

# Computer Science Courses: Summer 2024

## **CSCI110101**

### **Computer Science I**

**Marques Samary, Maira R**

**Summer 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI110102**

### **Computer Science I**

**Marques Samary, Maira R**

**Summer 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110201**

### **Computer Science II**

**Marques Samary, Maira R**

**Summer 2024**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI110202**

### **Computer Science II**

**Marques Samary, Maira R**

**Summer 2024**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI226801**

**Data, Ethics and Society**

**Hurley, Deborah**

**Summer 2024**

If you tried to live for one day without generating any data, how would you spend it? The use of data has proliferated and is pervasive. This timely, topical course examines key ethical questions of the Information Age. These issues pervade numerous, diverse aspects of the economy and society, from human rights to international trade. Students will learn about these topics, beginning first with acquaintance with the dominant ethical frameworks of the 20th and 21st centuries. They will then employ these frameworks to understand, analyze, and develop solutions for leading problems in the Information Age and their technological, social, economic, policy, and legal implications. Subjects include artificial intelligence (AI), big data, privacy, bias, accountability, mis/disinformation, human rights, hate speech, liberty, autonomy, international and global concerns, and emerging issues. You will come away with useful tools to understand and craft answers to some of the most pressing problems of our time. Prerequisites: None. You are already profoundly affected by the issues raised in this course and have knowledge and experience with them. This course will bring that background up to the surface, illuminate it and bring rigor to thinking about it, add to it significantly, and provide accessible toolkits for analyzing these problems and developing solutions.

**Credits:** 3

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** Social Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI227201**

**Computer Organization and Lab**

**Biswas, Anjum**

**Summer 2024**

This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 4

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI227202**

### **Computer Organization and Lab**

**Biswas, Anjum**

**Summer 2024**

This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 4

**Room and Schedule:** On-line Asynchronous

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## Computer Science Courses: Fall 2024

**CSCI108001**

**Principles of Computer Science**

**Marques Samary, Maira R**

**Fall 2024**

This is an introductory course for students with little or no programming experience. It is intended principally for students who will not be CS majors or minors, but it will help prepare students for future computer science courses if they wish to continue, and will enable them to use programming to solve problems in their field of study. The course presents an overview of the history, great principles, and transformative applications of computer science, as well as a comprehensive introduction to programming. Students will start with visual coding and later be introduced to Python. The course is based on the 'learning by doing' approach where active participation and pair programming are pillars of the course.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 TuTh 12:00 Noon-01:15PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI109001**

**Data Science Principles**

**Prud'hommeaux, Emily T**

**Fall 2024**

This course will provide students with an overview of the field of data science and its responsible uses, along with an introduction to programming in Python from a data science perspective. An emphasis will be placed on solving problems and applying data science principles to real-world datasets. For example, students will learn sorting algorithms that would be taught in a traditional introduction to programming class, but then will apply the algorithms to a data science problem (for example assessing the fairness of a loan scoring algorithm with respect to protected classes of individuals). Python programming topics will include data structures, functions, recursion, algorithms, exploratory data analysis, data processing and visualization. Students will engage through readings and in class discussions on topics such as applications of data science for the common good, privacy in a digitally connected world, issues of representation and omission in data collection, biases inherent in constructing information infrastructures and classification schemes, and the impacts of algorithmic decision-making.

**Credits:** 3

**Room and Schedule:** Fulton Hall 250 TuTh 09:00AM-10:15AM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110101**

**Computer Science I**

**Bolotin, Naomi**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 107 MWF 01:00PM-01:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110102**

### **Computer Science I**

**Bolotin, Naomi**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 107 MWF 02:00PM-02:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110103**

### **Computer Science I**

**Griffith, William**

**Fall 2024**



Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 TuTh 09:00AM-10:15AM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110104**

### **Computer Science I**

**Griffith, William**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110105**

**Computer Science I**

**Le Ferrand, Eric**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 230 MW 03:00PM-04:15PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110106**

**Computer Science I**

**Creiner, Alexander**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 MWF 12:00 Noon-12:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110110**

### **Computer Science I**

**Bolotin, Naomi**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 W 02:00PM-02:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110111**

**Computer Science I**

**Bolotin, Naomi**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 W 03:00PM-03:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110112**

**Computer Science I**

**Bolotin, Naomi**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Th 02:00PM-02:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110113**

### **Computer Science I**

**Bolotin, Naomi**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 W 03:00PM-03:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110114**

**Computer Science I**

**Bolotin, Naomi**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Th 03:00PM-03:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110115**

**Computer Science I**

**Bolotin, Naomi**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 W 04:00PM-04:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110116**

### **Computer Science I**

**Griffith, William**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 Th 05:00PM-05:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110117**

**Computer Science I**

**Griffith, William**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 W 02:00PM-02:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110118**

**Computer Science I**

**Griffith, William**

**Fall 2024**



Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 M 02:00PM-02:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110119**

### **Computer Science I**

**Griffith, William**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Th 04:00PM-04:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110120**

**Computer Science I**

**Griffith, William**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Tu 03:00PM-03:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110121**

**Computer Science I**

**Griffith, William**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Tu 04:00PM-04:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110122**

### **Computer Science I**

**Le Ferrand, Eric**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Tu 02:00PM-02:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110123**

**Computer Science I**

**Le Ferrand, Eric**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Th 06:00PM-06:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110124**

**Computer Science I**

**Le Ferrand, Eric**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 M 06:00PM-06:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110125**

### **Computer Science I**

**Creiner, Alexander**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 Th 03:00PM-03:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110126**

**Computer Science I**

**Creiner, Alexander**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 Tu 05:00PM-05:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110127**

**Computer Science I**

**Creiner, Alexander**

**Fall 2024**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 M 05:00PM-05:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110201**

### **Computer Science II**

**Maier, Cristina**

**Fall 2024**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 TuTh 09:00AM-10:15AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110202**

**Computer Science II**

**McTague, Carl S**

**Fall 2024**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 3

**Room and Schedule:** Gasson Hall 305 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110203**

**Computer Science II**

**Levear, Duncan A**

**Fall 2024**



In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 MWF 01:00PM-01:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI110210**

### **Computer Science II**

**Maier, Cristina**

**Fall 2024**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Tu 05:00PM-05:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110211**

**Computer Science II**

**Maier, Cristina**

**Fall 2024**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 M 06:00PM-06:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110212**

**Computer Science II**

**Maier, Cristina**

**Fall 2024**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 W 04:00PM-04:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI110213**

### **Computer Science II**

**McTague, Carl S**

**Fall 2024**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 M 05:00PM-05:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110214**

**Computer Science II**

**McTague, Carl S**

**Fall 2024**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Tu 06:00PM-06:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110215**

**Computer Science II**

**McTague, Carl S**

**Fall 2024**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 W 06:00PM-06:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI110216**

