CSC 28: Discrete Structures for Computer Science

California State University, Sacramento (CSUS), Fall 2020 Semester, 3 Credits

Class Times & Locations: WEBONLINE
Section 1: T/Th, 4:00PM - 5:15PM
Section 5: T/Th, 5:30PM – 6:45PM

Your Instructor

Dr. Jagan Chidella

Office: WEBONLINE

Office Hours:
M/W/T/TH/F: Any day by Appointment for a time after 6:45pm. Under very special circumstances 12:30-1:30pm is also ok by appointment.

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Dr Chidella currently works as an Information Technology Specialist II at the Department of Motor Vehicles. In the last 30 years, he has experience developing software systems for US Army, Oracle, Hewlett Packard, and three State of California Agencies. He has done AI research and developed AI frameworks for Center for AI and Robotics (Bangalore), Carnegie-Group Inc/CenturyLink Telecom, US Army, Xerox Corporation, Spencer-Trask and was a founding member at three start-up companies. He has trained numerous software engineers on behalf of IBM at EBay and State Farm Insurance Company. Dr Chidella has compiled and written documents in all areas of the Software Engineering SDLC process from Requirements to Test phases. He earned his doctorate in Artificial Intelligence, fundamentally in the areas of mathematical logic, logic programming, constraint solving and declarative programming and applied them to data interpretation and transformation.

Email Policy

Please email me directly on Canvas so I know which course and section you are from. Please check your Sac State email at least once a day, in case I reach out to you through email, via Canvas announcements.

Course Content

This course is about how to develop high-quality software systems that are delivered on time and within budget using modern development tools. There are two aspects to this task: managing the effort and applying effective tools and techniques. We will survey both aspects and apply them by building a system in teams of 6-8 members during the semester.

Prerequisites

MATH 26A or MATH 29; and CSC 20; CSC 20 may be taken concurrently.

Goals of the Course

The overall objective of this course is surveying the field of software engineering. More specifically, by the end of this course you will learn:

Introduction to the essential discrete structures used in Computer Science, with emphasis on their applications. Topics include: counting methods, elementary formal logic and set theory, recursive programming, digital logic and combinational circuits, real number representation, regular expressions, finite automata.

Required Texts (optional)

Most content material is provided on Canvas.
For your own practice, you may practice exercises from the following primary textbook for this course, an electronic Text with practice problems and exercises on Discrete Structures by ZyBooks. This is an optional electronic text-book meant only for your own practice. You may order directly or go to the bookstore if you prefer to practice.

1. Sign in or create an account at learn.zybooks.com
2. Enter zyBook code: CSUSCSC28ChidellaFall2020
3. Subscribe

Attendance and Participation

Attendance is not required except at some in-class exercises. However, attendance is expected in the sense that material missed because of unexcused absences will not be provided by the instructor on other occasions. In other words, there will be no private lectures during office hours for student who do not come to class. All students are expected to participate in their groups during in-class activities and during class discussions. There are no participation grades, however.

Methods of Evaluation

Task	**Percentage**
Homework Exercises	30%
Mid-Term	35%
Final Exam	35%
Total	**100%**

At the end of the semester, a final percentage will be calculated according to the above criteria. It will then be rounded to the nearest integer value. Then, a letter grade according to the following scale will be assigned. Curving will also be performed. The best of the two is your final grade. However, extraordinary performance in any work assigned will be used to reward a student in border cases.

Range	Letter Grade
93-100	A
90-92	A-
87-89	B+
83-86	B
80-82	B-
77-79	C+

Range	Letter Grade
73-76	C
70-72	C-
67-69	D+
63-66	D
60-62	D-
59 or Less	F

Labs

Attendance is required. Please check Canvas "Modules" for lab dates.

Homework Assignments

There will be several homework assignments. These will be written and graded individually, usually not as part of a team. Late homework submissions are usually accepted within two days after deadline, with 25% off penalty per day, unless otherwise noted.

Exams

The midterm examinations will cover the material since the beginning of the semester, but the final examination will cover the entire semester.

Missed and Late Assignment Policy

If you are unable to take an exam at the scheduled time because of illness or other problems, you must contact me **beforehand** to arrange to take the exam at a different time. Failure to make prior arrangements for a missed exam will result in a grade of 0 for the exam.
In-class work missed because of absence will only be accepted if arrangements are made **beforehand**.
Late project and homework assignments will be accepted within 2 days after due dates, with 20% penalty for each day. Alternate due dates can be arranged in special circumstances provided these arrangements are made **before** the due date.

Tentative Schedule

The following schedule is a plan, not a contract 😊. Modifications will be posted on Canvas as the semester progresses.

NO WEBCAM IS NEEDED FOR EXAMS. PLEASE INFORM ME OF UNUSUAL CIRCUMSTANCES OR NEEDS.	
WEEK	**Tentative Topic**
1. 09/01, 09/03	Introduction, Sets
2. 09/08, 09/10	Counting
3. 09/15, 09/17	Relations
4. 09/22, 09/24	Functions

5. 09/29, 10/1	Propositional Logic
6. 10/06, 10/08	Induction Functions
7. 10/13, 10/15	Boolean Algebra, Elementary Logic
8. 10/20, 10/22	Digital Logic and Combinational Circuits
9. 10/27, 10/29	Mid Term Practice, Mid-Term
10. 11/03, 11/05	Recursion
11. 11/10, 11/12	Proofs
12. 11/17, 11/19	Regular Expressions
13. 11/24	Finite State Automata
14. 11/26-11/27	HOLIDAY – Thanksgiving – No Class
15. 12/1-12/3	Practice Sessions/Fillers
16. 12/08, 12/10	Practice Sessions/Fillers
17. FINALS WEEK 12/14-18	**Finals Week**

University Policies

Academic Honesty

If you violate the University's Honor Code (https://www.csus.edu/umanual/student/stu-0100.htm), you will receive a reduced or failing grade in the course, other penalties may be imposed, and the violation will be reported to the Student Conduct Officer. Automated tools may be used on any assignment, at any time, to detect inappropriate collaboration and to determine the originality of submissions.

Adding/Dropping

You are responsible for enrolling in courses and verifying your schedule on MySacState. Please refer to the Fall 2020 Calendar in http://catalog.csus.edu/academic-calendar . I do not give "Incomplete" grades to students requesting a drop after the deadline except in extraordinary circumstances.

Disability Services

If you have a documented disability and need accommodations in this course, please register with the Office of Services to Students with Disabilities (https://www.csus.edu/sswd/). They will verify your need for services and make recommendations for the course. I will be happy to discuss any accommodations I can provide to assist your learning with you.

Religious Observation Accommodations

If you cannot satisfy a requirement of the course for religious reasons you must let me know at least two weeks in advance. In some cases, you will be required to make up the requirement; in other cases the requirement may be waived with suitable adjustment in grading criteria.

Excused Absences

Students who are unable to attend class due to Sac State sponsored activities (such as sports, band, academic competition, field trips, etc.) or personal religious observances may request reasonable accommodations. Please notify me during the first week of class regarding potential absences so that we can determine alternative methods for you to complete the required work.

Housing & Food Security

If you experience difficulties with financial, housing or food security, please contact Basic Needs Division of Student Affairs (https://www.csus.edu/basicneeds/) for assistance.

Parents & Families

If you are students with children, please feel free to let me know your needs. Also, please reach out to Parents & Families Division of Student Affairs (https://www.csus.edu/student/parents/student-parents/) for all resources available on campus.

Changes to this Document

I reserve the right to change any information on this document or course materials at any time.