COT 3100 Section 2 Fall 2022 Syllabus

Instructor: Arup Guha
Class Time: Tuesday, Thursday 12:00pm-1:15 pm
Class Location: CB2-106
Instructor's email address: dmarino@ucf.edu
Office Hours: Will be posted on the course webpage.
Course Web Page: http://www.cs.ucf.edu/courses/cot3100/fall2022 (includes TA names, office hours, emails)

Note: I do NOT check my Webcourses email. Please email me at dmarino@ucf.edu to contact me.

Course Description: This course provides an introduction to discrete mathematics that is relevant to future computer science courses. Eight major topic areas will be covered: logic, sets, number theory, induction, counting, probability, functions and relations.

Course Goals:

1) Have students learn all of the relevant definitions, symbols, proof techniques and other mathematical tools that are necessary to understand proofs and related material in upper level Computer Science courses.

2) Have students recognize the beauty and creativity in mathematics and to provide a basis for understanding the "method behind the madness" in proofs that seemingly come from nowhere.

3) Have students realize that competency in mathematics is mostly based on hard work and practice, not innate talent.

4) Have students realize that although there are many truly creative steps in mathematical proofs, the general structure of direct proof, proof by cases, and proof by contradiction are NOT creative and can be reliably set up once a student understands the abstract general structure of these proof techniques.

Note: No textbook for the course is necessary. The course notes and accompanying files, along with online materials should suffice to learn the course material. Any collegiate level text on Discrete Mathematics that covers the eight topics listed in the course description will be adequate for reference purposes.

Grading:	Study Group Sessions #1	4%
	Exam 1	15%
	Study Group Sessions #2	6%
	Exam 2	15%
	Final Exam	25%
	Recitation Attendance	9%
	Recitation Quizzes	6%
	Homework (10)	2% each

The dates for all of the exams and quizzes are included on the schedule later on this syllabus. Homework due dates will be posted on Webcourses. The grading scale will be based on the class average, standard deviation and overall difficulty of the assignments and exams. For further details, consult the grading philosophy posted on my web page (http://www.cs.ucf.edu/~dmarino/ucf).

Note: plus/minus grades will be issued, when deemed appropriate.

Exams

The specific format of exams and the allowable aids may vary from exam to exam and will be specified in class the class meeting right before each exam. Exams 1 and 2 will take place during regularly scheduled class times as noted on the schedule in the syllabus and the Final Exam will take at the date and time designated by UCF (https://exams.sdes.ucf.edu/2022/fall). Exams will be in person.

Study Group Sessions

During the first week of class, I'll give a multiple choice pre-test on Webcourses based on high school mathematics topics. For students who do well on this pre-test, I'll award 100% credit for "Study Group Sessions #1" All other students will have to sign up for a weekly Study Group Session hosted by a Lab Assistant or Teaching Assistant. My goal is for these sessions to be relatively small and for the LA/TA to provide students with extra practice problems that the students do. As long as students attend these study sessions and work on practice problems, full credit will be given for " Study Group Sessions #1." After Exam 1, all students who earn lower than 80% on Exam 1 must sign up for a weekly Study Session. Students who earn 80% or higher on the first exam will automatically earn a 100% for these study sessions. Note that there is a great deal of course support for all students in the course (many TA office hours, SI sessions and instructor office hours), so if you score well on an exam, you'll still have access to plenty of assistance. To be clear, students who are assigned to Study Sessions will have more work to complete for the course and more than likely, will take more time than other students, but my hope is that this time investment will increase the pass rate of the class. The reality is that different people must put in different amounts of time and work to achieve the same results, but I want to maximize the people that achieve the result (passing!!!). **Note: This pre-test is the "Financial Aid Assignment" showing activity on Webcourses, but it doesn't actually contribute to the course grade. Thus, you must do it, but doing poorly on it doesn't adversely affect your course grade.**

Recitation Attendance

Attending class and doing practice problems correlate with success in this course. To that end, to encourage attendance, a portion of the course grade will be based on attending recitation. In recitation, on most weeks, students will work on practice problem in groups. The TA will take attendance when he or she sees fit. **If a student comes to recitation, but doesn't respond when the TA is taking roll, then for grading purposes, the student will be treated as absent.** Since there are many recitations and students have various valid reasons to miss recitation (work, club activity, sick), and it's a headache to administratively "excuse" absences in a large class, **students will be given 3 freebies** to use how they see fit so that I can avoid individually approving recitation absences. If a student's obligations require them to miss more than 3 recitation meetings, then alternate arrangements will be made.

Recitation Quizzes

Three quizzes will be given in recitation based on the recitation practice problems. Each of these quizzes will be worth 2% of the course grade.

Homework Assignments

Homework assignments must be submitted electronically as a **.pdf** file and **must be produced electronically via Word, LaTex or another suitable software program. Homework due dates will only be posted on Webcourses, so please don't ask when an assignment is due.** Homework gives students the best opportunity to learn so that students can perform well on exams. Each assignment will contain written problems, will be worth 2% of the course grade, and posted on the class web page. **You not only allowed to, but also are welcome to discuss the course with each other and share concepts and techniques where the assignments are concerned. You may not share actual work where the assignments are concerned, or directly collaborate on the assignments in any way.** Of course, you can get assistance from course notes and the approved tutors for the course (instructor, TAs, SI tutor, SARC tutor, LAs) for homework assignments.

