CSED 5310
Teaching and Learning Programming
Course Learning Outcomes

Course Catalog Description

Enhances understanding of programming, addresses elements of program quality, and examines the pedagogy of programming instruction. Topics include program quality, goals of programming instruction; teacher beliefs about programming content and pedagogy; inclusive, supportive, and equitable practices; curricular alternatives; and assessment-based instructional planning.

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 Competencies

The material in this course has been designed to align with

The CSTA K-12 Standards (https://csteachers.org/k12standards/)

The CSTA Standards for CS Teachers (https://csteachers.org/teacherstandards/).

The material in this course has been divided into several competencies that well-educated CS teachers should be able to demonstrate. Students should be able to:

- **Competency 1** — discuss beliefs about teaching and learning related to computer science and programming instruction. [Teacher 3c, 3d]
  - CD1 — Teaching Philosophy Statement
  - CD13 and CD14 - Two Part "Final Exam"
  - CD15 — Assessing Programming
  - Included as a sub-element of several additional CDs

- **Competency 2** — identify fundamental elements of programming and discuss prerequisite relationships. [2-AP-11, 2-AP-12, 2-AP-13, 2-AP-14]
  - CD2 — Elemental Programming Concepts and Concept Map
- **Competency 3** — apply instructional design techniques in the CS classroom. [Teacher 4c]
  - CD3 - Instructional Design
- **Competency 4** — discuss supportive practices in both general and specific instructional techniques. [3A-IC-24, 3B-IC-26, Teacher 2a, 2b, 2c, 3c]
  - CD4 — Supportive Practices
- **Competency 5** — discuss and apply a variety of computer science teaching strategies to better serve a diverse student population. [Teacher 1a, 3c, 4e, 5a, 5b, 5c, 5d]
  - CD5 — Learning to Learn
  - CD6 - CD9 — Teaching Strategies and Connections
- **Competency 6** — identify and discuss a variety of programming difficulties, including misconceptions and programming challenges. [Teacher 1a]
  - CD10 — Misconceptions
  - CD11 — Programming Difficulties
- **Competency 7** — identify aspects of quality code. Recognize the presence/absence of quality elements and suggest improvements to existing code. [3A-AP-13, 3A-AP-14, 3A-AP-15]
  - CD12 — Elements of Good Code
- **Competency 8** — discuss teaching, learning, and best-practices with peers. [Educator 3f]
  - Weekly Small Group meetings
  - Community of Practice events

Course Grading

Grading Structure

I use a grading system that is a combination of standards-based grading and Grading for Equity. My main beliefs are:

- As the teacher, my job is to design a variety of chances for you to learn material, practice required skills, and demonstrate overall competency.
- As the student, your job is to show that you can meet the course outcomes by demonstrating the defined competencies.
- Your final grade in the class should indicate how well you were able to meet course objectives/competencies by the end of the semester.

I WANT you to succeed in the course. That means giving you multiple opportunities to show that you can demonstrate course competencies. In most cases, if you can't do this the first time, you will be able to re-study and try again.

You will complete a variety of activities in this course to demonstrate your abilities. For each, your deliverable will be converted to a competency evaluation score from 1-4 which is a summarization of the overall competency you have demonstrated based on the following rubric.

Score	Meaning
1	UNASSESSABLE - You submitted deliverables for the activity but what you submitted shows little understanding of the competency being assessed.
2	NEEDS WORK - You have made significant progress towards demonstrating competency but there are limited items that remain unsatisfied.
3	SATISFACTORY - You have **met** the standards of the competency. [Your results show reasonable competency with few mistakes or remaining issues.]
4	EXCELLENT - You have **exceeded** the standards of the competency. [You have met the standards of competency and shown considerable understanding/knowledge of the material.]

While it might be tempting to view these categories as similar to GPA categories (which also use a 4-point scale) that is not the way they are used or interpreted.

If you are unsatisfied with your score on any competency or activity (in particular, if you did not earn at least a 3), you may meet with me to discuss the situation, restudy the material, and make a second attempt to demonstrate your ability to meet the standards of the competency/activity.

Final Grades

Final course grades will be determined using the following evaluation criteria.

Grade Earned	Average Score	Additional Conditions
A	> 3.5	All scores 3-4
A-	> 3.5	All scores 2-4
B	> 3	All scores 3-4
B-	> 3	All scores 1-4
C	> 2.5	All scores 2-4
C-	> 2.5	All scores 1-4
D	> 2	All scores 2-4
D-	> 2	
F	≤ 2	

Because I allow – and encourage – retakes, most students do well in this course. It is rare for a student who has been an active participant in the class to not earn at least a C for a final grade.

Additional Comments:

- Communication is key: I cannot help you if I do not know what is going on. If you are having trouble with a topic in the class, please reach out to me early. Do not wait until the situation is out of control. I am very willing to help. However, I must know that you need and want that help.
- If I feel there are specific and individual circumstances where "mathematically" you earned a grade slightly lower than I feel your overall competence has demonstrated, then I reserve the right to raise your grade one level from that published above.
- If the scores on your two Final CD deliverables are [lower | higher] than your overall course grade, I reserve the right to [lower | raise] your grade one level from that published above.
- 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 in this syllabus, the new policy will be clearly discussed with you and in a timeframe that gives you time to plan accordingly.