### **Computer Science II**

**Levear, Duncan A**

**Fall 2024**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Th 05:00PM-05:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110217**

**Computer Science II**

**Levear, Duncan A**

**Fall 2024**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Th 01:00PM-01:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110218**

**Computer Science II**

**Levear, Duncan A**

**Fall 2024**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 W 05:00PM-05:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI222701**

### **Introduction to Scientific Computation**

**Levear, Duncan A**

**Fall 2024**

This is an introductory course in computer programming for students interested in numerical and scientific computation. Emphasis will be placed on problems drawn from the sciences. Many mathematical models of the behavior of complex natural systems have no closed-form solution, and computational modeling is needed for data exploration and to obtain approximate solutions. The course discusses different models and approximation methods, how to implement them as computer programs, and the factors that influence approximation quality. Topics include computer representation of floating-point numbers and data, computer program design and control flow, data visualization, nonlinear equations, systems of linear equations and least-squares, and Fourier analysis, with additional topics as time allows. Students will write programs in the Python programming language, primarily.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 125 MWF 02:00PM-02:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** MATH1101 or equivalent course(s) in differential and integral calculus with

functions of one real variable.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI224301**

**Logic and Computation**

**McTague, Carl S**

**Fall 2024**

A course in the mathematical foundations of Computer Science, illustrated throughout with applications such as sets and functions, propositional and predicate logic, induction and recursion, basic number theory, and mathematical models of computation such as formal languages, finite state machines, and Turing machines.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 TuTh 12:00 Noon-01:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI224302**

**Logic and Computation**

**McTague, Carl S**

**Fall 2024**



A course in the mathematical foundations of Computer Science, illustrated throughout with applications such as sets and functions, propositional and predicate logic, induction and recursion, basic number theory, and mathematical models of computation such as formal languages, finite state machines, and Turing machines.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 TuTh 01:30PM-02:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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### **CSCI224303**

**Logic and Computation**

**Creiner, Alexander**

**Fall 2024**

A course in the mathematical foundations of Computer Science, illustrated throughout with applications such as sets and functions, propositional and predicate logic, induction and recursion, basic number theory, and mathematical models of computation such as formal languages, finite state machines, and Turing machines.

**Credits:** 3

**Room and Schedule:** Fulton Hall 453 MW 01:30PM-02:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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### **CSCI224401**

## **Randomness and Computation**

**Mohler, George**

**Fall 2024**

This course presents the mathematical and computational tools needed to solve problems that involve randomness. For example, an understanding of random variables allows us to efficiently generate the enormous prime numbers needed for information security, and to quantify the expected performance of a machine learning algorithm beyond a small data sample. An understanding of covariance allows high quality compression of audio and video. Topics include combinatorics and counting, random experiments and probability, random variables and distributions, computational modeling of randomness, Bayes' rule, laws of large numbers, vectors and matrices, covariance and principal axes, and Markov chains.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 230 TuTh 01:30PM-02:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101 Computer Science 1, CSCI2243 Logic and Computation or Math2216 Intro to abstract Math, and MATH1103 Calculus II for Math and Science majors.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI224402**

**Randomness and Computation**

**Diouane, Youness**

**Fall 2024**

This course presents the mathematical and computational tools needed to solve problems that involve randomness. For example, an understanding of random variables allows us to efficiently generate the enormous prime numbers needed for information security, and to quantify the expected performance of a machine learning algorithm beyond a small data sample. An understanding of covariance allows high quality compression of audio and video. Topics include combinatorics and counting, random experiments and probability, random variables and distributions, computational modeling of randomness, Bayes' rule, laws of large numbers, vectors and matrices, covariance and principal axes, and Markov chains.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 125 MWF 12:00 Noon-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101 Computer Science 1, CSCI2243 Logic and Computation or Math2216 Intro to abstract Math, and MATH1103 Calculus II for Math and Science majors.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI224403**

### **Randomness and Computation**

**Su, Hsin Hao**

**Fall 2024**

This course presents the mathematical and computational tools needed to solve problems that involve randomness. For example, an understanding of random variables allows us to efficiently generate the enormous prime numbers needed for information security, and to quantify the expected performance of a machine learning algorithm beyond a small data sample. An understanding of covariance allows high quality compression of audio and video. Topics include combinatorics and counting, random experiments and probability, random variables and distributions, computational modeling of randomness, Bayes' rule, laws of large numbers, vectors and matrices, covariance and principal axes, and Markov chains.

**Credits:** 3

**Room and Schedule:** Fulton Hall 415 TuTh 12:00 Noon-01:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101 Computer Science 1, CSCI2243 Logic and Computation or Math2216

Intro to abstract Math, and MATH1103 Calculus II for Math and Science majors.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI225401**

### **Web Application Development**

**Yun, Mira**

**Fall 2024**

The web connects our society, providing enormous opportunities for changing and improving how we live every day, from sharing information to interacting with others. We have witnessed the power of the web through various web-based applications, including social media, productivity, and transportation applications. These digital utilities have seamlessly integrated into our routines, fundamentally altering our methods of communication, work, and mobility in recent times. Students will learn how to develop usable and useful web applications in this course. The overall architecture of Internet applications is examined at a high level. Special emphasis is placed on front-end development, including HTML, CSS, and JavaScript. This course further expands to encompass React, a component-based library for building frontend interfaces. The course will culminate with a final project where students take a human-centered design approach to address the needs of people by constructing a sophisticated web application.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 TuTh 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101 and CSCI1102

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI225402**

## **Web Application Development**

**Yun, Mira**

**Fall 2024**

The web connects our society, providing enormous opportunities for changing and improving how we live every day, from sharing information to interacting with others. We have witnessed the power of the web through various web-based applications, including social media, productivity, and transportation applications. These digital utilities have seamlessly integrated into our routines, fundamentally altering our methods of communication, work, and mobility in recent times. Students will learn how to develop usable and useful web applications in this course. The overall architecture of Internet applications is examined at a high level. Special emphasis is placed on front-end development, including HTML, CSS, and JavaScript. This course further expands to encompass React, a component-based library for building frontend interfaces. The course will culminate with a final project where students take a human-centered design approach to address the needs of people by constructing a sophisticated web application.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 125 TuTh 04:30PM-05:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101 and CSCI1102

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI226101**

**Media Ethics in the Digital Age**

**Breen, Marcus J**

**Fall 2024**

This course may be used to satisfy one of four electives required within the Communication major. This course gives students an understanding of the ethical dimensions of communication in an accelerating digital world. Drawing on philosophical principles that resonate with Jesuit values, students will learn to identify, evaluate, and where possible interpret moral conflicts in the media and communication environment, in the media industry, and between the industry and the public. Rather than look at ethical conflicts strictly from a Western lens, the course introduces the students to a variety of philosophical and cultural models. Using a case study approach, the course addresses various contemporary ethical concerns, such as social media and mental health, misinformation, hate speech, extremist content, documentaries, alternative business models for journalism, international and cross-cultural issues, commodity activism, guerilla marketing, entertainment, privacy, doxing, and copyright.

