CSC 100.01 Spring 2022 Syllabus

Introduction to Programming in C/C++ (CSC 100) Summer 2022

Marcus Birkenkrahe

May 13, 2022

1 General Course Information

- Meeting Times: Monday through Friday, 13:00-15:00 hrs

- Meeting place: Lyon Building computer lab room 104

- Professor: Marcus Birkenkrahe

- Office: Derby Science Building 210

- Phone: (870) 307-7254 (office) / (501) 422-4725 (private)

- Office hours: Monday through Friday after class (ask me)

- Textbook: King (2008). C Programming - A Modern Approach. New York: Norton. Online: knking.com

1.1 About reading the book / further studies

I've looked at a lot of books and videos when preparing the first version of this course, in spring 2022. The book by King is head and shoulders above most of them, even more recent ones. Two sources come close - Head First C (Griffiths, 2012), and the Udemy course by Collingbourne (2021).

However, nothing can replace reading and re-reading the book by King itself. When preparing for this summer course, I took a couple of weeks to work through every Q&A and every exercise and program assignment of the book's chapters 1-13 on which this course is based. I'm happy to share my Emacs Org-mode notebooks with you.

1.2 Objectives

This course introduces you to system programming using C. We cover C++ as an extension. System programming is pure power: it enables you to converse with the computer at a level unknown to users of Python or other high level languages. You also learn about: compilers, working on the command line, text editors like vi and Emacs, using C for Internet of Things (IoT) devices, cybersecurity, and using UML. You get a foundation in computational, critical thinking in concert with one of the three most popular languages (the other two are Python and Java). We will endeavour to cover most of chapters 1-15 of the textbook by King.
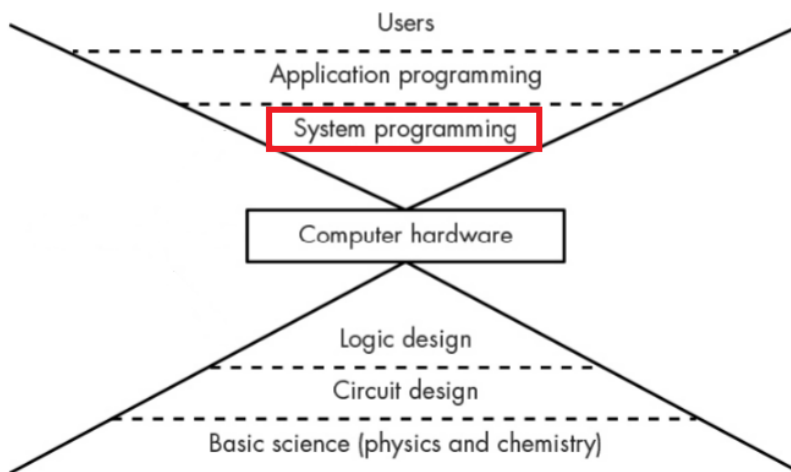

Figure 1: Computer landscape - modified after Steinhart, 2019

1.3 Student Learning Outcomes

Students who complete CSC 100.01 "Introduction to programming in C/C++", will be able to:

- Master basic sequential programming skills (conditional statements, loops, functions, input/output, use of data types)

- Explain the basic components of a procedural programming language

- Apply the basics of programming to solve a variety of quantitative problems

- Master computing infrastructure (compiler, editor, shell)

- Know how to effectively present assignment results

1.4 Course requirements

No prior knowledge required. Some knowledge of, and experience with computers is useful but not critical. Curiosity is essential. You will gain data literacy skills by taking this course. The course will prepare you for further studies in computer and data science, or in other disciplines that use modern computing, i.e. every discipline, from accounting to zoology).

1.5 Grading system

DESCRIPTION	IMPACT
Quizzes	10%
Class assignments	30%
Programming assignments	30%
Final exam	30%

You should be able to see your current grade at any time using the Schoology gradebook for the course.

1.5.1 Grading table

This table is used to convert completion rates into letter grades. For the midterm results, letter grades still carry signs, while for the term results, only straight letters are given (by rounding up).

%	Midterm Grade	Final Grade
100-98	A+	
97-96	A	A (passed -
95-90	A-	very good)
89-86	B+	
85-80	B	B (passed -
79-76	B-	good)
75-70	C+	
69-66	C	C (passed -
65-60	C-	satisfactory)
59-56	D+	
55-50	D	D (passed)
49-0	F	F (failed)

1.5.2 Quizzes (10%)

- Complete in class

- Recall last chapter or section of class

- Read relevant textbook chapters

1.5.3 Class assignments (30%)

- Complete small assignments in class (participation)

- Complete assignments outside of class (homework)

- Be ready to present your results

1.5.4 Programming assignments (30%)

- Solve programming problems in or outside of class

- Complete assignments outside of class if necessary

- Be ready to present your solutions

1.5.5 Final exam (30%)

- 120 min multiple choice exam

- Sourced from the quiz questions

- Online in Schoology in the classroom

2 Standard Policies[1]

2.1 Honor Code

All graded work in this class is to be pledged in accordance with the Lyon College Honor Code. The use of a phone for any reason during the course of an exam is considered an honor code violation.

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[1]Sent by the Provost (spring 2022). Updated to reflect the change in COVID policy.

