

Syllabus

Tiago Cogumbreiro

CS 420: Introduction to the Theory of Computation

Fall 2019

Course information

- Room: W02-0158, Wheatley
- Schedule: Tuesdays & Thursdays 5:30pm to 6:45pm
- Office hours: Tuesdays & Thursdays 3:30pm to 5:00pm

Instructor contact

- Email: Tiago.Cogumbreiro@umb.edu
- Office: S-3-183, Science Center

Course description

Introduction to theoretical aspects of computing including models of computation, inherent limits on computation, and feasible computation.

Topics covered

- finite automata (deterministic, nondeterministic, pushdown)
- regular expressions
- context-free grammars
- decidability
- computable functions (recursive functions, functions computable by Turing machines, functions computable in a programming language)
- insolvability of the halting problem and related problems

Reading material

- Introduction to the Theory of Computation, **3rd edition**, by Michael Sipser. ISBN: 113318779X

Supplementary material

- CS420 Spring 2019 at the University of Massachusetts Boston, by Prof. Peter Fejer
- CSCI3130 Fall 2018 at The Chinese University of Hong Kong, by Prof. Siu On Chan
- Theory of Computation, video course, by Prof. Harry H. Porter III.
YouTube mirror: tinyurl.com/y3j6kq9z

Prerequisites

- CS 220/CS 320L

Course work and grades

- Mini-test 1: 32%
- Mini-test 2: 32%
- Mini-test 3: 32%
- Attendance and participation: 4%

Final grade

Letter Grade	Test Score Cutoff
A	≥ 89
A-	≥ 85
B+	≥ 81
B	≥ 74
B-	≥ 70
C+	≥ 66
C	≥ 59
C-	≥ 55
D+	≥ 51
D	≥ 44
D-	≥ 40

Attention

- For students on the borderline between two grades (*i.e.*, within one point of the next higher grade cutoff), homework will be one of the factors determining the final grade. Otherwise, homework is not used in determining the course grade.
- Students who do not do the homework regularly usually do not do well on the tests.

- **On incomplete:** The grade of incomplete is given only when a student is unable to complete the work for the course for reasons which are unforeseeable at the **beginning** of the course. It is not available just for the asking.
- **On pass/fail:** No courses required by the CS major, minor, or certificate may be taken pass/fail.

Mini-tests

There are three mini-tests, each measuring the performance of one course module. Tests are in-class and open-book. Cell-phones, tablets and laptops cannot be used during mini-tests, so students with electronic copies of the textbook will have to print out the pages they need.

Attention

- Students who cannot take a test at the scheduled time due to illness or personal emergency should make every effort to contact the instructor **before** the test is given.

Attendance

Attendance is required. We record attendance with the site www.estalee.com. Our course code is: ZS40HJD.

Attention

- Inform the instructor at the end of class if you could not record your attendance.
- Inform the instructor if you must be absent from a class meeting.

Homework

Homework assignments are uploaded to our Blackboard course page.

Attention

- No late homework will be accepted.
- It is *acceptable* to discuss the concept in general terms, but *unacceptable* to discuss specific solutions to any homework assignment.
- You may **not** collaborate with anyone else on any homework. Each homework represents your own, individual work.

Accommodations

This class seeks ways to become a working and evolving model of inclusion and universal design for all participants. Individuals with disabilities of any kind (including learning disabilities, ADHD, depression, health conditions), who require instructional, curricular, or test accommodations are responsible for make such needs known to the instructor as early as possible. Every effort will be made to accommodate students in a timely and confidential manner. Individuals who request accommodations must be registered with the Ross Center for Disability Services, which authorizes accommodations for students with disabilities. If applicable, students may obtain adaptation recommendations from the Ross Center for Disability Services, M-1-401, (617-287-7430), www.rosscenter.umb.edu. The student must present these recommendations and discuss them with each professor within a reasonable period, preferably by the end of Drop/Add period.

Student Conduct

Students are required to adhere to the University Policy on Academic Standards and Cheating, to the University Statement on Plagiarism and the Documentation of Written Work, and to the Code of Student Conduct as delineated in the catalog of Undergraduate Programs, pp. 44-45, and 48-52. The Code is available online at: www.umb.edu/life_on_campus/policies/community/code