CSCI 345	**Data Structures and Algorithms**
	Spring 2020 MFW 12:55–2:05pm Meyer 131
	`http://cs.wheaton.edu/~tvandrun/cs345`

Syllabus addendum for remote learning

Updated March 17, 2020

In light of Wheaton College's transition to *technology-mediated instruction* during the coronavirus / COVID-19 pandemic, the following modifications are made to the course.

GENERAL INTENT. Our goal is to get you through this course knowing the facts, understanding the concepts, and having mastered the skills of data structures and algorithms. We may need to be more casual on how the course is conducted and how the students are assessed, but we strive to preserve the content of the course. Specifically, the course's learning outcomes remain unchanged, that at the end of the semester, students are able to

1. State and demonstrate a loop invariant for an algorithm.
2. Determine the performance of an algorithm and identify a big-oh or big-theta category.
3. Differentiate between ADTs and data structures and articulate the trade-offs among data structures studied in class.
4. Articulate the factors in implementing a binary search tree and how they affect the performance of a BST implementation of a map.
5. Articulate the factors in implementing a hashtable and how they affect the performance of a hashtable implementation of a map.
6. Articulate the attributes of a problem that is suited for a dynamic programming solution and implement a given dynamic programming algorithm.

Note that all of outcomes 5 and 6 and most of outcome 4 are covered in B-quad.

CLASS MEETINGS. In line with the college's expectations, the primary substitute for class meetings is live-streamed lectures delivered at the scheduled class time (12:55pm central time MWF), using Schoology's **Conferences** tool. These lectures will be recorded and accessible through Schoology for one week for the benefit of students who are unable to watch live because of extenuating circumstances; students are expected to make every reasonable effort to join the conferences at the time they are being streamed.

I will aim at keeping these live-streamed sessions to about a half hour, not the full seventy-minute class period. The sessions will be supplemented with shorter videos that you can watch at your convenience. These videos will be posted on Schoology.

Students must understand, however, that the videos cannot replace reading the textbook. Just like class time in A-quad, the live-streamed lectures and videos are the "short version" of the material. Students must study the "full version" presented in the textboook.

COURSE SCHEDULE. The revised course schedule can be found on the course website. The main changes are

- The start of B-quad has, of course, been moved to Monday, March 23.
- Each topic has been delayed about one week.
- Test 2 has been moved to Monday, April 13

- The review day before Test 2 and the two-day topic of regular expressions have been dropped.

PROJECTS. There is essentially no change to the projects in this course, except that the recommended completion dates for each project have been extended between a week and three days, depending on where the project falls in the schedule. Moreover, the deadline for turning in all projects has been moved from Friday, May 1 (the last day of classes) to Monday, May 4 (reading day).

Revised instructions for downloading, setting up, and submitting projects (and other course activities administered in the same way as projects) will be available on the course website. The revised instructions will only *clarify* the procedures and provide some alternative procedures and suggestions to make projects more convenient. Anything students have done in the past for downloading and submitting projects using their own laptop should still work.

TESTS. Recall that tests 2 and 4 consist in programming problems and were intended to be taken in the lab on a computer. Now these tests will be take-home, administered in a way similar to projects but with a shorter timeframe. Test 3 will be done through Schoology during our final exam block.

TEXTBOOK. Let me know right away if you do not have access to your copy of the textbook. I can make excerpts available through Schoology as necessary, but I want to avoid posting the manuscript in its entirety.

PRACTICE PROBLEMS (NEW). The most significant change is that I frequently will assign practice problems. These will be in the spirit of the old "hold up your homework" kinds of problems, but will be assigned more frequently and will need to be turned in, usually by the next class meeting. Programming problems will be turned in similarly to projects. Non-programming problems will be turned in through Schoology (I will experiment with various Schoology tools to see what works best). These practice problems will not only have a pedagogical role for you, they will also be the primary means for me to gauge your engagement in the course.

OFFICE HOURS. I plan to use Schoology's **Meetings** tool to hold office hours by video. As needed, make an appointment using Calendly. I will try to make myself as available as possible, especially during the normally scheduled office-hours times.

COMMUNICATION. My preferred way for you to get in touch with me is through email, but you may also message me through Schoology.

All this, the Lord willing.