Community Service Opportunity

If you would like to get automatic full credit for 25 points (out of 125) on the Final Exam), you can do 5 hours of community service with a registered 501(c)(3) organization **BEFORE November 30, 2022**, and turn in the required signed form and activity summary (more details on the course web page) by the **12:00 pm on December 1, 2022.** Note, you will only get full credit if I receive the signed form and write up by12 pm on that day. If I receive it at 12:10 pm on December 1st, then you'll have to take the last portion of the Final Exam to earn points. Every semester, a couple students are just a couple minutes late and I don't count their forms. **Please do the community service early and submit the forms to me way in advance, so that this doesn't happen to you.**

Regrade Policy

Only I (course instructor) can do regrades. **Regrade requests can only be made on Exams 1 and 2.** All regrade requests must be made in person. When doing so, you must bring **the physical exam in question** and show the question(s) you felt were graded incorrectly.

All requests **MUST BE MADE** within one week of when the exam grade is returned for the first time in class. I will consider each request when it is presented to me and make a decision, which will then be final. Keep in mind that many times, I can't change a grade because the TA simply followed the grading criteria I provided, so please make sure you consult the grading criteria and posted solutions before making a request.

Homework WILL not be regraded. Each assignment is only worth 2% of the course grade, making individual points on homework assignments worth very, very little. The amount of time to deal with a regrade on these small, small stakes isn't worth the change in grade that they may amount to.

Note: Fixing a clerical error is not a regrade. Please bring to our attention ALL clerical errors (wrong grade recorded in Webcourses). These will be processed all the way until the end of the course.

Cheating Policy

Cheating will not be tolerated. If a student is caught cheating on a quiz or an exam, the student will be given an automatic **F** in the course and a **Z** designation will be submitted to the university. ***I have given several Z designations to past students in other courses, so please don't test me.*** Exams, quizzes and homework are to represent the original work of the student. On homework, students may consult notes and online sources, but may NOT try to solicit for someone to answer the same identical question or look for the answer to a similar or identical question online. Students may receive help from all approved tutors for the course: instructor, TAs, SI instructor, SARC tutoring and the LAs and may discuss high level ideas with other students. **If you have to ask me if something is cheating, it probably is.** (If you really aren't sure, please ask before you engage in the behavior.)

Make Up Exams

In order to take a make-up exam, you must request one from the instructor. The instructor will grant requests using his own judgment by applying the following general rule: "Make-up exams will only be given if the reason for missing the exam was out of the student's control." For example, being hospitalized unexpectedly is out of a student's control, but oversleeping or going to happy hour is not out of a student's control. ***If possible, it is recommended that the instructor be contacted before the exam.***

Late Assignments

No late assignments will be accepted unless previous arrangements are made with the course instructor. **Note: Since homework is a relatively small percentage of the course grade, the bar will be very high to grant extensions, since granting a single extension means delaying the posting of solutions for 250 students.** In the case of an emergency, contact the instructor as soon as it is convenient to do so. The instructor has final say in granting extensions on homework assignments. In general, the same sort of rule will be followed for these extensions as for granting make-up exams as stated above. ***TAs are NOT allowed to give extensions for assignments under any circumstances.***

Course Webpage and Webcourses

Both the course web page and Webcourses will be crucial elements of the course. ***It's your responsibility to check both of these before each class meeting for any updates that may be posted.*** Webcourses will be used for keeping track of grades, making announcements and managing the Study Sessions. The course web page will have lecture notes, assignments, solutions, and other helpful links and material. Furthermore, some clarifications may only be given in class, so please make sure you come to class, or if you can't, you have a friend relay any important announcements to you.

Tentative Class Schedule

Week	Tuesday	Recitation (Wed)	Thursday	Sunday
Aug 22-26	Intro	Problems (D = RT)	Logic	
Aug 29-Sept 2	Logic	Problems (Logs)	Logic	**Hmk 1 Due**
Sept 6-9	Sets	**Lab Quiz #1**	Sets	**Hmk 2 Due**
Sept 12-16	Sets	**Exam Review**	**Exam #1**	
Sept 19-23	Number Theory	Problems (AG Series)	Number Theory	**Hmk 3 Due**
Sept 26-30	Number Theory	Problems (Factorization Problems)	Number Theory	**Hmk 4 Due**
Oct 3-7	Induction Background	**Lab Quiz #2**	Induction	**Hmk 5 Due**
Oct 10-14	Induction	Problems (Random Algebra)	Induction	**Hmk 6 Due**
Oct 17-21	Induction	**Exam Review**	**Exam #2**	
Oct 24-28	Counting	Problems (Counting 1)	Counting **Withdrawal Deadline (Fri)**	
Oct 31-Nov 4	Counting	Problems (Counting 2)	Counting	**Hmk 7 Due**
Nov 7-10	Probability	Problems (Probability)	Probability	**Hmk 8 Due**
Nov 14-18	Probability	**Lab Quiz #3**	Probability	**Hmk 9 Due**
Nov 21-23	Relations	**Lab Cancelled**	**Thanksgiving**	
Nov 28-Dec 2	Functions	**Exam Review**	Final Exam Review	**Hmk 10 Due**
Dec 5-9			**Final Exam (10am – 1pm) Dec 8, 2022**	

This schedule is a general time frame only and is subject to the needs of the class. It will be altered without notice, but will generally follow the same progression. At the end of each class I will tell you what we will be discussing during the next class period. I will post the written class notes from class within a day of when the lecture was given. **Note: The homework due dates listed in blue are only estimated due dates. The actual due dates will be posted on Webcourses. What's on Webcourses supersedes what is listed above, as what is listed above is simply tentative. Unless there is some natural disaster that shuts down campus (or other reason campus is closed), the dates for the exams above are accurate.** Note: The lab quizzes are not on this schedule. Usually, there will be a 3-5 day window within which to complete the lab quiz, after students have gone to their recitation for that week.