restriction(s):**

Undergraduate level students may **not** enroll.

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

**COSC 5360 Intern-Grad Students 3 Credits**

**Department:** College of Arts and Sciences

This course provides practical experience with a company engaged in work related to a career in computer science. The purpose is career development before graduation. The course requires that the student obtain permission for Curricular Practical Training (CPT) from the International Student Office.

**Restriction(s):**

Undergraduate level students may **not** enroll.

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

**COSC 5361 Internship-2 3 Credits**

**Department:** College of Arts and Sciences

A continuation of COSC 5360 for a second semester.

**Restriction(s):**

Undergraduate level students may **not** enroll.

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

**COSC 5369 Graduate Project 3 Credits**

**Department:** College of Arts and Sciences

Independent study and research of a specific problem in a field of computer science or its application. A report is required defining the problem and developing a solution. The work may be supervised by any member of the graduate faculty. The project may be done by a team and must include an oral defense before a graduate committee of at least 3 graduate faculty members. May not be repeated for credit.

**Prerequisite(s):** COSC 5100

**Restriction(s):**

Undergraduate level students may **not** enroll.

**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

**COSC 5390 Thesis 3 Credits**

**Department:** College of Arts and Sciences

Independent research of a specific problem in a field of computer science. The work will be supervised by a member of the graduate faculty of the Computer Science Department. To be scheduled only with the consent of the department. Six hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean.

**Restriction(s):**

Undergraduate level students may **not** enroll.

**Grade Mode(s):** Thesis/Dissertation, Registrar do not use FN, Registrar do not use FS, Satisfactory/Unsatisfactory

**COSC 5391 Thesis II 3 Credits**

**Department:** College of Arts and Sciences

Independent research of a specific problem in a field of computer science. The work will be supervised by a member of the graduate faculty of the Computer Science Department. To be scheduled only with the consent of the department. Six hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun.

**Restriction(s):**

Undergraduate level students may **not** enroll.

**Grade Mode(s):** Satisfactory/Unsatisfactory, Registrar do not use FN, Registrar do not use FS, Thesis/Dissertation