CS108: Introduction to Computing
Calvin University
Fall 2022

Instructor: Prof. Derek Schuurman   Office: NH 296

Textbook: We will be using the zyBooks online text called *Programming in Python*. The text can be purchased and subscribed to at learn.zybooks.com using the code "CALVINCS108Fall2022"

Schedule: Monday/Wednesday/Friday at in NH 253 with weekly lab sessions.
Lab tutors available Monday and Thursday 7–10pm, in SB354.

Catalog Description

An introduction to computing as a problem-solving discipline. A primary emphasis is on programming as a methodology for problem solving, including: the precise specification of a problem, the design of its solution, the encoding of that solution, and the testing, debugging and maintenance of programs. A secondary emphasis is the discussion of topics from the breadth of computing including historical, theoretical, ethical, and biblical perspectives on computing as a discipline. Meets the Mathematical Sciences core requirement.

Student Learning Objectives

Students successfully completing this course will demonstrate that they can:

- Design data types/structures and algorithms that solve problems.
- Implement solutions to problems using primitive data types, expressions and arrays/lists; the basic control structures: sequence, selection and repetition; subprograms (methods/functions); classes; file input/output for persistent data storage; event-driven, and Graphical User Interfaces (GUIs).
- Find and fix syntactic and logical problems in programs.
- Use an Integrated Development Environment (IDE) to develop a program.
- Reflect on computing and its relation to the biblical story and discuss some ways that faith informs our work in computer technology.

Assignments

It is *very* important to practice the concepts taught throughout the course since programming is a skill best developed by practice. To succeed, you'll need to complete the following assignments each week:

- By **Monday at midnight**: Read the assigned chapter(s) and do the associated participation (not challenge) exercises each week. The video demos are optional, but could be useful as a review of the classroom activities. Be sure to check the weekly forum regularly to keep up with what's happening.
- Attend Thursday labs and complete and submit the lab exercises by **Friday at midnight**.
- By **Tuesday at midnight:** Submit homework assignments. Homework alternates each week between a perspectival reflection and a zyBooks programming assignment.

Perspectival forum posts will be graded out of three: A full 3 marks will be awarded for a satisfactory post that includes all the required elements, 2 marks will be awarded for a post that is missing one or more elements or has poor grammar or spelling, 1 mark will be awarded for a very poor post, and a zero will be awarded for a missing post. No late perspectival posts or reading participation activities will be accepted without communicating your situation with the professor.

Note that on holiday weekends the deadlines may be extended – please refer to zyBooks and Moodle for the precise deadlines for each week's reading assignments. *Students may discuss aspects of the assignments with each other, but everyone must hand in their own work!*

Grading: The grading rubric will be as follows:

Reading preparation activities	5%
Weekly lab exercises	10%
Coding homework	25%
Perspectival reflections	5%
Quizzes	25%
Final project	30%

You will work in pairs during the lab exercises and you may work in pairs for your weekly homeworks as well. When you work in a pair, one of the partners should submit one copy of your work with both of your names on it. Your partner should be someone else from this course. For the final project, you may also work in pairs.

Feel free to discuss ideas with us or with your classmates, but don't copy code. You may, on exceedingly rare occasions, reuse someone else's code provided that you make it clear what code you're reusing and what code you wrote yourself. We'll grade you on the code you write. If you have any questions or disputes about the grades they *must* be communicated within 1 week of the grade being posted.

We'll throw out your lowest quiz score and your grades will be available in the Moodle gradebook.

We don't grade on attendance. If you must miss a class for any reason, please let us know so that we can set you up with the appropriate material and activities for the session you miss.

Late Work: We will clearly indicate a due date for all assignments. Reading preparation activities *must* be completed on-time and will receive a mark of zero if not completed on time. Labs and homework submitted after the posted due date is late and subject to a 25% late penalty unless you have made prior arrangements with us. We will not accept any work that is more than one week late unless you talk to us about the circumstances and negotiate a late-submission plan. We do not accept any late work after the last day of class. If there are exceptional circumstances, please talk to us so we can work something out.

