

**CSED 4133/5133**  
**Workshop: Fundamentals of Programming**  
**Fall 2021**

**General Information**

**Time and Place:** Online with an optional weekly meetup Tuesdays from 8:00-9:00 PM

**Class Website:** <http://www.cs.uni.edu/~schafer/1320/>

**Credit Hours:** Three (3). This course meets the Course Credit Hour Expectation outlined in the Course Catalog.

**Instructor:** Dr. Ben Schafer (schafer@cs.uni.edu)

**Course Information**

**Course Description**

Introduction to computer programming through a survey of programming environments used by teachers. Topics include structure of programming, study of several programming environments used by students at a variety of age/ability levels, and end-user programming for teachers.

**Student Learning Outcomes**

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

**Programming Oriented Outcomes.** Students should be able to:

- trace a segment of code to determine the result produced or state achieved by given code
- modify a provided piece of code to accomplish a given task
- choose and sequence action statements to accomplish a given task
- develop and use selection statements (if-then, if-then-else, etc.) to control selection between actions
- develop and use iteration statements (for, while) to control repetition of actions
- explain the concepts of sequence, loops, parallelism, events, conditionals, operators, variables, and lists within the context of computer science.

**Teaching Oriented Outcomes.** Students should be able to:

- explain the concepts of sequence, loops, parallelism, events, conditionals, operators, variables, and lists within the context of a K-12 classroom.

**2011 ISTE Teaching Standards Addressed**

- Demonstrate knowledge of and proficiency in data representation and abstraction [1.a]
- Effectively use primitive data types [1.a.i]
- Demonstrate an understanding of static and dynamic data structures [1.a.ii]
- Effectively use, manipulate and explain various external data stores: various types (text, images, sound, etc.), various locations (local, server, cloud), etc. [1.a.iii]
- Effectively use modeling and simulation to solve real-world problems [1.a.iv]
- Effectively design, develop, and test algorithms [1.b]

- 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 [1.b.i]
- Design and test algorithms and programming solutions to problems in different contexts (textual, numeric, graphic, etc.) using advanced data structures [1.b.ii]
- Demonstrate knowledge of two or more programming paradigms [1.b.iv]
- Effectively use two or more development environments [1.b.v]
- Demonstrate an understanding of data representation at the machine level [1.c.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 [2.a.i]
- Demonstrate the use of a variety of collaborative groupings in lesson plans/units and assessments [2.a.ii]
- Design activities that require students to effectively describe computing artifacts and communicate results using multiple forms of media [2.a.iii]
- Create and implement multiple forms of assessment and use resulting data to capture student learning, provide remediation and shape classroom instruction [2.a.vii]

## Classroom Structure

### Textbook

No single textbook fits our needs. Instead, all required readings and other materials will be selected from legally available resources on the internet or from instructor produced materials.

### Computer Use

Students in this course will rely heavily on the use of the computer. All of the learning materials and programming environments for this course are available from any computer with a web browser and internet access. At this point, you all survived the summer class so I would assume that you will have everything you need for this class.

### 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	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.]

You will complete three different types of activities this semester.

- Ungraded "Practice Problems"
  - I will assign a whole series of programs that are completed as a way to enhance your learning. In most cases, it is the **process** that I am after rather than the results.
  - In order to give you feedback on your understanding of the material and your ability to solve these problems, you will submit them to Autolab for process. Officially, these are not part of your overall grade.
- 3 Unit "Problem Set" Grades
  - The course is divided into 3 units. Each of these units will contain a series of "Problem Sets" which are graded programming assignments.
  - Each unit is graded independently based on activity specifications and an outcomes evaluation table published separately for each unit.
  - All in-unit activities [programming assignments] may be submitted multiple times up to the unit deadline.
- 5 Competency Demos (CD)
  - You can think of these like exams.
  - Most will require that you complete them in zoom meeting with me with your camera on. For each of these I have scheduled a specific preferred time to complete the CD. However, if you are unable to make that time we will arrange for an alternate time.
  - CDs 1-4 should take approximately 30 minutes each. However, you will be given a full hour to complete them.
    - If you do not like the grade you earned on the original CD, you will be provided an opportunity to ask questions, re-study the material, and attempt a second CD to improve your grade. Details on this will be provided when it becomes an option.
  - The Final CD is scheduled for a full two hours. Again, I do not expect it to take this long but I have allocated that amount of time.
    - This is the only activity all semester for which you will not be given an opportunity to improve your grade.

At the end of the semester you will have earned multiple (8?) course grades. Your final grade will be determined using the following evaluation criteria.

Grade	Criteria
A	All scores are 3 or 4 AND more 4s than 3s
B	All scores are 3 or 4 OR No more than one score of 2 AND an overall average of 3.25 or higher

C	No more than two scores of 2 AND an overall average of 3.00 or higher
D	More (3s and 4s) than (1s and 2s).
F	Any situation not handled above.

In most situations, grades earned are straight letter grades – no pluses or minuses. Because you have multiple opportunities to retake and earn better grades this isn't as rough as it might sound. However, I DO reserve the right to raise grades slightly (take a B grade to a B+) if I feel there are specific and individual circumstances that warrant this change from the above criteria.

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

### Getting Help

If you are having trouble with a topic in the class PLEASE make an effort to reach out to me early. Do not wait until the situation is out of control. I am VERY willing to help. However, I have to know you want and need 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 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. 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](mailto:accessibilityservices@uni.edu), or GIL 118. Additional information is also available at [sas.uni.edu](http://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](mailto: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.

### **Absences related to COVID-19 illness, self-isolation, or quarantine.**

Faculty must be prepared to have assignment alternatives for individual students who are unable to attend class due to COVID-related health issues. To utilize these alternative assignments, students must report the issue by completing the Panther Health Survey; students directed not to come to campus or who are unable to participate in class due to COVID-19 related illness, self-isolation, or quarantine should utilize the information provided in the survey to have their faculty notified of their need to be absent. These same instruction/assignment alternatives should also extend to field experiences that students may not be able to attend for the same reasons. Questions related to COVID-19 testing should be directed to the Student Health Center COVID line (319) 273-2100, Monday-Friday, 8:00 am - 4:30 pm.

Students who have concerns about an underlying health condition(s) and the risks of attending classes, living in a residence hall, or any other aspect of the educational experience due to COVID-19 should consult with their health care provider. Please connect with Student Accessibility Services as soon as possible to discuss accommodations specific to your access needs.

**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](http://safety.uni.edu) and [equity.uni.edu](http://equity.uni.edu). Resources that provide free, confidential counseling are also detailed at [safety.uni.edu](http://safety.uni.edu).

For additional information, contact the Office of Compliance and Equity Management, 117 Gilchrist Hall, 273-2846, [equity@uni.edu](mailto:equity@uni.edu).