2.2 Class Attendance Policy

Students are expected to attend all class periods for the courses in which they are enrolled. They are responsible for conferring with individual professors regarding any missed assignments. Faculty members are to notify the Registrar when a student misses the equivalent of one, two, three, and four weeks of class periods in a single course. Under this policy, there is no distinction between "excused" and "unexcused" absences, except that a student may make up work missed during an excused absence. A reminder of the college's attendance policy will be issued to the student at one week, a second reminder at two weeks, a warning at three weeks, and notification of administrative withdrawal and the assigning of an "F" grade at four weeks. Students who are administratively withdrawn from more than one course will be placed on probation or suspended.

2.3 Disabilities

Students seeking reasonable accommodations based on documented learning disabilities must contact Interim Director of Academic Support Courtney Beal in the Morrow Academic Center at (870) 307-7016 or at courtney.beal@lyon.edu.

2.4 Harassment, Discrimination, and Sexual Misconduct

Title IX and Lyon's policy prohibit harassment, discrimination and sexual misconduct. Lyon encourages anyone experiencing harassment, discrimination or sexual misconduct to talk to Danell Hetrick, Title IX Coordinator and Interim Vice-President for Student Life, or Sh'Nita Mitchell, Title IX Investigator and Associate Dean for Students, about what happened so they can get the support they need and Lyon can respond appropriately. Lyon is legally obligated to respond to reports of sexual misconduct, and therefore we cannot guarantee the confidentiality of a report, unless made to a confidential resource (Chaplain, Counselor, or Nurse). As a faculty member, I am required to report possible Title IX violations and must provide our Title IX coordinator with all relevant details. I cannot, therefore, guarantee confidentiality.

2.5 Datails

Details specific to this course may be found in the subsequent pages of this syllabus. Those details will include at least the following:

- A description of the course consistent with the Lyon College catalog.

- A list of student learning outcomes for the course.

- A summary of all course requirements.

- An explanation of the grading system to be used in the course.

- Any course-specific attendance policies that go beyond the College policy.

- Details about what constitutes acceptable and unacceptable student collaboration on graded work.

3 Course specific information

3.1 Assignments and Honor Code[2]

There will be several assignments during the summer school, including programming assignments and multiple-choice tests. They are due at the beginning of the class period on the due date. Once class begins, the assigment will be considered one day late if it has not been turned in. Late programs will not be accepted without an extension. Extensions will **not** be granted for reasons such as:

- You could not get to a computer

- You could not get a computer to do what you wanted it to do

- The network was down

- The printer was out of paper or toner

- You erased your files, lost your homework, or misplaced your flash drive

- You had other coursework or family commitments that interfered with your work in this course

Put "Pledged" and a note of any collaboration in the comments of any program you turn in. Programming assignments are individual efforts, but you may seek assistance from another student or the course instructor. You may not copy someone else's solution. If you are having trouble finishing an

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[2]Adapted from David Sonnier with minor modifications.

assignment, it is far better to do your own work and receive a low score than to go through an honor trial and suffer the penalties that may be involved.

What is cheating on an assignment? Here are a few examples:

- Having someone else write your assignment, in whole or in part

- Copying an assignment someone else wrote, in whole or in part

- Collaborating with someone else to the extent that your submissions are identifiably very similar, in whole or in part

- Turning in a submission with the wrong name on it

What is not cheating? Here are some examples:

- Talking to someone in general terms about concepts involved in an assignment

- Asking someone for help with a specific error message or bug in your program

- Getting help with the specifics of language syntax or citation style

- Utilizing information given to you by the instructor

Any assistance must be clearly explained in the comments at the beginning of your submission. If you have any questions about this, please ask or review the policies relating to the Honor Code.

Absences on Days of Exams:

Test "make-ups" will only be allowed if arrangements have been made prior to the scheduled time. If you are sick the day of the test, please e-mail me or leave a message on my phone before the scheduled time, and we can make arrangements when you return.

3.2   Important Dates[3]:

DATE	DAY	DESCRIPTION
May 24	Tuesday	Summer school classes begin
June 24	Friday	Summer school classes end
June 24	Friday	Summer degrees conferred

[3]Academic calendar sent by the Provost.

3.3 Schedule and session content

NO	DATE	TESTS	ASSIGNMENT	TEXTBOOK
1	Tue-24-May			1 Introducing C
2	Wed-25-May			
3	Thu-26-May	Quiz 1		2 C Fundamentals
4	Fri-27-May		Program 1	
5	Mon-30-May	Quiz 2		3 Formatted Input/Output
6	Tue-31-May		Program 2	
7	Wed-01-Jun	Quiz 3		4 Expressions
8	Thu-02-Jun		Program 3	
9	Fri-03-Jun	Quiz 4		5 Selection statements
10	Mon-06-Jun		Program 4	
11	Tue-07-Jun	Quiz 5		6 Loops
12	Wed-08-Jun		Program 5	
13	Thu-09-Jun	Quiz 6		7 Basic Types
14	Fri-10-Jun		Program 6	
15	Mon-13-Jun	Quiz 7		8 Arrays
16	Tue-14-Jun		Program 7	
17	Wed-15-Jun	Quiz 8		9 Functions
18	Thu-16-Jun		Program 8	
19	Fri-17-Jun	Quiz 9		11 Pointers
20	Mon-20-Jun		Program 9	
21	Tue-21-Jun	Quiz 10		12 Pointers and Arrays
22	Wed-22-Jun		Program 10	
23	Thu-23-Jun	Final exam		13 Strings
24	Fri-24-Jun			

4 References

- C for beginners, by H Collingbourne (Udemy, 2022).

- Head First C, by D and D Griffiths (O'Reilly, 2014)

- C Programming - A Modern Approach (2e), by R N King (Norton, 2008)

- The secret life of programs, by J E Steinhart (NoStarch, 2019)