**Credits:** 3

**Room and Schedule:** Fulton Hall 425 TuTh 01:30PM-02:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** COMM2250

**Frequency:** Periodically in the Fall, Periodically in the Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI226701**

### **Technology and Culture**

**Griffith, William**

**Fall 2024**

This interdisciplinary course will first investigate the social, political, psychological, ethical, and spiritual aspects of the Western cultural development with a special emphasis on scientific and technological metaphors and narratives. We will then focus on the contemporary world, examining the impact of our various technological creations on cultural directions, democratic process, the world of work, quality of life, and especially on the emergent meanings for the terms "citizen" and "ethics" in contemporary society. Students will explore technologies in four broad and interrelated domains: (1) computer, media, communications, and information technologies, (2) biotechnology, (3) globalization, and (4) environmental issues.

**Credits:** 3

**Room and Schedule:** Fulton Hall 250 M 04:30PM-06:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** PHIL6670,SOCY6670

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI226801**

### **Data, Ethics and Society**

**Hurley, Deborah**

**Fall 2024**

If you tried to live for one day without generating any data, how would you spend it? The use of data has proliferated and is pervasive. This timely, topical course examines key ethical questions of the Information Age. These issues pervade numerous, diverse aspects of the economy and society, from human rights to international trade. Students will learn about these topics, beginning first with acquaintance with the dominant ethical frameworks of the 20th and 21st centuries. They will then employ these frameworks to understand, analyze, and develop solutions for leading problems in the Information Age and their technological, social, economic, policy, and legal implications. Subjects include artificial intelligence (AI), big data, privacy, bias, accountability, mis/disinformation, human rights, hate speech, liberty, autonomy, international and global concerns, and emerging issues. You will come away with useful tools to understand and craft answers to some of the most pressing problems of our time. Prerequisites: None. You are already profoundly affected by the issues raised in this course and have knowledge and experience with them. This course will bring that background up to the surface, illuminate it and bring rigor to thinking about it, add to it significantly, and provide accessible toolkits for analyzing these problems and developing solutions.

**Credits:** 3

**Room and Schedule:** Carney Hall 202 Th 04:30PM-06:50PM

**Satisfies Core Requirement:** Social Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI227101**

**Computer Systems**

**Aviram, Amittai F**

**Fall 2024**

This course is about how computing machines implement the human-friendly abstractions we express in our programs. It reveals the internal representations of data and instructions, as well as the management of data storage in memory, the coordination of processes, and the interactions between operating systems and the programs being executed. Computer Systems explores system behavior and operations in considerable detail. This greater detail is essential for optimizing program performance, for working within the finite memory and word size constraints of computers, for effective debugging, and for systems-level programming. This hands-on course introduces you to the C programming language and techniques of systems programming through extensive coding exercises

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 MWF 10:00AM-10:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1102

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI227102**

**Computer Systems**

**Aviram, Amittai F**

**Fall 2024**



This course is about how computing machines implement the human-friendly abstractions we express in our programs. It reveals the internal representations of data and instructions, as well as the management of data storage in memory, the coordination of processes, and the interactions between operating systems and the programs being executed. Computer Systems explores system behavior and operations in considerable detail. This greater detail is essential for optimizing program performance, for working within the finite memory and word size constraints of computers, for effective debugging, and for systems-level programming. This hands-on course introduces you to the C programming language and techniques of systems programming through extensive coding exercises

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 MWF 11:00AM-11:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1102

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI227201**

### **Computer Organization and Lab**

**Biswas, Anjum**

**Fall 2024**

This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 4

**Room and Schedule:** 245 Beacon Street Room 125 TuTh 09:00AM-10:15AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI227202**

### **Computer Organization and Lab**

**Biswas, Anjum**

**Fall 2024**

This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 4

**Room and Schedule:** 245 Beacon Street Room 125 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI227203**

### **Computer Organization and Lab**

**Biswas, Anjum**

**Fall 2024**

This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 M 03:00PM-04:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI227204**

### **Computer Organization and Lab**

**Biswas, Anjum**

**Fall 2024**

This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 W 06:00PM-07:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI227205**

**Computer Organization and Lab**

**Biswas, Anjum**

**Fall 2024**

This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 Tu 03:00PM-04:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI227206**

**Computer Organization and Lab**

**Biswas, Anjum**

**Fall 2024**

This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 Tu 06:00PM-07:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI229101**

**Data Science: Methods and Applications**

**Maier, Cristina**

**Fall 2024**

This course focuses on efficient organization and processing of data, data visualization and communication, statistical modeling, and machine learning, integrating concepts in responsible data science and social impact, such as bias in data collection and modeling, privacy, ethical design of data science experiments, and model interpretability. Students will apply data science techniques to real-world problems and publicly available datasets arising across the range of human inquiry.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 230 TuTh 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1090 and MATH2250

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI331001**

**Topics in Computer Science: Computing Language**

**Bolotin, Naomi**

**Fall 2024**

A course on computational linguistics focusing on core properties of language and how to model them programmatically. Computational work done in different language areas (such as morphology and syntax) in a variety of languages will be explored. Assignments will consist of implementing a set of language tools in Java, along with a final project on a language topic of choice.

**Credits:** 3

**Room and Schedule:** Fulton Hall 415 MW 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1102

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI335601**

**Software Engineering**

**Marques Samary, Maira R**

**Fall 2024**

This course covers the basic life cycle of software development: requirements, design, implementation, testing, and production release. Students will learn the theory related to software engineering, but they will also learn hands-on how to create their own software. The main evaluation of the course is a team project that will simulate a small real project. The project will be done using the framework Django (Python), the CSS Framework Bootstrap, among other technologies. The project will be worth 50% of the grade, as well as 2 midterms, an exam, and a peer assessment (how your team members evaluate the work you did).

