

course syllabus

LAI 677: Survey of Topics in K12 Computer Science

Instructor Name: Stacy Scheuneman Email Address: stacysch@buffalo.edu

Class Day and Time: Remote, asynchronous with weekly group meetings

Number of Credits: 3

Course Description

This course provides an overview of the content knowledge topics taught in K12 computer science. Classrooms are considered as nodes within broader learning ecologies, and emphasis is placed on the relevance of topics to interdisciplinary and connected K12 CS pedagogy. This course will be of primary interest to students enrolled in the CS advanced certificate who do not have a formal background in CS, as well as future teachers interested in interdisciplinary CS.

While this course has no prerequisites, a superficial familiarity with Python is required, as code is used as one medium of exploration for these topics alongside articles and lectures. LAI 676, any other prior CS experience, or a willingness to dive in (and attend additional office hours as needed) will be sufficient. Additionally, this course expects students to have a current or anticipated teaching context in mind, with some familiarity with the specifics of the curriculum and the student population who would be served.

Learning Outcomes and Program Goals

Course Learning Outcomes

- **Impacts of computing.** Understand how specific mechanisms of technical systems shape individual and civic life.
- **Computational thinking.** Learning how to structure problems so that computers can help solve them, and using computers as partners in thought.
- **Networks and system design.** Understand the structure and function of computing systems we rely on every day.
- **Cybersecurity.** Understand the technical aspects of security and privacy, as well as the nature of vulnerabilities. Understand the social, economic, political and military implications of cybersecurity.

Program Goals

This course's learning outcomes are closely aligned with the UB CS Teacher Preparation Program's **CS Content Knowledge outcomes** (which are themselves aligned with the core concepts outlined in New York's Computer Science and Digital Fluency Standards). CS pedagogical content knowledge is not explicitly taught or assessed in this course, but pedagogical application of CS concepts to students' teaching concepts is used as a facet of understanding, via which students demonstrate what they have learned.

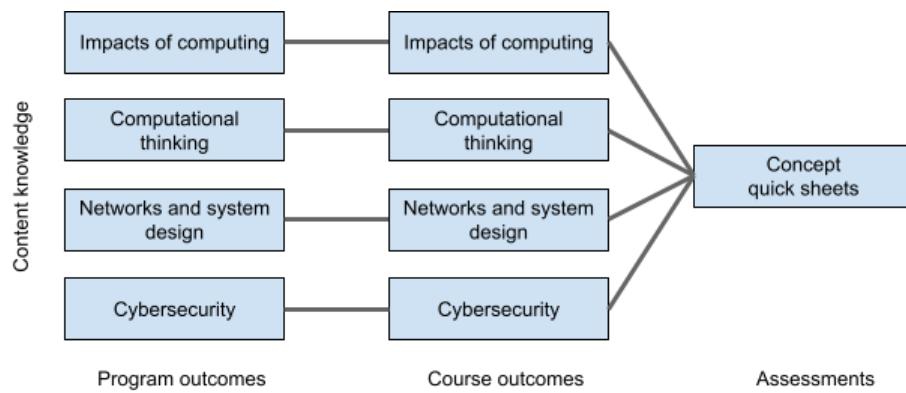


Figure 1. Alignment of program outcomes, course learning outcomes, and assessments.
Instructional methods for each assessment are described below.

Mode of Instruction

Online, asynchronous.

Required Text and Materials

All texts and course materials will be accessible from the course website.

Course Requirements

This course is structured as a sequence of independent modules. In each module, students will complete labs, projects, and a concept quick sheet at the end. Labs are social, collaborative, hands-on experiences whereas projects are more comprehensive and designed to check your understanding and application of skills and knowledge. The concept quick sheet serves as a summative assessment and practical tool for your use in current and future teaching.

Grading

Your course grade will be calculated based on the sum of the points earned on the course assignments and the following letter grade points values. The instructor may lower cutoffs for letter grade categories, but will not raise them (i.e., 900 points will always get at least an A-).

In the event that a student is unable to complete the course, a grade of Incomplete may be assigned through mutual consent of the instructor and the student. Incomplete grades will follow the university's [Graduate Incomplete Policy](#). If requesting a grade of Incomplete, please submit a request, through email, outlining the reason for the request and a preliminary plan to complete the coursework, by the last day of classes (May 5, 2026).

Letter Grading:

A = 930 or more		A- = 900-929
B+ = 870-899	B = 830-869	B- = 800-829
C+ = 770-799	C = 730-769	C- = 700-729
D+ = 670-699	D = 600-669	
F = 599 or less		

Points Scheme:

<p>10 Labs * 40 points = 400</p> <ul style="list-style-type: none"> • 15 points technical completion • 15 points learning reflection • 5 points pedagogical reflection • 5 points meeting attendance and participation 	<p>3 Projects * 150 points = 450</p> <ul style="list-style-type: none"> • 50 points planning / design • 50 points technical function • 25 points learning reflection • 25 points pedagogical reflection • 5 points meeting attendance and participation
<p>3 Quick Sheets * 50 points = 150</p> <ul style="list-style-type: none"> • 15 points content summary • 15 points content connections • 20 points pedagogical content 	<p>Extra Credit</p> <p>Opportunities for additional points may be offered ad hoc.</p>

Attendance Policy

Although this course is remote, asynchronous, attendance (at group meetings) and participation are graded as part of the laboratory assignments.

