CSCI 26500 Computer Theory 1, §1 # 6106, Fall 2025

Eric Schweitzer

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Text: Hopcroft, Motwani & Ullman, *An Introduction to Automata Theory, Languages and Computation, 3rd edition*, Addison Wesley, ISBN 0-321-45536-3. The book has a web site with answers to some questions as well as additional resources. You can find it here: `http://www-db.stanford.edu/~ullman/ialc.html`.

Web: Useful links, including an updated version of this syllabus and all the home work assignments, are available on `http://www.cs.hunter.cuny.edu/~eschweit/`.

Quizzes and exams will be scanned into GradeScope (`www.gradescope.com`). Your grades will be available there. The instructor will create accounts based on your CUNYfirst data. Be sure to check your "myhunter" account for email from GradeScope after the first week of class.

Your Instructor: I can be reached to make appointments etc. by contacting me before or after class, by phoning my office at (212)772-4349, by stopping up at my office (1000E North) during scheduled office hours (Mondays and Thursdays 2:00 - 3:00), or any other time I'm there, or (by far the best way) by sending me e-mail at eric.schweitzer@hunter.cuny.edu. Please note that I will only read plain `ASCII text` email, not HTML or MicroSoft Word encoded documents. Also note that any email concerning anything that might fall under the FERPA regulations (e.g. questions about grades or other class related issues) *must* be sent from your "myhunter" account.

In addition, messages can be left for me at the Computer Science Department office, which is located in N-1008 and is reachable at (212)772-5213.

Grades: Note that the following assumes we are meeting in a classroom. If we are forced on-line during the semester some of it will have to change.

Grades will be based on one final exam, and approximately twelve to fifteen quizzes.

- The quizzes will take place some time during randomly selected classes. Each quiz is worth 10 points, the conglomeration of which will total to 60% of your grade (no

matter how many quizzes there actually are). Missed quizzes can not be made up. Unless you request otherwise, your ten best quiz grades will be used. (You have an option to choose quiz grades that are less than your best, not an option to choose fewer than 10.) Thus, you can miss at least two and up to five quizzes for any reason.

- The Final will be given at the appointed hour during finals week. This is currently Tuesday, December 16, from 5:20 to 7:20, however the College may change this schedule. The Final will be 40% of your grade.

- You may not access or use any communication devices (including but not limited to a cell phone, computer, embedded brain chip or passed note) during exams and quizzes.

I do not give "extra credit" assignments. Do not expect to be able to pull up your grade by submitting additional work.

Topics, Goals, Outcomes: This is a "theory" course. To succeed, you will have to understand some abstract concepts ("machines" and "languages"). You will need to use them, and mathematical reasoning, to understand and construct proofs. We will spend much of this semester focusing on the equivalence of regular languages and finite state machines, of context free languages and push down automata, and how to tell if a language is or is not in a given class. We will end with a brief look at Turing machines and undecidability.

The successful student will demonstrate mastery of the subject by constructing proofs and solving problems related to the subject matter on exams and quizzes.

Material in this course supports departmental learning goals 1C (knowledge of computer theory, formal languages and Turing machines) by introducing computer theory, the concept of formal languages and their machine equivalents, and by laying the groundwork for the study of Turing machines, and 1A by showing, in conjunction with CSCI 160, the equivalence of finite state machines and sequential circuits.

To support this, we will try to hew the following schedule:

Week	Topic	Sections
1	Review and Intro	1.1-1.5
2 and 3	Finite Automata	2.1-2.5
4 and 5	RLs and REs	3.1-3.4
6 and 7	Properties of RLs	4.1-4.4 and Myhill-Nerod Th
8 and 9	CFGs and CFLs	5.1, 5.2, 5.4
10 and 11	PDAs	6.1-6.4
12	Normal Forms and the PL for CFLs	7.1, 7.2
13	Turing Machines	8.1, 8.2
14	Undecidability	9.1, 9.2

Policy on Academic Integrity: Hunter College regards acts of academic dishonesty (e.g. plagiarism, cheating on examinations, obtaining unfair advantage, and falsification of records and official documents) as serious offenses against the values of intellectual honesty. The College is committed to enforcing the CUNY Policy on Academic Integrity and will pursue cases of academic dishonesty according to the Hunter College Academic Integrity Procedures.