**Credits:** 3

**Room and Schedule:** Fulton Hall 415 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** Prerequisite: CSCI2271 Computer Systems

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI335801**

**Foundations of algorithmic (un)fairness**

**Finocchiaro, Jessica**

**Fall 2024**

Computation is increasingly used to support decision-making in our society: banks are given to algorithmic predictions to help them determine loan qualification; in the COVID-19 pandemic, algorithms were used to allocate scarce vaccines; facial recognition algorithms allow us to use our faces as "keys" to unlock our phones and even houses. In these high-stakes settings, concerns of fairness and justice are salient. This course will equip students with the mathematical tools to understand and address some of these concerns. Topics will include: how to computationally define and diagnose (un)fairness, the role of uncertainty in fairness, disparate treatment vs disparate impact, and contextualization within US anti-discrimination law.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 125A TuTh 09:00AM-10:15AM

**Satisfies Core Requirement:** None

**Prerequisites:** Prerequisites: CS1, Randomness and Computation.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI336001**

**Human-AI Interaction**

**Kim, Nam Wook**

**Fall 2024**

The recent surge in large-language model development has reached a tipping point, making AI increasingly useful in everyday life for a wide audience. This course will introduce fundamental concepts, ideas, and principles underlying human-AI interaction design. We will cover topics from human-computer interaction and machine learning literature, including cognitive load theory, mixed-initiative models, and key issues like fairness and inclusivity, explainability, and safety. Students will learn these topics via practical applications such as image/video recognition, prompt engineering, and programming assistants. They will carry out hands-on assignments and projects, ranging from producing AI-assisted media content and evaluating large-language models to building AI-driven interactive applications.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 125A TuTh 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** Prerequisite: Web Application Development (or approval from the instructor or other upper-level development courses such as Software Engineering)

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI336301**

**Computer Networks**

**Wiseman, Charles**

**Fall 2024**



This course studies computer networks and the services built on top of them. Topics include packet-switch and multi-access networks, routing and flow control, congestion control and quality-of-service, resource sharing, Internet protocols (IP, TCP, BGP), the client-server model and RPC, elements of distributed systems (naming, security, caching, consistency) and the design of network services (peer-to-peer networks, file and web servers, content distribution networks). Coursework involves a significant amount of Java/C programming.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 125 MWF 01:00PM-01:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI336302**

### **Computer Networks**

**Wiseman, Charles**

**Fall 2024**

This course studies computer networks and the services built on top of them. Topics include packet-switch and multi-access networks, routing and flow control, congestion control and quality-of-service, resource sharing, Internet protocols (IP, TCP, BGP), the client-server model and RPC, elements of distributed systems (naming, security, caching, consistency) and the design of network services (peer-to-peer networks, file and web servers, content distribution networks). Coursework involves a significant amount of Java/C programming.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 MWF 02:00PM-02:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI336601**

**Principles of Programming Languages**

**Stump, Aaron**

**Fall 2024**

This course studies issues in programming language design and implementation. Language features like statically scoped variables, higher-order functions, static type-checking, recursion and pattern-matching are considered, from the points of view of both language users and language implementors. The class also introduces the functional programming paradigm, using a language like Haskell or OCaml. Other topics considered include garbage collection, tail recursion, and basics of parsing. Finally, the class introduces computer theorem-proving, using an advanced language like Agda, for reasoning about functional programs. The graded work of the class consists of regular short programming assignments as well as a more substantial project

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 104 MWF 11:00AM-11:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** Discrete Math and Strong programming skills are required.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI337001**

**Deep Learning**

**Yuan, Yuan**

**Fall 2024**

Deep Learning is rapidly emerging as one of the most successful and widely applicable sets of techniques across a range of domains, including vision, language, speech, robotics, medicine, and AI in general. This has led to significant success and exciting new directions that may previously have seemed out of reach. This course offers an introduction to the fundamentals of deep learning, covering both theory and applications. It starts from the basics of Neural Networks (NNs) and extends to some of the latest research. Topics covered include neural net architectures (MLPs, CNNs, RNNs, transformers, large language models, generative models), geometry and invariances in deep learning, backpropagation and automatic differentiation, learning theory and generalization, self-supervised learning and robust learning, as well as applications to computer vision, natural language processing, medicine, and science, among others. The course will be delivered through instructor lectures and reinforced with coding assignments that teach both theoretical and practical aspects. Additionally, it will include a project that allows students to explore an area of deep learning that interests them in more depth.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 MWF 09:00AM-09:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** Prerequisites: (MATH1102 or MATH1103) and MATH 2210 and CSCI1102

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Both

**Comments:** None

**Status:** Offered

---

**CSCI338301**

**Algorithms**

**Volkovich, Ilya**

**Fall 2024**

This course is a study of algorithms for, among other things, sorting, searching, pattern matching, and manipulation of graphs and trees. Emphasis is placed on the mathematical analysis of the time and memory requirements of such algorithms and on general techniques for improving their performance.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 MW 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI2243 and CSCI1102 and CSCI2244

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI338302**

### **Algorithms**

**Bento Ayres Pereira, Jose**

**Fall 2024**

This course is a study of algorithms for, among other things, sorting, searching, pattern matching, and manipulation of graphs and trees. Emphasis is placed on the mathematical analysis of the time and memory requirements of such algorithms and on general techniques for improving their performance.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 TuTh 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI2243 and CSCI1102 and CSCI2244

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI338701**

**Topics in Computational intelligence: Machine Learning Projects**

**Bento Ayres Pereira, Jose**

**Fall 2024**

In this project based class, we will introduce several machine learning concepts, and illustrate and practice their use. These topics will, tentatively, include: classification, data processing, dimensionality reduction, model evaluation and tuning, ensemble learning, regression, clustering, multi layer artificial neural networks and their use for classification, regression, generative adversarial networks, and reinforcement learning.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 214 TuTh 01:30PM-02:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** MATH2202, MATH2210, CSCI2243 and CSCI2244

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI339001**

**Topics in Computer Science: Wireless and Mobile Networks**

**Yun, Mira**

**Fall 2024**

This course will provide an introduction to the state of the art in wireless and mobile networks. The course will cover the fundamental principles, architectures, and standards of current and upcoming wireless and mobile communication systems, including their applications and uses.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 125 TuTh 01:30PM-02:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI2243 and CSCI2244 and CSCI3383

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI339201**

## **Logic for Mathematicians and for Computer Scientists**

**Straubing, Howard**

**Fall 2024**

A course in mathematical logic for both mathematics and computer science majors. There will be an emphasis on applications in computer science, alongside traditional subject matter. Topics covered include propositional and predicate logic, first-order arithmetic, completeness and incompleteness theorems, computability, automated proof assistants, and satisfiability solvers.

**Credits:** 3

**Room and Schedule:** Fulton Hall 250 TuTh 12:00 Noon-01:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101 or Some experience and comfort reading and writing mathematical proofs: MATH2216 Introduction to Abstract Mathematics or CSCI2243 Logic and Computations should provide the basics. Strongly recommended: CSCI1101 Computer Science 1, or the equivalent

**Corequisites:** None

**Cross-listed with:** MATH4312

**Frequency:** null

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI491101**

**Readings in Computer Science**

**Finocchiaro, Jessica**

**Fall 2024**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI491102**

**Readings in Computer Science**

**Yuan, Yuan**

**Fall 2024**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI491103**

**Readings in Computer Science**

**Dept**

**Fall 2024**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI491104**

**Readings in Computer Science**

**Dept**

**Fall 2024**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI491105**

**Readings in Computer Science**

**Dept**

**Fall 2024**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate



**Comments:** None

**Status:** Offered

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**CSCI491106**

**Readings in Computer Science**

**Dept**

**Fall 2024**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI492101**

**Advanced Independent Research**

**Su, Hsin Hao**

**Fall 2024**

TBD

**Credits:** 6

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Both

**Comments:** None

**Status:** Offered

---

**CSCI496101****Honors Thesis****Wei, Donglai****Fall 2024**

Independent study project for students enrolled in the departmental honors program.