Accessibility Services and Student Resources

If you have a disability and may require some type of instructional and/or examination accommodation, please inform me early in the semester so that we can coordinate the accommodations you may need. If you have not already done so, please contact the Office of Accessibility Services (formerly the Office of Disability Services) University at Buffalo, 60 Capen Hall, Buffalo, NY 14260-1632; email: stu-accessibility@buffalo.edu Phone: 716-645-2608 (voice); 716-645-2616 (TTY); Fax: 716-645-3116; and on the web at <http://www.buffalo.edu/studentlife/who-we-are/departments/accessibility.html>. All information and documentation is confidential.

The University at Buffalo and the Graduate School of Education are committed to ensuring equal opportunity for persons with special needs to participate in and benefit from all of its programs, services and activities.

Academic Integrity

Academic integrity is critical to the learning process. It is your responsibility as a student to complete your work in an honest fashion, upholding the expectations your individual instructors have for you in this regard. The ultimate goal is to ensure that you learn the content in your courses in accordance with UB's academic integrity principles, regardless of whether instruction is in-person or remote. Thank you for upholding your own personal integrity and ensuring UB's tradition of academic excellence.

It is expected that you will behave in an honorable and respectful way as you learn and share ideas. Therefore, *recycled papers, work submitted to other courses, and major assistance in preparation of assignments without identifying and acknowledging such assistance* are not acceptable. All work for this class must be original for this class. Please be familiar with the University and the School policies regarding plagiarism. Read the [Academic Integrity Policy and Procedure](#) for more information. Visit The Graduate School Policies & Procedures page (<http://grad.buffalo.edu/succeed/current-students/policy-library.html>) for the latest information.

Course Evaluations

You will have two opportunities to provide anonymous feedback about the course. In the middle of the semester, I will send you a brief questionnaire asking about what activities are contributing to your learning and what might be done to improve your learning. At the conclusion of the semester you will receive an email reminder requesting your participation in the Course Evaluation process. Please provide your honest feedback; it is important to the improvement and development of this course. Feedback received is anonymous and I do not receive copies of the Evaluations until after grades have been submitted for the semester.

Counseling Services

As a student you may experience a range of issues that can cause barriers to learning or reduce your ability to participate in daily activities. These might include strained relationships, anxiety, high levels of stress, alcohol/drug problems, feeling down, health concerns, or unwanted sexual experiences. Counseling, Health Services and Health Promotion are here to help with these or other issues you may experience. You can learn more about these program and services by contacting:

Counseling Services

120 Richmond Quad (North Campus), 716-645-2720

202 Michael Hall (South Campus), 716-829-5900

<https://www.buffalo.edu/studentlife/who-we-are/departments/counseling.html>

Health Services

Michael Hall (South Campus), 716-829-3316

<https://www.buffalo.edu/studentlife/who-we-are/departments/health.html>

Office of Health Promotion

114 Student Union (North Campus), 716-645-2837

<https://www.buffalo.edu/studentlife/who-we-are/departments/health-promotion.html>

Sexual Harassment/Violence:

UB is committed to providing a safe learning environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic and dating violence and stalking. If you have experienced gender-based violence (intimate partner violence, attempted or completed sexual assault, harassment, coercion, stalking, etc.), UB has resources to help. This includes academic accommodations, health and counseling services, housing accommodations, helping with legal protective orders, and assistance with reporting the incident to police or other UB officials if you so choose. Please contact UB's Title IX Coordinator at 716-645-2266 for more information. For confidential assistance, you may also contact a Crisis Service Campus Advocate at 716-796-4399.

Please be aware UB faculty are mandated to report violence or harassment on the basis of sex or gender. This means that if you tell me about a situation, I will need to report it to the Office of Equity, Diversity and Inclusion. You will still have options about how the situation will be handled, including whether or not you wish to pursue a formal complaint. Please know that if you not wish to have UB proceed with an investigation, your request will be honored unless UB's failure to act does not adequately mitigate the risk of harm to you or other members of the university community. You also have the option of speaking with trained counselors who can maintain confidentiality. [UB's Options for Confidentiality Disclosing Sexual Violence](#) provides a full explanation of the resources available, as well as contact information. You may call UB's Office of Equity, Diversity and Inclusion at 716-645-2266 for more information, and you have the option of calling that office anonymously if you would prefer not to disclose your identity.

Technology Recommendations

To effectively participate in this course, regardless of mode of instruction, the university recommends you have access to a Windows or Mac computer with webcam and broadband. Your best opportunity for success in the blended UB course delivery environment (in-person, hybrid and remote) will require [these minimum capabilities](#).