

## CS 108: Computer Science for All College of Arts & Sciences Syllabus

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### COURSE INFORMATION

**Credit Hours: 3**

**Course Description:** Computer science has revolutionized many disciplines and it is no longer only for computer scientists. By studying computer science students will use computational thinking and apply programming to real world scenarios and interdisciplinary examples from science, math and teacher education. Robots and web and mobile-based coding platforms will be used to expose students to coding through different technologies. Students will learn computer science concepts such as algorithms, loops, and conditionals. Each week students will engage in hands-on computational thinking or coding exercises. Finally, students will complete a project using coding to demonstrate scientific, mathematical, or concepts from other disciplines.

**Course Prerequisites:** English 101

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### FACULTY INFORMATION

**Instructor:** Rachel Adler

**Office Location:** LWH 3047

**Office Hours:** Mondays 10am – 12:30am and Tuesdays 10am – 11:30pm or by appointment

**Phone Extension:** x4710 (email is the best way to reach me!)

**E-mail:** r-adler@neiu.edu

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### COURSE MATERIALS

**List of Required Texts / Materials:**

**Course Website:** <http://cs.neiu.edu/~radler/cs108>

**Required Textbook:** None.

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### MAJOR COURSE TOPICS

- Computational Thinking in Computer Science
- Introduction to Coding
- Coding Platforms in Education
- Apply Coding to Analyze and Find Solutions to Complex Real-World Problems and Societal Issues

- Build and Program Robots
- Exhibit Knowledge of Coding and Research through Class Demonstrations and Presentations

## **COURSE OBJECTIVES / STUDENT LEARNING OUTCOMES**

- Synthesize course concepts and apply learning strategies to the teaching of elementary/middle school.
- Place computer science within an interdisciplinary context, relating concepts to knowledge in the sciences, mathematics and behavioral/social sciences.
- Break problems into steps, logically organized through algorithmic and computational thinking.
- Use computer technology (hardware and software) and computer code, including loops, binary expressions, and conditionals to model scientific or behavioral/social science phenomena.
- Build and program robots to complete a defined series of tasks.
- Manage complex individual and group projects
- Effectively communicate findings orally and in writing, through a term project that uses computer science technology and coding to teach a concept in one's discipline.

## **STUDENT TASKS / ASSIGNMENTS / REQUIREMENTS**

### **Assignments:**

**Assignments:** Computational thinking assignments and coding assignments on numerous programming environments.

**Final project:** Demonstrate a topic in your discipline that utilizes technology and coding.

### **Grading Policies and Formulae:**

Participation/Attendance/In-class Activities – 10%

Assignments – 35%

Exams – 30%

Final Project – 25%

90-100%	A
80-89%	B
70-79%	C
60-69%	D
0-59%	F

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**Course Outline:**

<b>Week</b>	<b>Topic</b>
1: (Jan 9)	Introduction
2: (Jan 16)	Using Computational Thinking
3: (Jan 23)	Learn to Code with Hour of Code
4: (Jan 30)	Introduction to Scratch
5: (Feb 6)	Programming with Scratch
6: (Feb 13)	Advanced Programming with Scratch
7: (Feb 20)	Build your Robot!
8: (Feb 27)	Programming a Robot
9: (Mar 6)	Midterm Exam / Project Discussion
10: (Mar 13)	Programming a Robot, cont.
11: (Mar 20)	No Class - Spring Break
12: (Mar 27)	Advanced Programming with Robotics
13: (Apr 3)	Fun with 3D Printing
14: (Apr 10)	Coding with VPython
15: (Apr 17)	Coding with VPython, cont.
16: (Apr 24)	Final Presentations
Final Exam Tuesday May 1 at 4-5:50pm	

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**COURSE POLICIES AND STATEMENTS****Absence Policy:**

Students should attend all scheduled classes.

**Academic Integrity Policy:**

By enrolling in this course, you are bound by the NEIU Student Code of Conduct: <http://www.neiu.edu/university-life/student-rights-and-responsibilities/student-code-conduct>. You will be informed by your instructor of any additional policy specific to your course regarding plagiarism, class disruptions, etc.

**ADA Statement:**

Northeastern Illinois University (NEIU) complies with the Americans with Disabilities Act (ADA) in making reasonable accommodations for qualified students with disabilities. To request accommodations, students with special needs should make arrangements with the Student Disability Services (SDS) office, located on the main campus in room D104. Contact SDS via (773) 442-4595 or <http://www.neiu.edu/university-life/student-disability-services>.

**Campus Safety:**

Web links to Campus Safety: Emergency Procedures and Safety Information can be found on NEIUpport on the MyNEIU tab or as follows:  
[http://homepages.neiu.edu/~neiutemp/Emergency\\_Procedures/MainCampus/](http://homepages.neiu.edu/~neiutemp/Emergency_Procedures/MainCampus/).

### **Late Work**

No late homework will be accepted.

### **Additional Academic Integrity Policy:**

All assignments must be the student's own work. If you copy homework, you and the student whose homework you copied will receive a zero. Two students may not submit the same homework. If you are caught copying another student's exam, or allowing someone to copy your exam, you will fail the exam and face further academic discipline.