**Credits:** 3**Room and Schedule:** BY ARRANGEMENT**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**CSCI496102****Honors Thesis****Dept****Fall 2024**

Independent study project for students enrolled in the departmental honors program.

**Credits:** 3**Room and Schedule:** BY ARRANGEMENT**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**CSCI496103****Honors Thesis****Dept**

**Fall 2024**

Independent study project for students enrolled in the departmental honors program.

**Credits:** 3

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI496104**

**Honors Thesis**

**Dept**

**Fall 2024**

Independent study project for students enrolled in the departmental honors program.

**Credits:** 3

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI496105**

**Honors Thesis**

**Dept**

**Fall 2024**

Independent study project for students enrolled in the departmental honors program.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI496106**

**Honors Thesis**

**Dept**

**Fall 2024**

Independent study project for students enrolled in the departmental honors program.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI496107**

**Honors Thesis**

**Dept**

**Fall 2024**

Independent study project for students enrolled in the departmental honors program.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None  
**Prerequisites:** Permission of Department  
**Corequisites:** None  
**Cross-listed with:** None  
**Frequency:** Every Fall, Every Spring  
**Student Level:** Undergraduate  
**Comments:** None  
**Status:** Offered

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## Computer Science Courses: Spring 2025

### **CSCI109001**

#### **Data Science Principles**

**Maier, Cristina**

#### **Spring 2025**

This course will provide students with an overview of the field of data science and its responsible uses, along with an introduction to programming in Python from a data science perspective. An emphasis will be placed on solving problems and applying data science principles to real-world datasets. For example, students will learn sorting algorithms that would be taught in a traditional introduction to programming class, but then will apply the algorithms to a data science problem (for example assessing the fairness of a loan scoring algorithm with respect to protected classes of individuals). Python programming topics will include data structures, functions, recursion, algorithms, exploratory data analysis, data processing and visualization. Students will engage through readings and in class discussions on topics such as applications of data science for the common good, privacy in a digitally connected world, issues of representation and omission in data collection, biases inherent in constructing information infrastructures and classification schemes, and the impacts of algorithmic decision-making.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 TuTh 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110101**

**Computer Science I**

**Griffith, William**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 MW 03:00PM-04:15PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110102**

**Computer Science I**

**Yun, Mira**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 3

**Room and Schedule:** Fulton Hall 415 TuTh 12:00 Noon-01:15PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110103**

### **Computer Science I**

**Wiseman, Charles**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 MWF 11:00AM-11:50AM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110104**

**Computer Science I**

**Wiseman, Charles**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 107 MWF 02:00PM-02:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110110**

**Computer Science I**

**Griffith, William**

**Spring 2025**



Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 M 06:00PM-06:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110111**

### **Computer Science I**

**Griffith, William**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 Tu 04:00PM-04:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110112**

**Computer Science I**

**Griffith, William**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 M 05:00PM-05:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110113**

**Computer Science I**

**Yun, Mira**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 Tu 03:00PM-03:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110114**

### **Computer Science I**

**Yun, Mira**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Tu 04:00PM-04:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110115**

**Computer Science I**

**Yun, Mira**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 W 04:00PM-04:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110116**

**Computer Science I**

**Wiseman, Charles**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 M 03:00PM-03:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

## **CSCI110117**

### **Computer Science I**

**Wiseman, Charles**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 M 04:00PM-04:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

---

**CSCI110118**

**Computer Science I**

**Wiseman, Charles**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 W 05:00PM-05:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110119**

**Computer Science I**

**Wiseman, Charles**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 W 06:00PM-06:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI110120**

### **Computer Science I**

**Wiseman, Charles**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Th 02:00PM-02:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110121**

**Computer Science I**

**Wiseman, Charles**

**Spring 2025**

Satisfies Core requirement for Mathematics for CSCI1101 and CSCI1103. This course is an introduction to the art and science of computer programming and to some of the fundamental concepts of computer science. Students will write programs in the Python programming language. Good program design methodology will be stressed throughout. There will also be a study of some of the basic notions of computer science, including computer systems organization, files and some algorithms of fundamental importance.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Th 04:00PM-04:50PM

**Satisfies Core Requirement:** Mathematics

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Summer

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110201**

**Computer Science II**

**Bolotin, Naomi**

**Spring 2025**



In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 107 TuTh 12:00 Noon-01:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI110202**

### **Computer Science II**

**Bolotin, Naomi**

**Spring 2025**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 TuTh 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110204**

**Computer Science II**

**Marques Samary, Maira R**

**Spring 2025**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 3

**Room and Schedule:** Fulton Hall 415 MWF 09:00AM-09:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110210**

**Computer Science II**

**Bolotin, Naomi**

**Spring 2025**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Tu 02:00PM-02:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI110211**

### **Computer Science II**

**Bolotin, Naomi**

**Spring 2025**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Tu 03:00PM-03:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110212**

**Computer Science II**

**Bolotin, Naomi**

**Spring 2025**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 W 03:00PM-03:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110213**

**Computer Science II**

**Bolotin, Naomi**

**Spring 2025**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Tu 05:00PM-05:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI110214**

### **Computer Science II**

**Bolotin, Naomi**

**Spring 2025**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Tu 06:00PM-06:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110215**

**Computer Science II**

**Bolotin, Naomi**

**Spring 2025**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 W 02:00PM-02:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110216**

**Computer Science II**

**Marques Samary, Maira R**

**Spring 2025**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Th 05:00PM-05:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI110217**

### **Computer Science II**

**Marques Samary, Maira R**

**Spring 2025**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 123 Th 06:00PM-06:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110218**

**Computer Science II**

**Marques Samary, Maira R**

**Spring 2025**

In this course, the student will write programs that employ more sophisticated and efficient means of representing and manipulating information. Part of the course is devoted to a continued study of programming. The principal emphasis, however, is on the study of the fundamental data structures of computer science (lists, stacks, queues, trees, etc.). Both their abstract properties and their implementations in computer programs and the study of the fundamental algorithms for manipulating these structures. Students will use Java for programming.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 Tu 05:00PM-05:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI110401**

**Gateway Computer Science 2 Discussion**

**Marques Samary, Maira R**

**Spring 2025**

Required of all Gateway students currently doing CS2. Discussion will offer a fairly comprehensive review of the material presented in lecture, with a focus on the key concepts needed for problem-solving in a small group setting.

