

Syllabus

CSED 3310/5310, Teaching and Learning Programming Spring 2024

Course Information

Time and Place: Online. For the most part, this class is asynchronous. Most of the work is conducted over the course of a week but on your schedule. However, there is the expectation that you will participate in a weekly, small-group meetup with some of your peers. It is suggested that this be scheduled for approximately Thursday evenings most weeks to allow you sufficient time to complete the prep work before the meeting and wrap up your weekly deliverables after the meeting. However, the timing of this is up to you and can be moved forward/backwards as your group's schedules require.

Instructor: Dr. Ben Schafer

Email: ben.schafer@uni.edu

Student Hours: As an online class I can't have the same concept of regular "office hours." However, that does not mean that I'm not willing to meet with you to talk about the class. If you have questions, please reach out to me via email and we can meet at a time conducive to both of our schedules.

Credit Hours: Three (3). This course meets the Credit Hour Expectations outlined in the Course Catalog. Students should expect to work approximately 2 hours per week outside of class for every course credit hour. [In other words, you should expect this course to require 9-10 hours of work in a typical week]

Class Websites:

- <https://www.cs.uni.edu/~schafer/cohort23/TLP/> (most lesson materials)
- Blackboard (Submitting most activities and checking grades)
- Autolab (For the limited code written during the course)

Textbook

- "The Big Book of Computing Pedagogy", The Raspberry PI Foundation, September 2021. (Available online as a free PDF and provided to you in a bound copy)
- Additional readings and other materials will be selected from legally available resources on the internet or from instructor produced materials.

Computer Use

This is an online course. All the learning materials and programming environments for this course are available from any computer with a web browser and internet access.

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 Learning Outcomes

By the end of this semester students taking this course should be able to meet the following objectives:

- Identify programming fundamentals and discuss prerequisite relationships (Belief Statement #1)
- Analyze programming language considerations for a classroom (Belief Statement #1)
- Explain the program design process (Belief Statement #1)
- Identify aspects of quality code (Belief Statement #1)
- Recognize the presence/absences of quality elements and suggest improvements (Belief Statement #1)
- Discuss their teaching/learning beliefs related to programming instruction (Belief Statement #2)
- Identify learning considerations (Belief Statement #3)
- Discuss supportive practices in general and in the context of a specific scenario/classroom (Belief Statements #3 and #4)
- Apply programming-based considerations to instructional design (Belief Statements #5 and #6)

ISTE Teaching Standards

1. **Knowledge of content** - Computer Science Educators demonstrate knowledge of Computer Science content and model important principles and concepts.
 - b. Effectively design, develop, and test algorithms
 - i. Using a modern, high-level programming language, construct correctly functioning programs involving simple and structured data types; compound Boolean expressions; and sequential, conditional, and iterative control structures
 - iii. Analyze algorithms by considering aesthetics, and correctness
2. **Effective teaching and learning strategies** - Computer Science Educators demonstrate effective content pedagogical strategies that make the discipline comprehensible to students.
 - b. Plan and teach computer science lessons/units using effective and engaging practices and methodologies
 - i. Select a variety of real-world computing problems and project-based methodologies that support active and authentic learning and provide opportunities for creative and innovative thinking and problem solving
 - iv. Develop lessons and methods that engage and empower learners from diverse cultural and linguistic backgrounds
 - v. Identify problematic concepts and constructs in computer science and appropriate strategies to address them
 - vi. Design and implement developmentally appropriate learning opportunities supporting the diverse needs of all learners
 - vii. Create and implement multiple forms of assessment and use resulting data to capture student learning, provide remediation, and shape classroom instruction
3. **Effective learning environments** - Computer Science Educators apply their knowledge of learning environments by creating and maintaining safe, ethical, supportive, fair, and effective learning environments for all students.
 - b. Design environments that promote effective teaching and learning in computer science classrooms and online learning environments and promote digital citizenship
 - i. Plan for equitable and accessible classroom, lab, and online environments that support effective and engaging learning
4. **Effective professional knowledge and skills** - Computer Science Educators demonstrate professional knowledge and skills in their field and readiness to apply them.
 - a. Participate in, promote, and model ongoing professional development and life-long learning relative to computer science and computer science education
 - i. Identify and participate in professional computer science and computer science education societies, organizations, and groups that provide professional growth opportunities and resources
 - ii. Demonstrate knowledge of evolving social and research issues relating to computer science and computer science education
 - iii. Identify local, state, and national content and professional standards and requirements affecting the teaching of secondary computer science

Course 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.

Weekly Structure

While not all weeks are the same, most weeks in this course will involve the following activities and structure.

- Readings (Monday-Wednesday)
 - These will come from either the textbook or from online resources.
- Initial Writings (Monday-Wednesday)
 - This activity asks you to think through your own experiences as a novice programmer and as a teacher. It may also ask you incorporate elements of the reading that you completed.
 - You will typically create a document where you answer several questions, make a list of ideas, reflect on some code, etc.
 - You are **STRONGLY** encouraged to share this with your Small Group prior to your weekly meeting.
- Small Group (Thursday)
 - You have been assigned to a "small group" of students.
 - As a group you will discuss your individual reflections for the week and identify any issues that still confuse you
 - You should absolutely reach out to me if you have lingering issues after meeting with your small group.
- Optional Revision of Individual Reflections
 - Once your small group has met you are free to revise your individual reflections based on your discussion and further understanding of the material/assignment
 - You will submit these to me at week's end as evidence that you meaningfully completed the activity.
 - These activities are graded with a 1 for submitting something that shows effort and thought or 0 for submitting something with little effort or thought.
- Competency Activity
 - Many weeks you will wrap up with an additional writing activity that shows your overall competence on the material for the week/course.
 - These activities are graded on a scale of 1-4 and factor into your course grade.

