CSCI 170-01/02 Computer Science I

Liz Johnson
CSCI 170 Computer Science I

TR 1-2:15 pm, Location: Hailstones 19 (section 1)
MW 4:30-5:45 pm, Location: Smith 251 (section 2)

Instructor: Liz Johnson
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Office Hours: M 1 pm-3 pm, T 10:30-12:30, W 11 am-1 pm, Th 2:30-4:30
and by appt

Texts:
- 9 Algorithms that Changed the Future – MacCormick. 2012 (free via XU library as eBook)
- Other readings as assigned

Home Page: On Canvas (access via canvas.xavier.edu)

Course Objectives

This course is an introduction to computer science and computation. We will study:
- Computational Principles – information about computers and computer science that everyone should know, and
- Computational Thinking – thinking approaches you can use to solve problems with computers.

The course objectives are that, by the end of the course, students will be able to:

- explain key notions of computer science, particularly algorithm, abstraction, computability, and efficiency in non-technical terms.
- read articles about technology or computer science and relate them to the notions of computer science discussed in class.
- explain the basic components of algorithms and use them to describe algorithms for simple tasks, demonstrating algorithmic problem solving skills. (The environment for the algorithms will vary and students will be expected to demonstrate skills in each environment.)
- design abstractions for a variety of problems.
- analyze some simple algorithms in terms of their efficiency.
- reflect on the ethical issues raised by activities facilitated by technology related to computer science.
Grading

Grades on all assigned work and exams will be based on correctness, clarity and style; presentation counts. Your grade will be based on 4 components:

- 40% Exams (Exam 1=10%, Exam 2=10%, Cumulative Final Exam=20%)
- 30% Individual assignments
- 20% Group assignments
- 10% Quizzes

The Department of Mathematics and Computer Science follows the following grading standard:

- A: Exceptional - The student's attainments are out of the normal course, unusual and special.
- B: Good - The student's performance is done rightfully or skillfully and is commendable.
- C: Satisfactory - The student's accomplishments are sufficient for the needs of the course.
- D: Minimal passing
- F: Failure

Plus/minus modifiers on the grades will be used to distinguish efforts within a particular category as deemed appropriate by the instructor. Note that there is no A+ or D- grade. See http://www.xavier.edu/mathematics/Grading-Policy.cfm for further clarification of the departmental grading policy.

Letter grades are based on your average and will, in general, be determined by the following scale:

- A: > 93
- A-: >= 90 and < 93
- B+: >= 87 and < 90
- B: >= 83 and < 87
- B-: >= 80 and < 83
- Etc. (C+, C, C-, D+, D, F according to the above pattern)

Grades on assignments, exams, and quizzes will be posted to Canvas as they are available.

Learning Assessment Components

Over the course of the semester, you will be assigned either individual or group assignments at least weekly and given several days to complete the assignment. For individual assignments, you are permitted to discuss the assignment openly with others in your class. This does not mean that you
may copy each other’s work, however. Students should write up assignments independently after these discussions. On your completed assignment, you must note the names of students with whom you discussed the work. A late assignment will be penalized 10% for every day it is late. Once an assignment has been discussed in class (usually the class session immediately after it is due), it can no longer be turned in for credit. Note that late hours are rounded up. So, for example, if you turn in an assignment 1 hour late, it is as if you turned it in 1 day late. These same rules apply to group assignments except that you will be working in a group and permitted to discuss everything with the group members. If a group assignment is late, all group members will receive the penalty.

Keep in mind that some assignments will require you to apply concepts discussed in class to new areas and the connection might not always be apparent as you begin work on assignments. There wouldn’t be much point to the assignments if they simply repeated what was done in the classroom. That said, ask for help from your instructor early and often when working on the assignments. Grades on most homework will be based on correctness, clarity, and style; presentation counts. As in any college-level course, you are expected to use correct grammar and spelling in any work you turn in. Incorrect grammar or misspellings will result in a grade reduction.

**Quizzes** will be individual work. The purpose of quizzes are to help you reflect on class material and to assess your understanding. You may use class notes or assigned reading material when completed a quiz. You may not talk to classmates about the quiz either before or after you take it until after the quiz has closed. Quizzes will be posted on Canvas immediately after each class session and will be closed 15 minutes before the next class session starts. The lowest two quiz grades will be dropped.

**Exams** will be individual work. Approximate Exam 1 and Exam 2 dates are listed in the calendar at the end of this syllabus. Exact exam dates will be announced at least 10 days before the exam. **The final exam will be Thursday, December 18 from 10:30 am-12:20 pm (section 1) and Monday, December 15 from 4:00-5:50 pm (section 2).** Exams must be taken at the date and time specified except in the case of emergencies. In general, the instructor must be notified about an emergency before the time of the exam so that permission for makeup can be given.

**Student Responsibilities**

You should set up Canvas so that you are alerted when messages are sent and assignments or announcements are posted. You are responsible for knowing due dates. Missing a due date because you did not check Canvas is not an excuse for late work.
You are expected to prepare for class, attend class, participate in class
discussions, work on in-class activities as assigned, treat others in the class
with respect and generally promote a positive, learning community.
Activities which detract from this in the classroom include tardiness, use of
cell phones, use of computers other than for the class activities or
notetaking, sleeping, doing work not related to class during class time,
inattention during class discussions, etc. These activities are disrespectful to
your instructor and your fellow students and are a waste of your tuition
dollars. Making class valuable for students is a shared responsibility between
students and the instructor. Do your part.

Any student who feels she or he may need an accommodation based on the
impact of a documented disability should contact the Learning Assistance
Center at 513-745-3280 on the Fifth Floor of the Conaton Learning
Commons, Room 514, to coordinate reasonable accommodations.

**Academic Honesty**

The work you submit **must** be your own. In this class, this means that even
if you are permitted to work with someone else (as on individual
assigments), you understand everything that you turn in. On quizzes, the
work is your own but you may use your class notes and reading material as
reference. On exams, all work is only yours. You also have a responsibility to
ensure that another student does not violate this policy with your work. For
example, you must not allow another student to copy your exam.

I take the preceding paragraph seriously and expect students to take it
seriously. See section 2.3.9.1 of the Xavier Student Handbook for a fuller
discussion of the Academic Honesty policy at Xavier. Failure to exhibit
academic honesty may result in a 0 on an assignment, exam, or quiz or could
result in an F in the course.

**Schedule**

This is an approximate schedule for major topics and will be adjusted as
needed during the semester.
Week 1: Introduction to computer science
Week 2: Representation
Weeks 3-5: Programming basics
Week 6: Review and Exam 1 (approx. 9/24 or 25)
Week 7: Searching and sorting
Week 8: Computational Complexity
Week 9: Logic, Circuits, and Hardware
Week 10-11: Internet and security
Week 12: Review and Exam 2 (approx. 11/12 or 13)
Weeks 13-14: Big Data
Week 15: Wrap-up