**Credits:** 1

**Room and Schedule:** 245 Beacon Street Room 104 W 11:00AM-11:50AM



**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Annually

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI224301**

### **Logic and Computation**

**Stump, Aaron**

**Spring 2025**

A course in the mathematical foundations of Computer Science, illustrated throughout with applications such as sets and functions, propositional and predicate logic, induction and recursion, basic number theory, and mathematical models of computation such as formal languages, finite state machines, and Turing machines.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 MWF 01:00PM-01:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI224302**

### **Logic and Computation**

**McTague, Carl S**

**Spring 2025**

A course in the mathematical foundations of Computer Science, illustrated throughout with applications such as sets and functions, propositional and predicate logic, induction and recursion, basic number theory, and mathematical models of computation such as formal languages, finite state machines, and Turing machines.

**Credits:** 3

**Room and Schedule:** Fulton Hall 415 MWF 10:00AM-10:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI224401**

### **Randomness and Computation**

**Finocchiaro, Jessica**

**Spring 2025**

This course presents the mathematical and computational tools needed to solve problems that involve randomness. For example, an understanding of random variables allows us to efficiently generate the enormous prime numbers needed for information security, and to quantify the expected performance of a machine learning algorithm beyond a small data sample. An understanding of covariance allows high quality compression of audio and video. Topics include combinatorics and counting, random experiments and probability, random variables and distributions, computational modeling of randomness, Bayes' rule, laws of large numbers, vectors and matrices, covariance and principal axes, and Markov chains.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101 Computer Science 1, CSCI2243 Logic and Computation or Math2216 Intro to abstract Math, and MATH1103 Calculus II for Math and Science majors.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI224402**

**Randomness and Computation**

**Alvarez, Sergio**

**Spring 2025**

This course presents the mathematical and computational tools needed to solve problems that involve randomness. For example, an understanding of random variables allows us to efficiently generate the enormous prime numbers needed for information security, and to quantify the expected performance of a machine learning algorithm beyond a small data sample. An understanding of covariance allows high quality compression of audio and video. Topics include combinatorics and counting, random experiments and probability, random variables and distributions, computational modeling of randomness, Bayes' rule, laws of large numbers, vectors and matrices, covariance and principal axes, and Markov chains.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 107 TuTh 09:00AM-10:15AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101 Computer Science 1, CSCI2243 Logic and Computation or Math2216 Intro to abstract Math, and MATH1103 Calculus II for Math and Science majors.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI225401**

**Web Application Development**

**Yun, Mira**

**Spring 2025**

The web connects our society, providing enormous opportunities for changing and improving how we live every day, from sharing information to interacting with others. We have witnessed the power of the web through various web-based applications, including social media, productivity, and transportation applications. These digital utilities have seamlessly integrated into our routines, fundamentally altering our methods of communication, work, and mobility in recent times. Students will learn how to develop usable and useful web applications in this course. The overall architecture of Internet applications is examined at a high level. Special emphasis is placed on front-end development, including HTML, CSS, and JavaScript. This course further expands to encompass React, a component-based library for building frontend interfaces. The course will culminate with a final project where students take a human-centered design approach to address the needs of people by constructing a sophisticated web application.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 125A TuTh 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101 and CSCI1102

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI226501**

### **Tech Tools for Playful Learning**

**Bers, Marina**

**Spring 2025**

This course explores the design and use of new technologies for learning and engages students in current debates around educational technologies, computational thinking, coding and robotics. Students will learn how to develop, implement, and evaluate technology-rich curriculum and will design their own computational meaningful projects. They will visit K-2 classrooms to implement technology-rich curricula, will learn how to use video to document their experiences and will become researchers to assess the thinking and learning fostered by the different tools.

**Credits:** 3

**Room and Schedule:** Carney 306;Th 09:30AM-11:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** FORM6150

**Frequency:** Periodically in the Spring

**Student Level:** Both

**Comments:** None

**Status:** Offered

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## **CSCI226701**

### **Technology and Culture**

**Griffith, William**

**Spring 2025**

This interdisciplinary course will first investigate the social, political, psychological, ethical, and spiritual aspects of the Western cultural development with a special emphasis on scientific and technological metaphors and narratives. We will then focus on the contemporary world, examining the impact of our various technological creations on cultural directions, democratic process, the world of work, quality of life, and especially on the emergent meanings for the terms "citizen" and "ethics" in contemporary society. Students will explore technologies in four broad and interrelated domains: (1) computer, media, communications, and information technologies, (2) biotechnology, (3) globalization, and (4) environmental issues.

**Credits:** 3

**Room and Schedule:** Fulton Hall 245 M 04:30PM-06:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** PHIL6670,SOCY6670

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI226801**

### **Data, Ethics and Society**

**Hurley, Deborah**

**Spring 2025**

If you tried to live for one day without generating any data, how would you spend it? The use of data has proliferated and is pervasive. This timely, topical course examines key ethical questions of the Information Age. These issues pervade numerous, diverse aspects of the economy and society, from human rights to international trade. Students will learn about these topics, beginning first with acquaintance with the dominant ethical frameworks of the 20th and 21st centuries. They will then employ these frameworks to understand, analyze, and develop solutions for leading problems in the Information Age and their technological, social, economic, policy, and legal implications. Subjects include artificial intelligence (AI), big data, privacy, bias, accountability, mis/disinformation, human rights, hate speech, liberty, autonomy, international and global concerns, and emerging issues. You will come away with useful tools to understand and craft answers to some of the most pressing problems of our time. Prerequisites: None. You are already profoundly affected by the issues raised in this course and have knowledge and experience with them. This course will bring that background up to the surface, illuminate it and bring rigor to thinking about it, add to it significantly, and provide accessible toolkits for analyzing these problems and developing solutions.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 125A Th 04:30PM-06:50PM

**Satisfies Core Requirement:** Social Science

**Prerequisites:** None

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI227101**

**Computer Systems**

**Aviram, Amittai F**

**Spring 2025**

This course is about how computing machines implement the human-friendly abstractions we express in our programs. It reveals the internal representations of data and instructions, as well as the management of data storage in memory, the coordination of processes, and the interactions between operating systems and the programs being executed. Computer Systems explores system behavior and operations in considerable detail. This greater detail is essential for optimizing program performance, for working within the finite memory and word size constraints of computers, for effective debugging, and for systems-level programming. This hands-on course introduces you to the C programming language and techniques of systems programming through extensive coding exercises

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 214 TuTh 10:30AM-11:45AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1102

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI227102**

### **Computer Systems**

**Aviram, Amittai F**

**Spring 2025**

This course is about how computing machines implement the human-friendly abstractions we express in our programs. It reveals the internal representations of data and instructions, as well as the management of data storage in memory, the coordination of processes, and the interactions between operating systems and the programs being executed. Computer Systems explores system behavior and operations in considerable detail. This greater detail is essential for optimizing program performance, for working within the finite memory and word size constraints of computers, for effective debugging, and for systems-level programming. This hands-on course introduces you to the C programming language and techniques of systems programming through extensive coding exercises

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 TuTh 01:30PM-02:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1102

