**Course Syllabus**

CPSC 3240 -- Discrete Structures (3 credits)

Auburn University Online Computer Science

**Description**

This course introduces the basics of set theory, propositional and predicate logic as used to describe algorithms and recurrence relations. Proving correctness and estimating running time for algorithms will be covered, as will mathematical and structural induction. By the end of this course, the student will:

* Acquire basic knowledge of Discrete Mathematics
* Be able to produce rigorous proofs, including inductive proofs
* Be able to apply notions and results of Discrete Mathematics to computer science
* Be able to apply combinatorial reasoning to proofs of correctness for algorithms

**Prerequisite:**None

Texts

* Discrete Mathematics, Sandy Irani, zyBooks, ISBN: 978-1-5418-9941-4.  Note that this is an interactive electronic textbook.  The textbook is provided through the "All Access" system and is available directly on Canvas.  See module 0 for details.

**Contents**

These are the topics covered:

* Logic
* Proof techniques (direct, contra-positive, contradiction, induction)
* Sets and set operations
* Functions and relations
* Counting and Statistics
* Graphs and graph algorithms

**Grading**

Please review the [University Grade PoliciesLinks to an external site.](https://www.auburn.edu/cosam/departments/student-services/academic-policies.htm) which apply to this course.

Letter grades are assigned based on the percentage, rounded to the nearest integer, of the available points that you receive. The grading scale is fixed.  **I do not curve.**  The grading scale is as follows:

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

**Exams**

There will be two exams during the regular semester and a final exam.  Point values for the exams will be provided on Canvas.  Exams are "closed book/notes."  You must complete the exams based on your knowledge of the material.  No other resources may be used.

Exams have a due date/time associated with them and they **must be complete before that time, no exceptions!**

Exams are proctored using an online proctoring system as described in Module 0.  Students are expected to follow the exam administration and proctoring method described in this syllabus. Students must express any concerns regarding the proctoring method in writing to both the instructor and the department administration during the first week of class but no later than one week prior to the first exam. The department administration will forward any unresolved student concerns to the University officials who selected the proctoring options for their consideration, but the student is still expected to take the exam as required.

**Homework assignments:**

There is one homework assignment per module.  While homework is largely an individual endeavor, you are encouraged to ask questions in the public Discussion forum and make use of Auburn tutoring staff.  Significant learning can come from cooperation of this form as long as you are not relying on others to complete the problems and you are reading and contributing answers to questions from your classmates.  All homework assignments have a due date/time associated with them.  Late submissions **will not be accepted!**Please see below for instructions regarding illnesses and emergencies.

Note that on many assignments not all homework problems will be graded.  Normally we try to grade 10 to 20 problems per assignment.  These graded problems are selected to maximize coverage of the material.  It may happen that we select a problem that you did not complete or completed incorrectly and that this problem is not representative of the rest of your work on the homework.  We **will not** grade alternative problems...it simply isn't practical.

Expect to spend a substantial amount of time on homework.

**Requesting review of a grade**

You have up to two weeks from the grade release date, but not past the official course end date, to request a re-grade of a homework problem where you believe there was a grading mistake.  The re-grade process is documented in Gradescope.

You have one week to request review of an exam problem grade.  These requests should be sent directly to your instructor via e-mail.

Turning in homework and exams

As mentioned above, all homework assignments and exams have a due date associated with them.  Late submissions **will not be accepted!**

All homework and exams must be submitted according to the instructions provided in Module 0.  E-mail or other forms of submission will not be accepted.

Illnesses and emergencies

If you are unable to complete work on time due to an illness or family emergency, contact me to make arrangements **before missing the deadline in question.**

**Online Student Learning Expectations**

All students in this course are expected to have all the equipment and software needed to be successful in the course.  The equipment requirements are described on this course's Canvas pages.

All students are expected to contribute to their own learning as active and well-prepared participants. Weekly modules will provide various opportunities for reading, reflection, applied experiences, collaboration, and writing. Since these activities are woven through the entire week and generally do not require your “electronic presence” at any particular time or day, there should be no need to "miss" class. You should plan on spending the same amount of preparation and “in class” time on this course as you would if you were taking the course face-to-face.

You should log on to the course website regularly (several times per week) to work through course materials and participate in course discussions.

**Posting Responses**

Interaction between students is an important part of this course and requires prompt postings and responses. In an attempt to be efficient with our time and considerate of everyone’s schedules—beyond the requirements of this course—we will operate under a consistent time structure for posting assignments and responses to online discussions.

**Communicating with your Instructor/TA's**

We have provided a course forum where you may post questions for classmates or the instructor.  You can send messages directly to your instructor via e-mail or direct-messaging within the forum tool.  Your instructor will indicate what communication method they prefer.