You have the flexibility to adapt the schedule to best meet the needs of both you and your small group. But please be aware that I am expecting you to stay on schedule from week-to-week. If there are problems, you need to reach out to me ASAP to discuss the situation.

How Student Performance Will Be Evaluated

Course Grading

I use a grading system drawn from the philosophies of "standards-based grading" and "equitable grading" (<https://gradingforequity.org/>). The main idea is that I WANT you to succeed in the course by giving you multiple opportunities for you to show me that you have learned the necessary material. In most cases, if you can't do this the first time, you will be able to re-study and try again.

You will earn multiple "grades" in this course. Each of these is a category of understanding that, for simplicity, is recorded as a score from 1-4 with the following meaning:

Score	Meaning
1	UNASSESSABLE - You submitted the deliverables for the activity but what you submitted shows little understanding of the standards of the activity.
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 activity.
4	EXCELLENT - You have "exceeded" the standards of the activity. [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 like GPA categories (which is also a 4-point scale) that is not the way they are used or interpreted. See the discussion about final grade assignment for more on this idea.

It is expected that you will earn 11 competency grades this semester.

- 9 Competency Demos worth 4 points each
- 20 "Journal" submissions worth 1 point each but translated to a 4-point grade using the following.

Score	Points
4	17 – 20
3	14 – 16
2	11 – 13
1	5-10

- Several code-based assignments that will be translated to a 4-point grade using the following. [Note, because these are divided between "required" and "selected" activities the scoring rubric is very different from the one published for journals.]

Score	Points
4	16 – 20
3	9 – 15
2	6 – 8
1	4 – 5

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

Grade	Criteria
A	38 – 44 points
B	33 – 38 points
C	27 – 32 points
D	23 -- 26 points
F	0-22 points

In most situations, grades earned are straight letter grades – no plusses or minuses. Because you have multiple opportunities to retake and earn better grades this isn't as rough as it might sound. However, there are two situations where I may add a plus or a minus:

- If your two final deliverables are a grade lower than your overall course grade, I reserve the right to add a minus to your grade.
- If your two final deliverables are a grade higher than your overall course grade, I reserve the right to add a plus to your grade.
- 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 than I reserve the right to add a plus to your grade.

Please note, 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 above, this new policy will be clearly discussed with you and in a timeframe that gives you a time to plan accordingly.

Final Thoughts

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 you need and want that help.

Additional Policies and Statements

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 CDs 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 fine and even encouraged. 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. Students with disabilities experiencing a barrier to access should connect with Student Accessibility Services (SAS) to request accommodations. For more information about the accommodation process, please contact SAS at (319) 273-2677 Relay 711, accessibilityservices@uni.edu, or GIL 118. Additional information is also available at sas.uni.edu.

The Learning Center

The Learning Center @ Rod Library provides free tutoring for a variety of different areas (i.e. writing, math, science, business, Spanish, college reading and learning strategies). The Learning Center @ Rod Library is open for walk-in assistance Monday-Thursday 10am-10pm and is free of charge for all UNI students. If you are unavailable during normal tutoring hours, online tutoring is also available through Smarthinking. You will need your CATID and passphrase to gain access. To access the Smarthinking platform go to <https://tlc.uni.edu/online>. For more information, go to <https://tlc.uni.edu>, email TheLearningCenter@uni.edu, call 319-273-6023, or visit the TLC desk located on the main floor of Rod Library.

Free Speech

The University of Northern Iowa supports and upholds the First Amendment protection of freedom of speech and the principles of academic and artistic freedom. We encourage the free and responsible exchange of diverse ideas on our campus. The University is committed to open inquiry and the spirited and thoughtful debate of such ideas.

Office of Compliance and Equity Management

Non-discrimination in Employment or Education

Content in this class has the potential to be disturbing to some individuals based on life experiences. If you ever feel the need to step out of the classroom or decline participation in an activity, please request an alternative learning experience.

UNI Policy 13.02 Discrimination, Harassment, and Sexual Misconduct states: "The University is committed to providing a workplace and educational environment, as well as other benefits, programs, and activities, that are free from discrimination and harassment based on a protected class, as well as retaliation."

Policy 13.02 outlines prohibited conduct and reporting processes. All University employees who are aware of or witness discrimination, harassment, sexual misconduct, or retaliation are required to promptly report to the Title IX Officer or Title IX Deputy Coordinator.

- Title IX Officer Leah Gutknecht, Assistant to the President for Compliance and Equity Management, 117 Gilchrist, 319.273.2846, leah.gutknecht@uni.edu
- Title IX deputy coordinator: Christina Roybal, Sr. Associate Athletic Director Athletics Administration, North DOME 319.273.2556, christina.roybal@uni.edu

If you or someone you know has been harassed or assaulted, you can find the appropriate resources at safety.uni.edu and equity.uni.edu. Resources that provide free, confidential counseling are also detailed at safety.uni.edu.

For additional information, contact the Office of Compliance and Equity Management, 117 Gilchrist Hall, 273-2846, equity@uni.edu.