Syllabus

CS-461: Theory of Computation (Fall 2015)

Communication and Contact Information

Instructor: Prof. George Corser (www.georgecorser.com)
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Office Hours: 10:30 am – 12:30 pm MW, or by appointment, Room SE-179
Class Hours: 8:30 am – 10:20 am TR, Room SE-119

Course-related communication must be in Canvas, accessible at svsu.instructure.com, using Inbox shown below. Make certain you have the correct Notification settings.

Course Description

"This course provides an introduction to basic models of computational complexity and the representation of infinite objects. Topics that will be examined including grammars, finite state machines, automata theory, Turing machines, computability and decidability, regular and context free languages." (Source: SVSU Course Catalog)

Textbook (Required)

Introduction to the Theory of Computation, Second (2nd) Edition, by Michael Sipser

Course Goals

By the time you finish this course you will have a basic understanding of the mathematical language and conceptual underpinnings of the field of computer science. **The topics covered in the course follow the textbook chapters, as below**. Some topics cannot be covered due to time constraints.

Chapter	Topic
0	Introduction
1	Regular Languages
2	Context-Free Languages
3	The Church-Turing Thesis
4	Decidability
5	Reducibility
~~6~~	~~Advanced Topics in Computability Theory~~
7	Time Complexity
~~8~~	~~Space Complexity~~
~~9~~	~~Intractability~~
~~10~~	~~Advanced Topics in Complexity Theory~~

Course Schedule

Week	Date	Day	Topic	Date2	Day2	Topic2
1	1-Sep	1	Syllabus	3-Sep	2	**Ch. 0. Introduction**
2	8-Sep	3	HOLIDAY	10-Sep	4	Ch. 0. Homework Review
3	15-Sep	5	**Ch. 1. Regular Languages**	17-Sep	6	Ch. 1. (continued)
4	22-Sep	7	Ch. 1. (continued)	24-Sep	8	Ch. 1. (continued)
5	29-Sep	9	Ch. 1. Homework Review	1-Oct	10	**Ch. 2. Context Free Languages**
6	6-Oct	11	Ch. 2. (continued)	8-Oct	12	Ch. 2. (continued)
7	13-Oct	13	Ch. 2. Homework Review	15-Oct	14	**Ch. 3. Church-Turing Thesis**
8	20-Oct	15	Ch. 3. (continued)	22-Oct	16	Ch. 3. (continued)
9	27-Oct	17	Ch. 3. Homework Review	29-Oct	18	**MIDTERM**
10	3-Nov	19	**Ch. 4. Decidability**	5-Nov	20	Ch. 4. (continued)
11	10-Nov	21	**Ch. 5. Reducibility**	12-Nov	22	Ch. 5. (continued)
12	17-Nov	23	Ch. 4+5. Homework Review	19-Nov	24	**Ch. 7. Time Complexity**
13	24-Nov	25	Ch. 7. (continued)	26-Nov	26	HOLIDAY
14	1-Dec	27	Ch. 7. (continued)	3-Dec	28	Ch. 7. (continued)
15	8-Dec	29	Ch. 7. (continued)	10-Dec	30	Ch. 7. Homework Review
16	15-Dec	31	**FINAL EXAM**			

Technology Components

The only technology component of this course is Canvas, accessible at svsu.instructure.com.

Assignments and Exams

Weekly homework assignments constitute 60 percent of the course points. There are two exams in the course, a midterm and a final exam, each worth 20 points. Weekly homework assignments are peer-graded in class. Exams are administered, **not on Canvas, but on paper**. They are **open book, open note… but not open internet**. That means no devices during exams.

Extra Credit

Extra credit is available under the following conditions.

1. Video. IF you create a video using my echo360 account presenting a concept in theoretical computer science, AND IF this concept was approved by me by email (not spoken word), AND IF you present this video in class in this semester, or record the video as you present the concept in class in this semester, AND IF the quality of the video meets with my approval, THEN AND ONLY THEN you get 3 points extra credit.
2. Lab instructions. IF you also prepare step-by-step written instructions for students to solve a problem in the conceptual area of computer science for which you made the video, AND IF the quality of the instructions meets with my approval, THEN AND ONLY THEN you get an additional 3 points extra credit.
3. Quiz questions. IF you also prepare four (4) multiple choice quiz questions, each with five (5) options[1] that are not easily google-able, AND IF these quiz questions are useable as quiz questions in Canvas, AND IF the quality of the questions meets with my approval, THEN AND ONLY THEN you get an additional 4 points extra credit, one point per question.
4. Doubling effect. If one of the above is substandard, you may still get partial credit, but certainly not any doubling effect. However, IF you complete all three of the above steps to my satisfaction, your extra credit points will be doubled. That is, instead of getting 10 points, you get 20 points of extra credit.

[1] Multiple choice quiz question options cannot be "none of the above" or "a and b only" or in any way reference the other options because if they are used in a computer grading system that scrambles the order of the options the references may no longer reflect the correct answer.

Grading Scale

Based on the total points scored for the course, grades will be awarded according to the following schedule.

Total Score	Grade
93 or above	A
90 to 93	A-
87 to 90	B+
83 to 87	B
80 to 83	B-

Total Score	Grade
75 to 80	C+
70 to 75	C
60 to 70	D
Below 60	F

Class policies

Attendance. Homework is peer-graded in class, at the beginning of class, so if you are late or absent, then your homework will not be graded.

Make-up assignments. None.

Academic Integrity

Cheating means submitting someone else's work and claiming it was your own. Cheating also includes giving work for someone else to use in such a way. Unless otherwise stated explicitly in an assignment, students must do their work independently. University and departmental policies on academic dishonesty apply. Publicly-available sources for code or other material may be freely used if appropriately attributed. Similarly, code that is obtained from others must be appropriately attributed. However, using substantial amounts of code obtained from someone else will probably not yield full credit for the assignment. Students are responsible for protecting their files from access by others. Work that is essentially the same and submitted without proper attribution may be a violation of academic dishonesty policies by all those submitting the work, regardless of who actually did the work.

Punishment for cheating: First offense will be reported to university administration and will result in zeros for that assignment for all parties involved. Second offense will also be reported to university administration, and will result in a failing grade for the entire course for all parties involved. The university may impose additional penalties.

Disability Statement

Students with disabilities who seek accommodations must make their request by Contacting the Office of Disability Services located at Curtiss 112, or call 964-7000. All accommodations must be approved by The Office of Disability Services. (Verbatim from: Syllabus Statement.)

Non-discrimination Statement

SVSU does not discriminate based on race, religion, color, gender, sexual orientation, national origin, age, physical impairment, disability or veteran status in the provision of education, employment and other services. (Verbatim from: Faculty Handbook.)

Syllabus Change Statement

This syllabus is subject to change if class needs warrant. (Verbatim from: Faculty Handbook.