One of the best ways to be effective as a student is to understand the instructor’s expectations and operate within those boundaries. Students should give the instructor **48 hours** to get back to them on any communication, and **one week** for grading turnaround time on major assignments. **The instructor reserves the right to alter these feedback parameters due to contingencies such as holidays, course progress, campus emergencies, weather, holidays, professional activities, etc. with notice provided.** If students have concerns about communication or feedback, they should always go to the professor first. Students should explain their concern as clearly as possible without judgment or emotion. Effective communication is an important skill, and every interaction in their program is an opportunity to develop this skill.

**Your Auburn University email address is the university-approved form of communication between instructors and students.** Follow the steps [in the video linked here (links to an external site)](https://community.canvaslms.com/videos/1072)to set your notifications preferences and specify that all course alerts are routed to your Auburn University email address (userid@auburn.edu). You can contact [Auburn University's OIT Help Desk (links to an external site)](http://www.auburn.edu/oit/helpdesk/)for assistance forwarding mail sent to your Auburn email address to a different email address that you regularly check. Additionally, it is your responsibility to read course announcements sent by your instructor. These are posted in Canvas, and you can configure your notification preferences to receive an email each time a new announcement is posted.

**This course will be supported by Auburn University’s Canvas platform.** The syllabus, class assignments, occasional lectures, test grades, final grades, and important announcements will be posted to the Canvas site for this course. Check the Canvas site for this course frequently.

**Academic Integrity**

Auburn University has adopted an Honor System proposed by its students and faculty to promote academic integrity and has enacted the following code:

*“We, the faculty, instructors, and students of the (University course here) pledge to fulfill our mutual responsibilities to each other and the academic community at large with honor and integrity in order to build and maintain a climate of respect and trust that will enhance our research, teaching, and learning. We will support the Honor System of the School, and will not tolerate activities that undermine academic integrity.”*

Academic dishonesty is an offense that will be reported to the Academic Honesty Committee. Please refer to the following document for further information regarding academic honesty: [Auburn University Student Academic Honesty CodeLinks to an external site.](https://sites.auburn.edu/admin/universitypolicies/policies/academichonestycode.pdf)

Contingency policies

If normal class and/or lab activities are disrupted due to illness, emergency, or crisis situation, the syllabus and other course plans and assignments may be modified to allow completion of the course. If this occurs, an addendum to your syllabus and/or course assignments will replace the original materials.

**Accessibility**

Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are immediately needed. If you need accommodations but have not established them, make an appointment with the Office of Accessibility, 1228 Haley Center, 334-844-2096.

**Use of content**

All materials provided as part of this course, whether online or in person, are copyright protected and intended to be used solely for this course.  Further use or distribution to persons not involved in this course is an infringement of university policy.

**Course Summary:**

| **Date** | **Details** | **Due** |
| --- | --- | --- |
| Sun May 22, 2022 | Assignment [M0: Submitting Homework](https://auburn.instructure.com/courses/1424412/assignments/12310620) | due by 11:59pm |
| Sun May 29, 2022 | Assignment [M1: Homework](https://auburn.instructure.com/courses/1424412/assignments/12310621) | due by 11:59pm |
| Sun Jun 5, 2022 | Assignment [M2: Homework](https://auburn.instructure.com/courses/1424412/assignments/12310622) | due by 11:59pm |
| Sun Jun 12, 2022 | Assignment [M3: Homework](https://auburn.instructure.com/courses/1424412/assignments/12310623) | due by 11:59pm |
| Quiz [M3: Exam 1 -- covers modules 1 and 2](https://auburn.instructure.com/courses/1424412/assignments/12310618) | due by 11:59pm |
| Sun Jun 19, 2022 | Assignment [M4: Homework](https://auburn.instructure.com/courses/1424412/assignments/12310624) | due by 11:59pm |
| Sun Jun 26, 2022 | Assignment [M5: Homework](https://auburn.instructure.com/courses/1424412/assignments/12310625) | due by 11:59pm |
| Quiz [M5: Exam 2 -- Covers modules 3 and 4](https://auburn.instructure.com/courses/1424412/assignments/12310617) | due by 11:59pm |
| Tue Jul 5, 2022 | Assignment [M6: Homework](https://auburn.instructure.com/courses/1424412/assignments/12310626) | due by 11:59pm |
| Tue Jul 12, 2022 | Quiz [M7: Exam 3 -- Covers modules 5, 6 and 7](https://auburn.instructure.com/courses/1424412/assignments/12310619) | due by 11:59pm |
| Assignment [M7: Homework](https://auburn.instructure.com/courses/1424412/assignments/12310627) | due by 11:59pm |