Laptop policy: One of the concepts taught at the beginning of this course is that technology is not neutral – it embeds a bias and is value-laden. Consequently, technology in the classroom changes things. Studies suggest that internet-enabled electronic devices in the classroom reduces student performance. However, laptops can be helpful for in-class programming exercises like POGIL. For this reason, you are permitted to use laptops in the course on the condition that commit to using your laptop for class-related work only. *Furthermore, the use of cell phones is not permitted during class or labs.*

Course Outline: A *tentative* schedule for the course is available on Moodle along with links to weekly readings, labs, and assignments.

Weeks	*Textbook Readings*	*Labs*	*Assignments*	*Quizzes*
Week 1 Aug. 29, 31, Sep. 2	Introduction to Python Sections 1.1–1.9	Lab 1	Watch: Technology and the Biblical Story Perspectival post	
Week 2 Sep. 7, 9	Variables and Expressions Sections 2.1–2.8	Lab 2	Homework 1	Quiz 1
Week 3 Sep. 12, 14, 16	Types Sections 3.1–3.7	Lab 3	Perspective: Is technology value-laden?	
Week 4	Branching	Lab 4	Homework 2	Quiz 2

Sep. 19, 21, 23	Sections 4.1–4.4, 4.10			
Week 5 Sep. 26, 28, 30	Loops Sections 5.1–5.9	Lab 5	Perspective: Technology and Creation	
Week 6 Oct. 3, 5, 7	Functions Sections 6.1–6.7, 6.10–6.11	Lab 6	Homework 3	Quiz 3
Week 7 Oct. 12, 14	Strings Sections 7.1–7.4	Lab 7	Perspective: Technology and the Fall	
Week 8 Oct. 17, 19, 21	Lists and Dictionaries Sections 8.5, 8.9, 8.10	Lab 8	Homework 4	Quiz 4
Week 9 Oct. 24, 26, 28	Classes and Objects Sections 9.1–9.9	Lab 9	Perspective: Redemption and Responsible Technology	
Week 10 Oct. 31, Nov. 4 *Advising days* Nov. 1,2	Modules and Files Sections 10.1-10.5	Lab 10	Homework 5	Quiz 5
Week 11 Nov. 7, 9, 11	[Introduction to GUIzero](#)	Lab 11	Perspective: Technology and the Future	
Week 12 Nov. 14, 16, 18, 21	The GUIzero drawing canvas, events, and animation	Lab 12	Homework 6 Initial project proposal	Quiz 6
Thanksgiving break: Nov. 23-25				
Week 13 Nov. 28, 30, Dec. 2	Sections 13.1–13.4	Lab 13	Perspective: Joys & Woes Project design docs	
Week 14 Dec. 5, 7	Review	No lab	Work on final project	
Final projects must be submitted by December 14 at 9AM.				

Communication outside of Class Times

The preferred way of communication outside the classroom will be using Piazza, a system that is to get you help fast and efficiently from classmates and instructors. Rather than emailing questions to the teaching staff, I encourage you to post your questions on [Piazza](#) (see Moodle for link).

Netiquette

When you engage your professor or fellow students online, remember there is an image-bearer of God at the other end of the communication. Respect the time of both your professor and fellow students through judicious use of electronic communications.

Accommodations

Calvin University is committed to providing access to all students. If you are a student with a documented disability, please notify a disability coordinator in the Center for Student Success. If you have an accommodation memo, please come talk to me within the first two weeks of class. Tutors are available for all students by contacting the Center for Student Success or visiting https://calvin.edu/go/tutor.

Hospitality

It is my intent that students from all backgrounds will be well served in this course. Join me in creating a class that respects everyone in it, including those with programming experience as well as those who are new to coding.