COMPUTER FLUENCY

Computer Science 302: Computer Fluency -- **Syllabus for Spring 2015**

Teaching Staff

Who	Location	Office Hours	Email
Nathan Clement, Instructor	GDC Basement TA stations	M 2-4pm; W 9-10am Other times by appointment	**nathanlclement@gmail.com (mailto:nathanlclement@gmail.com)**
Xeuyu Mao, TA	GDC Basement TA stations 1.302, Desk 1	TTh 2:30-3:30 pm	**maoxueyu@gmail.com (mailto:maoxueyu@gmail.com)**
Vivian Nguyen, TA	GDC Basement TA stations 1.302	MW 11-12:30 pm	**nguyenv@utexas.edu (mailto:nguyenv@utexas.edu)**
Walid Owais, TA	GDC Basement TA stations 1.302	T 3:30-5pm; W 2-4pm	**walidowais@gmail.com (mailto:walidowais@gmail.com)**

(mailto:nguyenv@utexas.edu)

Class Times and Locations

Class is held MW 1-1:50 PAI 3.02

Laboratory sections are held each Friday, at various times and locations:

- 9-10a, GDC 4.304 (section 50440)
- 10-11a, GDC 4.304 (section 50445)
- 11a-12p, GDC 4.304 (section 50450)
- 12-1p, JES A307A (section 50455)
- 1-2p, GDC 2.210 (section 50460)
- 2-3p, SAC 5.102 (section 50465)

Course Description

The study of computer science is all about determining solutions to difficult problems and conveying them effectively to a computer – a machine that at times can seem incredibly powerful, and at other times frustratingly incapable. This course will focus on the design of *algorithms:* precise instructions for solving a problem. Throughout the semester, you'll learn how to create algorithms, how to determine if they're good, and how to communicate them to and test them on a computer. The class will also explore some of the most challenging algorithms, such as the ones that control the inner workings of a computer and the ones that drive the Internet. Finally, we will discuss some of the impacts of computers on people and societies.

This course carries the Quantitative Reasoning flag. Quantitative Reasoning courses are designed to equip you with skills that are necessary for understanding the types of quantitative arguments you will regularly encounter in your adult and professional life. You should therefore expect a substantial portion of your grade to come from your use of quantitative skills to analyze real-world problems. The goal of this class is to help you develop the skills necessary to use computers to help you in your own career, whatever this might be.

Textbook

The class does not use a textbook, but some students might prefer to have one. If you're in that group, I recommend this book: *An Invitation to Computer Science* (http://books.google.com/books/about/Invitation_to_Computer_Science.html?id=BEhlUfdMNucC) by Schneider and Gersting. It's fairly expensive, but can provide some great additional resources if you want them. The middle section of the course is an introduction to Python. For that reason, I have listed the book **Python Programming for the absolute beginner** (http://books.google.com/books?id=-WULAAAAQBAJ) as an additional optional book. It is also optional.

Discussion Sections

Discussion sections will be held on Fridays, and attendance is required. Please attend the section in which you are registered. Attending a different lab is risky because space is limited and priority will be given to registered students. You should want to go to the discussion sections because they are beneficial for you, but to ensure that attendance doesn't drop, a 6-point quiz will be administered at the beginning of class each week: 3 points just for taking it, and 3 points for correctness. You will be allowed to drop your lowest 5 quiz scores, but this includes illness, family emergencies, and school-excused absences, so please plan accordingly.

Homework Assignments

Homework assignments are assigned every week. You may feel that you're spending a lot of time on them, given the small amount they contribute to your grade. However, be aware that the exams will draw heavily from the homeworks; doing well on them will help you do well on the exams. In addition, I will suggest that you work on these assignments with a partner because there is value in explaining material and having it explained to you; however, make sure you're not just copying, as you will not have a partner on the exams.

Assignments must be turned in by the deadline, which will be specified on each one. Late submissions will not be accepted. However, your lowest grade will be omitted from the calculation of final grades. These assignments might take longer than expected, so please (please, please, please) start early. The TA's and I will be

much more likely to help you if you come talk to us 3 days before the assignment is due; we might not be able to meet or answer emails 2 hours before the due date. Respect Murphy's rule and plan for your bus to run late, your personal computer to crash the afternoon of the due date, etc.

Exams

There will be three exams during the semester. Dates for exams will be announced as the semester starts. There is no final, and the last exam will be held on the last day of class.

Makeup exams will only be offered for ill health, family emergency, or official UT conflicts. Having three tests on the same day is *not* an official UT conflict. Please contact me ahead of time if you feel you need a makeup exam.

Schedule

We plan to discuss these topics:

1. Computer Science: The Study of Algorithms - algorithm discovery and design - algorithm efficiency
2. Computer programming - Python fundamentals - program design
3. Computer Hardware - binary numbers and arithmetic - gates and circuits - computer organization
4. Computer Networks: the Internet and the World Wide Web
5. The Future of Computing - artificial intelligence - social impacts

Grading

Final Grades will be assigned based on the following:

1. 3 exams, each contributing 23% of the final grade
2. Homework assignments contributing 25% of the final grade
3. Discussion section quizzes contributing 6% of the final grade

The grading scale will be the following. If a curve is needed, it will be applied at the discretion of the professor.