Academic dishonesty includes (but is not limited to) using artificial intelligence tools to generate content for assignments or exams, including but not limited to language models or code generators, without written authorization from the instructor as well as copying from another person or from a generative AI system or allowing others to copy work submitted for credit or a grade. This includes uploading work or submitting class assignments or exams to third party platforms and websites beyond those assigned for the class, such as commercial homework aggregators, without the proper authorization of a professor. Any use of generative AI tools must be in line with the usage policy for specific assignments as defined in the course of the syllabus and/or communicated by the course instructor.

Policy on Bullying: Bullying, cyberbullying, online hate, intimidation, threats, harassment, and pressure to share schoolwork are all forms of violence. CUNY holds a zero tolerance stance towards all such acts. The University is committed to prevention of any form of bullying, will respond promptly to threats and/or acts, and will protect victims of bullying from retaliation. As a criminal matter, the New York Attorney General defines cyberbullying as the use of email, websites, instant messaging, chat rooms, text messaging and digital cameras to antagonize and intimidate others. Disrupting a teleconferencing platform (such as Zoom/Skype/Blackboard Collaborate Ultra) is a federal crime.

ADA Compliance: In compliance with the American Disability Act of 1990 (ADA) and with Section 504 of the Rehabilitation Act of 1973, Hunter College is committed to ensuring educational parity and accommodations for all students with documented disabilities and/or medical conditions. It is recommended that all students with documented disabilities (Emotional, Medical, Physical and/ or Learning) consult the Office of AccessABILITY located in Room E1124 to secure necessary academic accommodations. For further information and assistance please call (212-772-4857)/TTY (212-650-3230).

Personal Protective Equipment and other disease related matters: Whatever rules CUNY or Hunter put in place will be enforced. Remember that these rules can change with little warning.

Cell Phones and other Electronics: I expect all cell phones, pagers, etc. to be inaudible during class. I expect laptops and other electronic devices, if used, to be used only for class

related activities. Activities not related to class include but are not limited to facebook, twitter, other social networking web sites, "surfing", email, mu*s, hulu, southparkstudios, etc. Any student with an electronic device that disrupts the class or is used for anything other than class related activities will lose two (2) points from their final average (per occurrence). Anyone found using such a device during a quiz or exam will receive a 0 on that quiz or exam and will be reported to the Dean of Students.

Hunter College Policy on Sexual Misconduct In compliance with the CUNY Policy on Sexual Misconduct, Hunter College reaffirms the prohibition of any sexual misconduct, which includes sexual violence, sexual harassment, and gender-based harassment retaliation against students, employees, or visitors, as well as certain intimate relationships. Students who have experienced any form of sexual violence on or off campus (including CUNY-sponsored trips and events) are entitled to the rights outlined in the Bill of Rights for Hunter College.
a. Sexual Violence: Students are strongly encouraged to immediately report the incident by calling 911, contacting NYPD Special Victims Division Hotline (646-610-7272) or their local police precinct, or contacting the College's Public Safety Office (212-772-4444).
b. All Other Forms of Sexual Misconduct: Students are also encouraged to contact the College's Title IX Campus Coordinator, Dean John Rose (jtrose@hunter.cuny.edu or 212-650-3262) or Colleen Barry (colleen.barry@ hunter.cuny.edu or 212-772-4534) and seek complimentary services through the Counseling and Wellness Services Office, Hunter East 1123.
CUNY Policy on Sexual Misconduct Link:
`https://www.cuny.edu/wp-content/uploads/sites/4/page-assets/about/administration/offices/ovsa/policies/Sexual-misconduct-8.30.18-PSM-2018-005.pdf`

Note that details of this document are subject to change if the need arises.