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI227201**

### **Computer Organization and Lab**

**Biswas, Anjum**

**Spring 2025**

This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 4

**Room and Schedule:** 245 Beacon Street Room 103 MWF 10:00AM-10:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI227202**

### **Computer Organization and Lab**

**Biswas, Anjum**

**Spring 2025**



This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 4

**Room and Schedule:** 245 Beacon Street Room 103 MWF 11:00AM-11:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI227210**

### **Computer Organization and Lab**

**Biswas, Anjum**

**Spring 2025**

This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 W 04:00PM-05:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI227211**

**Computer Organization and Lab**

**Biswas, Anjum**

**Spring 2025**

This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 M 03:00PM-04:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI227212**

**Computer Organization and Lab**

**Biswas, Anjum**

**Spring 2025**

This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 W 06:00PM-07:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI227213**

### **Computer Organization and Lab**

**Biswas, Anjum**

**Spring 2025**

This course studies the internal organization of computers and the processing of machine instructions. Topics include computer representation of numbers, combinational circuit design (decoders, multiplexers), sequential circuit design and analysis, memory design (registers and main memory), and simple processors including datapaths, instruction formats, and control units. In the laboratory-based portion of course students design and build digital circuits related to lecture. Exercises include hardware description languages, combinational and sequential circuits, arithmetic and logic units, and simple datapath and control units.

**Credits:** 0

**Room and Schedule:** 245 Beacon Street Room 103 Tu 06:00PM-07:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI229101**

**Data Science: Methods and Applications**

**Alvarez, Sergio**

**Spring 2025**

This course focuses on efficient organization and processing of data, data visualization and communication, statistical modeling, and machine learning, integrating concepts in responsible data science and social impact, such as bias in data collection and modeling, privacy, ethical design of data science experiments, and model interpretability. Students will apply data science techniques to real-world problems and publicly available datasets arising across the range of human inquiry.

**Credits:** 3

**Room and Schedule:** Merkert Chemistry Center 130 TuTh 01:30PM-02:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1090 and MATH2250

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI334501**

**Machine Learning**

**Yuan, Yuan**

**Spring 2025**

This course provides an introduction to computational mechanisms that improve their performance based on experience. Machine learning can be used in engineered systems for a wide variety of tasks in personalized information filtering, health care, security, games, computer vision, and human-computer interaction, and can provide computational models of information processing in biological and other complex systems. Supervised and unsupervised learning will be discussed, including sample applications, as well as specific learning paradigms such as decision trees, instance-based learning, neural networks and deep learning, Bayesian approaches, meta-learning, and clustering. General concepts to be described include feature space representations, inductive bias, overfitting, and fundamental tradeoffs.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 TuTh 01:30PM-02:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI2244 and CSCI1102 or Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI334901**

### **Natural Language Processing**

**Prud'hommeaux, Emily T**

**Spring 2025**

In this hands-on course, we study natural language processing (NLP), the subfield of artificial intelligence focused on analyzing, producing, and understanding human language. Using models and algorithms from formal language theory, statistics, and machine learning, we will explore methods for gaining insight into the structure and meaning of text. We will apply these methods to tasks such as information extraction, sentiment analysis, and machine translation. Students will work in teams to collect data and to implement their own NLP applications.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 MWF 11:00AM-11:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1102 and CSCI2244

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI335401**

### **Databases**

**Aviram, Amittai F**

**Spring 2025**

From EagleApps to e-commerce to the Motor Vehicle Registry and the IRS, databases are everywhere, essential to modern computing, but typically lie hidden in the background. This course brings databases into the foreground. It first introduces you to direct interactions with relational databases, casting you as power user. We then shift to the database engineers point of view: designing a convenient and efficient database to represent a body of real-world data. Finally, we look under the hood to get a sense of how database engines are built. Each of the three areas will have a set of programming assignments, including a simple Web interface for queries, a database schema and its realization, and a simple database engine of your own. You are not assumed to know SQL coming in, but you will need to know both Python and C, and some familiarity with HTML is helpful.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 214 TuTh 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI2271

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI335601**

### **Software Engineering**

**Marques Samary, Maira R**

**Spring 2025**

This course covers the basic life cycle of software development: requirements, design, implementation, testing, and production release. Students will learn the theory related to software engineering, but they will also learn hands-on how to create their own software. The main evaluation of the course is a team project that will simulate a small real project. The project will be done using the framework Django (Python), the CSS Framework Bootstrap, among other technologies. The project will be worth 50% of the grade, as well as 2 midterms, an exam, and a peer assessment (how your team members evaluate the work you did).

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 107 MWF 10:00AM-10:50AM

**Satisfies Core Requirement:** None

**Prerequisites:** Prerequisite: CSCI2271 Computer Systems

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI336201**

### **Operating Systems**

**Wiseman, Charles**

**Spring 2025**

This course covers the fundamentals of operating systems (OS) design both from a theoretical and a practical perspective. The course is organized in two parts, each involving a separate course project. The first part deals with the system call interface between applications and the OS, the multi-process abstraction of a computing system, and task scheduling algorithms. The associated project involves the implementation of a custom Unix command-line interpreter (shell). The second part of the course covers memory management, multi-threading libraries, and file systems. A real implementation of these features is studied on a miniature, open-source operating system called xv6. The associated project involves an extension of xv6 to support custom features, such as new scheduling policies, kernel-level threads, or file system recovery.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 MWF 12:00 Noon-12:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI2271

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Biannually in the Fall

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI336901**

**Economics and Computation**

**Marmolejo Cossio, Francisco Javier**

**Spring 2025**

This course examines the intersection of economic and computational thinking, emphasizing core concepts, modeling, and mathematical analysis while highlighting connections to the digital economy and online systems. Covered topics include game theory, auction design, incentive alignment, information elicitation, matching, reputation systems, cryptoeconomics, and privacy and ethics. Practical applications span advertising, pricing, crowdsourcing, social networks, market platforms, DeFi, prediction markets, and more. Students will engage in both theoretical and computational exercises and complete a final project.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 214 TuTh 12:00 Noon-01:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI2243 and CSCI2244 or No background in economic theory is assumed.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI338101**

**Cryptography**

**Volkovich, Ilya**

**Spring 2025**



Can Alice ensure that the message she sends to Bob can be read only by Bob, even if the message is intercepted by an eavesdropper? Can Bob ensure that the message he receives really came from Alice? How can a server verify a client's password without storing sensitive password information? This course studies the theoretical foundations of algorithms for private and public key cryptography, digital signatures, cryptographic hash-codes, and authentication schemes. We will also consider see a few world protocols and practices (e.g., SSL and public key certificates)

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 214 TuTh 01:30PM-02:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101 or Pre-Requisites:CSCI1101or CSCI2243 and CSCI2244 or equivalent mathematics experience is required.The class requires mathematical maturity. CSCI3383 or similar experience is recommended.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Biannually in the Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI338301**