A   93-100
A- 90-92.9
B+ 87-89.9
B   84-86.9
B- 80-83.9
C+ 77-79.9
C   74-76.9
C- 70-73.9
D+ 67-69.9
D   64-66.9
D- 60-63.9
F   Below 60

Staying in Touch

Class information will be posted frequently on UT's Canvas system **http://courses.utexas.edu** **(http://courses.utexas.edu)**. You are responsible for visiting that site at least every two days. It is also very helpful to post and contribute to answers on Piazza: **https://piazza.com/utexas/fall2015/cs302/home (https://piazza.com/class/idjc2ft25412w8?cid=4)**. Also please note that, while it is possible for you to post to Piazza anonymously (and I encourage you to do so), the TAs and I will place priority on answering questions that are *not* asked anonymously.

Policy on Academic Honesty

All assignments and projects must be done individually, except when group work has been approved by the instructor in advance. Cheating, as defined by the **policy (http://www.cs.utexas.edu/undergraduate-program/code-conduct)** of the UT/CS department, will be dealt with harshly.

Date	Details	
Fri May 8, 2015	**Course Survey (https://utexas.instructure.com/courses/1144059/assignments/3638151)**	5pm
Fri May 15, 2015	**Quiz 13 (https://utexas.instructure.com/courses/1144059/assignments/3638166)**	11:59pm
Mon May 18, 2015	**Assignment 9 (https://utexas.instructure.com/courses/1144059/assignments/3638150)**	11:59pm
Mon May 25, 2015	**Assignment 8 (https://utexas.instructure.com/courses/1144059/assignments/3638149)**	4pm
Mon Jun 1, 2015	**Assignment 7 (https://utexas.instructure.com/courses/1144059/assignments/3638148)**	4pm
Thu Jun 18, 2015		

	[Assignment 6 (https://utexas.instructure.com/courses/1144059/assignments/3638146)](https://utexas.instructure.com/courses/1144059/assignments/3638146)	11:59pm
Thu Jun 25, 2015	[Assignment 5 (https://utexas.instructure.com/courses/1144059/assignments/3638145)](https://utexas.instructure.com/courses/1144059/assignments/3638145)	11:59pm
Thu Jul 9, 2015	[Assignment 4 (https://utexas.instructure.com/courses/1144059/assignments/3638144)](https://utexas.instructure.com/courses/1144059/assignments/3638144)	11:59pm
Thu Jul 30, 2015	[Assignment 3 (https://utexas.instructure.com/courses/1144059/assignments/3638142)](https://utexas.instructure.com/courses/1144059/assignments/3638142)	11:59pm
Thu Aug 6, 2015	[Assignment 2 (https://utexas.instructure.com/courses/1144059/assignments/3638141)](https://utexas.instructure.com/courses/1144059/assignments/3638141)	11:59pm
Fri Aug 14, 2015	[Quiz 1 (https://utexas.instructure.com/courses/1144059/assignments/3638153)](https://utexas.instructure.com/courses/1144059/assignments/3638153)	11:59pm
Thu Sep 10, 2015	[Assignment 1 (https://utexas.instructure.com/courses/1144059/assignments/3638140)](https://utexas.instructure.com/courses/1144059/assignments/3638140)	11:59pm
	[First Midterm (https://utexas.instructure.com/courses/1144059/assignments/3638143)](https://utexas.instructure.com/courses/1144059/assignments/3638143)	
	[Quiz 10 (https://utexas.instructure.com/courses/1144059/assignments/3638162)](https://utexas.instructure.com/courses/1144059/assignments/3638162)	
	[Quiz 11 (https://utexas.instructure.com/courses/1144059/assignments/3638163)](https://utexas.instructure.com/courses/1144059/assignments/3638163)	
	[Quiz 12 (https://utexas.instructure.com/courses/1144059/assignments/3638164)](https://utexas.instructure.com/courses/1144059/assignments/3638164)	
	[Quiz 2 (https://utexas.instructure.com/courses/1144059/assignments/3638154)](https://utexas.instructure.com/courses/1144059/assignments/3638154)	
	[Quiz 3 (https://utexas.instructure.com/courses/1144059/assignments/3638155)](https://utexas.instructure.com/courses/1144059/assignments/3638155)	
	[Quiz 4 (https://utexas.instructure.com/courses/1144059/assignments/3638156)](https://utexas.instructure.com/courses/1144059/assignments/3638156)	
	[Quiz 5 (https://utexas.instructure.com/courses/1144059/assignments/3638157)](https://utexas.instructure.com/courses/1144059/assignments/3638157)	
	[Quiz 6 (https://utexas.instructure.com/courses/1144059/assignments/3638158)](https://utexas.instructure.com/courses/1144059/assignments/3638158)	
	[Quiz 7 (https://utexas.instructure.com/courses/1144059/assignments/3638159)](https://utexas.instructure.com/courses/1144059/assignments/3638159)	
	[Quiz 8 (https://utexas.instructure.com/courses/1144059/assignments/3638160)](https://utexas.instructure.com/courses/1144059/assignments/3638160)	
	[Quiz 9 (https://utexas.instructure.com/courses/1144059/assignments/3638161)](https://utexas.instructure.com/courses/1144059/assignments/3638161)	
	[Second Midterm (https://utexas.instructure.com/courses/1144059/assignments/3638147)](https://utexas.instructure.com/courses/1144059/assignments/3638147)	
	[Third Midterm (https://utexas.instructure.com/courses/1144059/assignments/3638152)](https://utexas.instructure.com/courses/1144059/assignments/3638152)	