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KENNESAW STATE UNIVERSITY

SYLLABUS
COLLEGE OF COMPUTING AND SOFTWARE ENGINEERING
SOFTWARE ENGINEERING AND GAME DESIGN
CSE 2300: X DISCRETE STRUCTURES FOR COMPUTING
TERM

Course Information

Class meeting time: MWF 12:20-1:10
Modality and Location: J161
Syllabus is posted in D2L

Instructor Information

Name: James Rutherfoord
Email: jruther3@kennesaw.edu
Office Location: J303
Office phone: 470-578-3802
Office Hours: MW 1:15 -2:15 (by appointment)
Preferred method of communication: email

Course Description

Coverage of discrete structures is crucial to any program in computing. This course covers propositional and predicate logic, proofs, set theory, relations and functions, algorithms and complexity theory, matrices, graphs and trees, and combinatorics. Throughout the emphasis will be on applications of these concepts in computing.

There are roughly two ways in which this material can be covered. One can cover it from a mathematical point of view, or one can cover it from a computational point of view. This course will take the second option.

Prerequisite: (((CSE 1321 and CSE 1321L) with B or better) or CSE 1311 or CSE 1301) and (MATH 1113 or MATH 1190)

Credit hours: 3

Course Materials

There is no textbook for the course. We will use open textbooks, including

- Discrete Structures by the Saylor Foundation
- Discrete Mathematics by Shai Simonson
- Discrete Structures Introduction by The Duy Bui
- Discrete Mathematics and Functional Programming by Thomas VanDrunen

The module will indicate clearly which pages you should read from which book, but you are encouraged to also look at how similar material is covered in the other books

In order to succeed in this course, you will need the following skills:

· Access to a reliable computer and high speed Internet
· Working understanding of navigating websites
· Familiarity with Microsoft Office Products (esp. Word and PowerPoint)
· Knowledge and experience using emails and attachments
· Ability to find files on your machine and upload them into D2L
· Knowledge and experience with setting the properties of your browser (e.g., enable/disable pop-up boxes)
· Familiarity with using online resources such as instructional materials; online talks, presentations, and discussion boards.

Learning Outcomes

Course outcomes: On completion of this course, students will be able to

1. Explain the importance of discrete structures in computing
2. Interpret a statement and determine its truth value using propositional logic
3. Translate an english statement into symbols using first-order predicate logic, and explain the relevance to computing
4. Solve for the complexity of an algorithm and explain its strengths and limitations in practical applications
5. Correctly identify the results of operations on sets, relations, and functions.
6. Use graphs to represent relationships and explain the relevance of graphs to computing
7. Solve problems in counting using the algorithms introduced in combinatorics.
8. Construct proofs and explain how they relate to computing

Course Requirements and Assignments

The assessment consists of

- 3 tests (the third one is a final)
- 9 quizzes (which also include exercises)
- A final project
    - The project is worth 25% of the final grade in the course. Grades will be assigned as follows:
        1. Follow all instructions and get correct answers - 90-100 pts
        2. Follow most instructions, but get 80-89% correct answers- 80-90 pts
        3. Follow most instructions, but get 70-79% correct answers - 70-79 pt
        4. Miss many instructions and only get 60-69% correct answers - 60-69 pts
        5. Miss many instructions and only complete 0-50% of required work - 0-59 pts
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Evaluation and Grading Policies

Grade distribution

Quizzes	15%
Tests	60%
Project	25%

Grade Scale

90%-100%	A
80%-89%	B
70%-79%	C
60%-69%	D
0%-59%	F

I will round up grades if they are > or = .5 or above, for example, an 89.6 is an A, but 79.2 is a C.

Course Policies

Class attendance policy (for on campus students): The Instructor expects your attendance at each and every class; however, actual attendance is up to the student. Grade performance is a demonstrated function of attendance, preparation and participation. You can get behind very easily by skipping classes, resulting in a poor understanding of the material, which will show up as a poor grade for the class. Any class sessions missed by the student are the student's responsibility to make up and obtain notes for, not the instructor's. Students are responsible for all announcements and assignments made in the class lecture. If you miss part or the entire class lecture, call or email another student. Do not call/email me to repeat the lecture. Further, if you know that you will be absent for an extended period of time during the semester, you MUST notify me for discussion of consequences. Late arrival that causes disruption, early departure that causes disruption, excessive conversation among students (a disruption in its own right), use of electronic devices that cause disruptions and other actions that disrupt the classroom are unacceptable. ALL ELECTRONIC DEVICES MUST BE SILENCED OR TURNED OFF. NO EXCEPTIONS.

Withdrawal Policy: The last day to withdraw with a W will be announced. Ceasing to attend class or oral notice thereof DOES NOT constitute official withdrawal from the course. Students who simply stop attending classes without officially withdrawing usually are assigned failing grades. Students who wish to withdraw after the scheduled change period (add/drop) must obtain and complete a withdrawal form from the Academic Services Department in the Registrar's Office.

Enrollment Policy: Only those students who are enrolled in the class may attend lectures, receive assignments, take quizzes and exams, and receive a grade in the class. If a student is administratively withdrawn from this course, they will not be permitted to attend class nor will they receive any grade for the class.

Email Messages: If you have a question or concern, you are welcome to email me. Remember to put "CS 5070" and your section in the subject field of every e-mail message that you send to me. Using the correct instructor's email address is your responsibility.

Modifications to this syllabus: This document is an initial syllabus. The syllabus is a living document, and may change (in whole or in part) based on the needs of this class, at the discretion of the instructor. It is the student's responsibility to keep up with all posted class materials. Please check the class website for updates often.

Institutional Policies

Federal, BOR, & KSU Course Syllabus Policies:
http://curriculum.kennesaw.edu/resources/federal_bor_ksu_student_policies.php

Student Resources:
http://curriculum.kennesaw.edu/resources/ksu_student_resources_for_course_syllabus.php

Academic Integrity Statement:
http://scai.kennesaw.edu/codes.php

KSU Student Resources

This link contains information on help and resources available to students:
https://curriculum.kennesaw.edu/resources/ksu_student_resources_for_course_syllabus.php

Course Schedule

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Week 1

Introduction, Propositional Logic Module. Quiz 1

Week 2

Predicate Logic. Quiz 2 and Quiz 3

Week 3

Test 1

Week 4

Sets. Quiz 4

Week 5

Relations. Quiz 5

Week 6

Functions. Quiz 6

Week 7

Test 2

Week 8

Graphs Quiz 7

Week 9

Combinatorics Quiz 8

Week 10

Proofs Quiz 9

Project is due March 31:

Week 11

Proofs Quiz 10

Week 12

Review: Propositional and Predicate Logic:

Week 13

Review: Sets, Relations, and Functions

Week 14

Review: Graphs, Combinatorics, and Proofs

Week 15

Test 3: Comprehensive

Week 16

Review: Projects

Finals Week