### **Algorithms**

**Creiner, Alexander**

**Spring 2025**

This course is a study of algorithms for, among other things, sorting, searching, pattern matching, and manipulation of graphs and trees. Emphasis is placed on the mathematical analysis of the time and memory requirements of such algorithms and on general techniques for improving their performance.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 TuTh 12:00 Noon-01:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI2243 and CSCI1102 and CSCI2244

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI338302**

### **Algorithms**

**Creiner, Alexander**

**Spring 2025**

This course is a study of algorithms for, among other things, sorting, searching, pattern matching, and manipulation of graphs and trees. Emphasis is placed on the mathematical analysis of the time and memory requirements of such algorithms and on general techniques for improving their performance.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 102 TuTh 04:30PM-05:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI2243 and CSCI1102 and CSCI2244

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI338401**

### **Computability and Computational Complexity**

**Creiner, Alexander**

**Spring 2025**

This is a course in the theoretical foundations of computer science, centered around the theme of fundamental limits on computation. Topics include: Turing Machines, universal computation, undecidability of the halting problem, solvable and unsolvable algorithmic problems, recursive functions, Goedel's Incompleteness Theorem, time- and space-bounded computations, Cook's Theorem, NP-complete problems, problems solvable in polynomial space, randomized computation, application to cryptography, practical approaches to computationally intractable problems (such as SAT solvers), quantum computing, and Shor's Theorem.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 230 TuTh 03:00PM-04:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1101 Computer Science 1, or equivalent, and CSCI2243 Logic and Computation, or MATH2216 Introduction to Abstract Mathematics.

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Periodically in the Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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### **CSCI338701**

**Topics in Computational intelligence: Machine Learning Projects**

**Bento Ayres Pereira, Jose**

**Spring 2025**

In this project based class, we will introduce several machine learning concepts, and illustrate and practice their use. These topics will, tentatively, include: classification, data processing, dimensionality reduction, model evaluation and tuning, ensemble learning, regression, clustering, multi layer artificial neural networks and their use for classification, regression, generative adversarial networks, and reinforcement learning.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 MWF 02:00PM-02:50PM

**Satisfies Core Requirement:** None

**Prerequisites:** MATH2202, MATH2210, CSCI2243 and CSCI2244

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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### **CSCI339001**

**Topics in Computer Science: Wireless and Mobile Networks**

**Su, Hsin Hao**

**Spring 2025**

This course will provide an introduction to the state of the art in wireless and mobile networks. The course will cover the fundamental principles, architectures, and standards of current and upcoming wireless and mobile communication systems, including their applications and uses.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 TuTh 12:00 Noon-01:15PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI2243 and CSCI2244 and CSCI3383

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Periodically

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI339301**

### **Formal Methods**

**McTague, Carl S**

**Spring 2025**

Complex programs often have bugs, sometimes with serious consequences. Although testing can help root them out, it is impossible to test all possible behaviors of complex programs. To complement testing, one can construct mathematical proofs that programs are correct. This technique, called formal verification, can be done using a tool for writing and automatically checking such proofs. This course introduces formal verification with one such proof checking system called Coq. Students will write precise specifications of how programs should behave, and then carry out proofs in Coq showing that those specifications are met.

**Credits:** 3

**Room and Schedule:** 245 Beacon Street Room 229 MW 04:30PM-05:45PM

**Satisfies Core Requirement:** None

**Prerequisites:** CSCI1102 and CSCI2243

**Corequisites:** None

**Cross-listed with:** MATH4311

**Frequency:** Periodically in the Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI491001****Readings in Programming Languages****Stump, Aaron****Spring 2025**

This course meets once a week to read materials like tutorials, book chapters, or research articles in the area of Programming Languages. The course will be divided into 3-week units, with each unit devoted to studying one such work on a topic in Programming Languages. Example topics include things like compilation of functional languages, concurrent functional programming, garbage collection algorithms, higher-order flow analysis, abstract machines, just-in-time compilation, verified compilation, and more. Student input will help determine which topics will be studied. Work for the class includes answering a question or two in advance of the weekly meeting, to ensure that students have read the material and are prepared to discuss it. Students will also choose one of the units covered and write a brief report about it, for a final project.

**Credits:** 1**Room and Schedule:** 245 Beacon Street Room 104 F 02:00PM-02:50PM**Satisfies Core Requirement:** None**Prerequisites:** CSCI3366 or Prereq: CSCI3366-Principles of Programming Languages or Permission of Instructor**Corequisites:** None**Cross-listed with:** None**Frequency:** Periodically**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**CSCI491101****Readings in Computer Science****Dept****Spring 2025**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3**Room and Schedule:** By Arrangement**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI491102**

**Readings in Computer Science**

**Dept**

**Spring 2025**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI491103**

**Readings in Computer Science**

**Dept**

**Spring 2025**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI491104**

**Readings in Computer Science**

**Dept**

**Spring 2025**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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## **CSCI491105**

**Readings in Computer Science**

**Dept**

**Spring 2025**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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### **CSCI491106**

**Readings in Computer Science**

**Dept**

**Spring 2025**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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### **CSCI491107**

**Readings in Computer Science**

**Dept**

**Spring 2025**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring



**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI491108**

**Readings in Computer Science**

**Dept**

**Spring 2025**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI491109**

**Readings in Computer Science**

**Dept**

**Spring 2025**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI491110**

**Readings in Computer Science**

**Dept**

**Spring 2025**

Independent reading and research for students who wish to study topics not covered in the regular curriculum.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI496101**

**Honors Thesis**

**Dept**

**Spring 2025**

Independent study project for students enrolled in the departmental honors program.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall, Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI496102****Honors Thesis****Dept****Spring 2025**

Independent study project for students enrolled in the departmental honors program.

**Credits:** 3**Room and Schedule:** BY ARRANGEMENT**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**CSCI496103****Honors Thesis****Dept****Spring 2025**

Independent study project for students enrolled in the departmental honors program.

**Credits:** 3**Room and Schedule:** By Arrangement**Satisfies Core Requirement:** None**Prerequisites:** Permission of Department**Corequisites:** None**Cross-listed with:** None**Frequency:** Every Fall,Every Spring**Student Level:** Undergraduate**Comments:** None**Status:** Offered

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**CSCI496104****Honors Thesis****Dept**

**Spring 2025**

Independent study project for students enrolled in the departmental honors program.

**Credits:** 3

**Room and Schedule:** BY ARRANGEMENT

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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**CSCI496105****Honors Thesis**

**Dept**

**Spring 2025**

Independent study project for students enrolled in the departmental honors program.

**Credits:** 3

**Room and Schedule:** By Arrangement

**Satisfies Core Requirement:** None

**Prerequisites:** Permission of Department

**Corequisites:** None

**Cross-listed with:** None

**Frequency:** Every Fall,Every Spring

**Student Level:** Undergraduate

**Comments:** None

**Status:** Offered

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