CS 1150, Fall 2018  
Intro to Programming Environments  
For Elementary Education

General Information

Instructor: Ben Schafer  
Email: schafer@cs.uni.edu (please use this address rather than my UNI address)  
Office: 316 ITTC, phone 273-2187  
Office Hours:  
- MWF, 11:00-11:50 AM, 1:00-1:50 PM  
  - While not necessary, to reserve an appointment you can use:  
- Anytime my office door is open  
- Send me an email and ask for a specific time.

Time and Place: MWF 12:00-12:50, ITTC 328

Class Website: http://www.cs.uni.edu/~schafer/1150/

Course Information:

Course Description

I can hear many of you right now:  

“I’m going to be an elementary school teacher, NOT a computer science teacher. Why should I learn how to program?”

Truthfully, that’s a fair question! But I think I have some good reasons why you might want to take this course and learn how to program.

1) To become more computer literate/savvy. More and more computer programs are being created to allow (or even require) “end user programming.” Your use of these tools will depend on your ability to read, modify, and write fairly basic computer programs. This course is designed to give you the skills to understand the structure and logic of programming and some experience in one or more programming environments.

2) To keep up with your students. Kids are being exposed not only to computers, but to simple programming environments at earlier and earlier ages. As someone studying education you are very likely to end up working with kids who know (or at least think they know) how to program.

3) To learn some of the tools you might get to use on the job. We can’t teach you every tool that you will see on the job. But, we can expose you to one or two that you are likely to see and which also require programming from the user. Your ability to help with an after school program using Scratch or LEGO MINDSTORMS robots might just be the difference that gets you hired at your first teaching job.

CS 1150 is designed to be an introduction to the basic logic and structure of computer programming in environments that a K-6 teacher might use either with their students or for their own personal benefit.

It assumes no previous experience with computer programming. While access to a computer outside of a university computer lab will be beneficial it will not be required for this course – all course materials are available from any computer with internet access and most programming environments are available in most College of Humanities, Arts, and Sciences computer labs.
Required Materials
This course is very broad in nature. Because of this, no single textbook fits our needs. Due to this we will also use a wide variety of materials selected from legally available resources on the internet and from instructor produced materials. Everything you will need to complete this course is either directly contained within the class website (see above), or is available on the internet (third party websites). In the case of materials in this latter category, links to these materials will be provided from the class website. Thus, it will be to your benefit to become familiar with the class website and pay close attention for changes and additions.

Course Learning Objectives
By the end of this semester students taking this course should be able to meet the following course 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:
• discuss resources for learning about several programming environments
• discuss which of several programming environments would be appropriate in a given classroom
• explain the concepts of sequence, loops, parallelism, events, conditionals, operators, variables, and lists within the context of a K-12 classroom.

Course Structure and Grading
First of all, this course is very much a “hands on” course. Although I will assign a variety of activities to be completed outside of the classroom, the majority of the learning will probably take place in the classroom itself. A typical week in our classroom will consist of approximately one day of “instruction” (and I put that in quotes for a reason) and two days of lab-like, hands-on activities. Most of the learning will take place in those lectures and labs since most of what we will be focusing on will not be found in any textbook. I point this out because your attendance will be essential to learning enough about the units to be comfortable using the environments in your own classroom.

This course is divided into five units of approximately three weeks each plus one final assessment.
  Unit 1 – Code.org
  Unit 2 – Scratch, part one
  Unit 3 – Scratch, part two
  Unit 4 – Robotics
  Unit 5 – Additional Language/Resources

Because the content of these units is so different from unit-to-unit it is necessary to have the evaluation of each unit change from unit-to-unit. At the beginning of each unit, I will publish a grading guide. You can think of this as a contract. It will tell you what you have to do to earn an A, a B, etc. Each unit will be graded independently.

Your overall grade at the end of the semester will be an average of the grades you earn on these five units and the final exam, equally weighted. EXCEPTION – You must take the final exam to pass the class.
Course and University Policies:
I try to accommodate student needs whenever possible, but I can only do so if I know about them. If you ever have to make alternate arrangements for some activity please contact me in advance. The safest way to make such arrangements is by notifying me via e-mail or phone of your circumstances and of how you can be reached.

All assignments are due at their assigned date and time. In order to receive partial credit, always submit your best effort at that time. I may accept late work on a limited basis, but you should not expect this to be the case. I may also allow you to resubmit work to improve your grade on an activity. If this is allowed it will be explained in the grading contract for each individual unit.

Incompletes are awarded only in very rare instances when an unforeseeable event causes a student who has completed all the coursework to date to be unable to complete a small portion of the work in the last week or two of the semester. Incompletes will not be awarded for foreseeable events including a heavy course load or a poorer-than-expected performance. Verifiable documentation must be provided for the incomplete to be granted, and arrangements for the incomplete should be made as soon as such an unforeseeable event is apparent.

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 don't 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.

Class Distractions
While you are welcome to own and use electronics such as cell phones, tablets, and laptops, the use of these, and other, electronic devices in the classroom is forbidden without my explicit permission (This is a University-wide policy). A few exceptions do exist, and I reserve the right to approve these situations on a case-by-case basis with prior notification. Unless we have discussed it in advance, all electronic devices should be left out of sight during class time.

Accessibility
The Americans with Disabilities Act of 1990 (ADA) provides protection from discrimination for qualified individuals with disabilities. Students with a disability, who require assistance, will need to contact the Office of Disability Services (ODS) for coordination of academic accommodations. The ODS is located at 213 Student Services Center. Their phone number is 319/273-2676.

Finally, all students are encouraged to use The Learning Center @ Rod Library (formerly The Academic Learning Center) for assistance with writing, math, science, reading and learning strategies. Meet with trained and certified tutors during walk-in hours or by appointment. For more information, visit us in person on the main floor of Rod Library, on the web at tlc.uni.edu or by calling 319-273-6023.
Unit One – Code.org/CS Fundamentals

During the first unit in this course we will be working with the CS Fundamentals/Express Course from Code.org. During this unit your “graded” activities will include:

- participation during “unplugged” lessons (5 activities)
  - To earn credit for each of these activities you must be in class, on-time, and participating in the lesson.
- completion of “plugged” activities (25 activities)
  - To earn credit for each of these activities you must complete all of the individual components on the Code.org website until they are marked at the “completed (perfect)” or “submitted” level as appropriate
- analysis of lesson plans (3 activities)
  - To earn credit for each of these activities you must submit your paper analysis report as outlined in each of these three activities and receive a “complete” grade

This unit is scheduled to end on Friday, September 7th. All activities must be attempted the first time by that date. Resubmissions to correct deficiencies will be accepted through Friday, September 14th.

Grades for this unit will be assigned as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Successfully completing 31-33 activities</td>
</tr>
<tr>
<td>B</td>
<td>Successfully completing 28-30 activities</td>
</tr>
<tr>
<td>C</td>
<td>Successfully completing 25-27 activities</td>
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<tr>
<td>D</td>
<td>Successfully completing 22-24 activities</td>
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<tr>
<td>F</td>
<td>Completing 21 or fewer</td>
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Pluses and minuses will be added as appropriate.