

# CSED 5330

## Methods of Computer Science

### Summer 2024

#### General Information

**Class Website:** <http://www.cs.uni.edu/~schafer/cohort23/Methods/>

**Credit Hours:** Three (3). This course meets the Course Credit Hour Expectation outlined in the UNI Course Catalog. Since this course is an "8-week" summer course, students should expect to average 15-20 hours per week on this course. [Each "summer week" approximates two "semester weeks" of content].

**Instructor:** Ben Schafer  
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#### Course Information:

##### The Mission of the UNI Educator Preparation Program

"The UNI Educator Preparation Program provides an authentic and challenging education that empowers candidates to serve as reflective, professional educators who advocate for students, schools, communities, and the profession in a dynamic and changing world."

##### Belief Statements UNI Educator Preparation Program:

1. Candidates must deeply understand and reflect on their content and pedagogy.
2. Candidates must engage in rich, purposeful, and authentic field-based experiences to develop appropriate dispositions and practices.
3. Candidates have a responsibility to understand historical, social, cultural, and political contexts and how they impact education.
4. Candidates must understand the importance of diversity and equity and engage in opportunities to promote social justice.
5. Candidates must develop competence in the skills and dispositions that allow them to engage in effective leadership and advocacy.
6. Candidates must develop strong skills in order to effectively collaborate with all stakeholders for student learning.

#### Course Catalog Description

Students will learn effective strategies for teaching computer science. Students will develop a project, either in a classroom or during an after-school or similar experience that seeks to teach a section of the CS standards targeted at the student population with which they are working. Projects should stress inclusivity and appeal to a diverse group of students.

#### Course Outcomes

Upon completion of this course, participants should be able to:

- Use the national high school computer science model curriculum; analyze potential learning difficulties and plan teaching for students with different needs. (Belief Statement #1)
- For a variety of general CS topics/areas (e.g., programming; the internet—operation and society; computer & system operation and society; data collection, analysis, and society; artificial intelligence and society) propose:
  - Appropriate student outcomes

- Assessments for each outcome
- Appropriate learning activities for each outcome
- Mechanisms for providing student feedback
- A grading process for the topic/area and its fit into overall course grading
- (Belief Statement #1)
- Describe a variety of instructional outcomes included in middle and high school computer science. (Belief statement #2)
- Describe a variety of methods in the teaching process, including meaningful learning, collaborative learning, inquiry learning, etc. as well as identify the CS instructional outcomes for which each is useful. (Belief statements #3 and 4)
- Describe a reasonable instructional environment for computer science and its utilization for a variety of CS content in middle and high school. (Belief Statements #2 and 4)
- Actively participate in professional communities such as CSTA and ACM. Keep up with research in computer science education and apply it to the teaching process. (Belief Statement #5)
- Establish a bank of resources for teaching computer science in high school, including possible materials, lab assignments, class activities, and websites. (Belief Statement #6)

### Course Grading

[Note: The following is my intentions regarding how I will be grading/evaluating your work and assigning final grades. However, to be responsive to your needs I reserve the right to modify the structure of this course as we are in progress. If there is significant deviation from the policies described below the new policy will be openly and clearly discussed with you and in a timeframe that gives you a time to plan accordingly.]

You will earn a total of eight (8) "competency scores" over the eight weeks of this course. Each competency score will be a value from 1-4 based on the following assessment:

Score	Meaning
1	You submitted the deliverables or attempted the activity, but you show little understanding of the standards of the activity. [NOTE, you cannot pass this course (grade of C or higher) with any 1s in your grades]
2	You have made significant progress towards demonstrating competency but there are limited items that remain unsatisfied.
3	You have "met" the standards of the activity. [You have displayed minimum acceptable competency on this activity.]
4	You have "exceeded" the standards of the activity. [You have met the standards of competency and shown considerable understanding/knowledge of the material.

The 8 scores used to determine your grade consist of the following activities:

- Two (2) Competency Demos (one each after Modules 1-2)
  - You will complete each competency demo on your own time and submit to Blackboard by the deadline.
- One (1) Individual Instructional Design Deliverable
  - In Module 3, you will complete the beginnings of an Instructional Design document for a CS course of your selection.

- One (1) Group Instructional Design Deliverable
  - In the second half of the course, you will be creating a much more detailed course design product than the one created in Module 3.
- Four (4) Individual evaluation documents of your group's instructional design deliverable
  - You will complete four individual deliverables that allow you to reflect and expand on the work done in the Group project.

For almost all these items, you will have the opportunity to revise and resubmit for consideration for a higher score.

The following evaluation criteria are used to determine the final course grades.

Grade	Criteria
A	Score of 29 or higher
B	Score of 25 or higher
C	Score of 21 or higher
D	Score of 17 or higher
F	

### Scholastic Conduct

You are responsible for being familiar with the University's Academic Ethics Policies:

<https://www.uni.edu/policies/301>

Copying from other students is expressly forbidden. Doing so on exams or assignments will be penalized every time it is discovered. The penalty can vary from zero credit for the copied items (first offense) up to a failing grade for the course. If an assignment makes you realize you do not understand the material, ask a fellow student a question designed to improve your understanding, *not* one designed to get the assignment done. Your final submission for assignments should be **individual, original** work unless otherwise specified. Any substantive contribution to your solution by another person or taken from a publication should be properly acknowledged in writing. Failure to do so is plagiarism and will necessitate disciplinary action. In addition to the activities we can all agree are cheating (plagiarism, bringing notes to a closed book exam, etc), assisting or collaborating on cheating is cheating. Cheating can result in failing the course and/or more severe disciplinary actions. Remember: Discussing assignments is good. Copying code or answers is not.

### Accessibility

The University of Northern Iowa (UNI) complies with the Americans with Disabilities Act Amendments Act of 2008 (ADAAA), Section 504 of the Rehabilitation Act of 1973, the Fair Housing Act, and other applicable federal and state laws and regulations that prohibit discrimination on the basis of disability. To request accommodations please contact Student Accessibility Services (SAS), located at ITTC 007, for more information either at (319) 273-2677 or Email [accessibility\\_services@uni.edu](mailto:accessibility_services@uni.edu). Visit Student Accessibility Services (<https://sas.uni.edu/>) for additional information.