CS381 Discrete Structures Syllabus

-Fall 2020 (Asynchronous section)

Course Readings

Required Textbook

You can buy either the 7th edition or the 8th edition of:


You do not need to buy the two editions. You will only need one copy of the textbook (either the 7th or 8th edition). You might buy the cheaper copy. I will refer to the 7th edition during the semester.

- visit the book’s companion website for electronic resources
- not all the chapters of the book are covered
- not all sections from selected chapters are covered
- we will not follow the order of the book

Course Description

ODU Catalog Description

Topics include propositional and predicate logic, rules of inference, methods of proof, set operations, functions, complexity of algorithms, growth of functions, induction, counting, relations, equivalence relations and graphs.

Instructor Course Description

This course is an introduction to the discrete structure and mathematics, which are essential components to learn algorithms and procedures for problem solving. The discrete mathematics solely focuses on the discrete objects of distinct and separate values. This branch of mathematics does not study the continuous objects which vary smoothly like real numbers (3.45701), rather it deals with objects of unconnected elements like integers – where gaps exist. To understand the distinction between the discrete and continuous objects, think of the digital and analog clocks. In analog clocks, the handle moves smoothly and the fractions of a second are counted. On the contrary, digital clocks only counts the whole numbers, like 1, 2, 3, etc.

Students in this class will learn the discrete structures and techniques required to solve problems, such as finding good sorting algorithms, performing efficient web/databases searches, mappings, analyzing algorithms, finding shortest paths between objects, figuring out how many ways are there to choose a computer password, solving problems of connectivity, designing security protocols, etc.
The content and the framework of the course was originally established by Dr. Ayman El Mesalami. He recorded the lecture videos for the course. Dr. He edited the framework and provided access to the videos of problem-solving Zoom sessions. You will see both instructors when working with this course.

**Prerequisites:**

- Classes:
  - MATH 163
  - a grade of C or better in CS 150

**Goals and Objectives**

Upon successful completion of this class, students will be able to:

1. demonstrate familiarity and understanding of the discrete structures, including sets, sequences, functions, matrices, and graphs
2. development of abstraction and representation skills for real-world problems
3. justify and prove statements
4. express ideas precisely using proper mathematical and computer science vocabulary

**How the Course Works**

**Methods of Delivery/Learning Activities**

This online course employs the following methods of delivery/learning activities.

- pre-recorded videos of lectures
- Videos of problem-solving Zoom sessions - The instructor is available to answer any course-related questions during Zoom sessions. Most students use Zoom sessions for assignment and pre-assessment questions. Dr. He will provide the videos of problem-solving sessions recorded from another WC2 class to the access of this class. They are accessible from Blackboard on a weekly basis.
- slides of topics
- assignments
- pre-assessments
- exams

**Communication**

There are several ways to communicate with the instructor.

Recorded problem-solving Zoom sessions are the best place to figure out questions regarding assignments and pre-assessments. You are encouraged to browse those videos first.

Discussion board of Blackboard is a place for discussion, particularly among students. The instructor or the TA will visit the board once a week to make any comments.

Email is usually a good way to communicate with specific questions or requests about the course.
Grading Criteria

Each assignment has a specific due date. The master schedule (Schedule in PLE) contains all the due dates of assignments, pre-assessments, and exams. Assignments and exams are graded on each question. Pre-assessments are graded per submission, not per question. They are previous exams, and they are meant for preparation of exams. Solutions are available once a submission is completed. Be extra-cautious about using the "Save and Submit" button in Blackboard. Each assignment is designed to have only ONE submission for returning answers quickly. Once an assignment is submitted, answers are automatically provided for quick feedback. Please use "Save Works" instead of submission to allow you to continue working on the assignment. It is necessary to complete the Sample assignment in the first week to experience this process before working on Assignment 1.

<table>
<thead>
<tr>
<th>Assignments (4)</th>
<th>38%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exams (4)</td>
<td>60% (15% each)</td>
</tr>
<tr>
<td>pre-assessments</td>
<td>2%</td>
</tr>
</tbody>
</table>

The following is the grading scale used in tabulating assignment and final grades for this course:

<table>
<thead>
<tr>
<th>Final Percentage Grade</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>A</td>
</tr>
<tr>
<td>77-89</td>
<td>B</td>
</tr>
<tr>
<td>65-76</td>
<td>C</td>
</tr>
<tr>
<td>55-64</td>
<td>D</td>
</tr>
<tr>
<td>Below 55</td>
<td>F</td>
</tr>
</tbody>
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Student Responsibilities
Expectations: Students are expected to:

- check Blackboard regularly, particularly about the reminders of due dates
- watch lecture videos, complete assignments and pre-assessments before the due date
- read suggested sections of the textbook
- attend all exams
- follow the course polices and guidelines

Time Management

Students are expected to spend 10 hours per week on the course materials and assignments. Out of 10 hours, students are expected to spend approximately 3 hours per week to read the material and another 3 hours/week for the homework and discussions.

Utilizing Online Components

Refer to the START HERE section within the Blackboard menu and the course tour

Study Guide Strategies

[Link to study guide strategies]

Papers Citation Styles: MLA, APA, Chicago & CBE

[Link to papers citation styles]

Attendance

Since this is an on-line course, there is no mandatory attendance policy. However, students are expected to actively participate in the discussions, homework submissions.

Course Policies

Online Classroom Conduct

Students are expected to follow good Netiquette rules. Netiquette is the accepted behavior for online participation. The following is a list of general guidelines for this course:

- Check your grammar and spelling
- Keep your comments focused on the topic
- Strive to write succinctly and clearly
- Share your knowledge and include supportive evidence for your comments
- Do not use all capital letters as that is viewed as shouting
- Avoid flaming—disrespectful language is unacceptable

Select the link to find more information on Netiquette.

Tests and Make-ups
The same information for homework will apply for tests and make-up work: If a situation has occurred that requires your time and attention which will prevent submitting your work on time, please notify your instructor 24 hours before the scheduled due date.

**Course Disclaimer**

Every attempt is made to provide a syllabus that is complete and that provides an accurate overview of the course. However, circumstances and events may make it necessary for the instructor to modify the syllabus during the semester. This may depend, in part, on the progress, needs, and experiences of the students.

**University Policies**

**Honors Pledge**

"I pledge to support the honor system of Old Dominion University. I will refrain from any form of academic dishonesty or deception, such as cheating or plagiarism. I am aware that as a member of the academic community, it is my responsibility to turn in all suspected violators of the honor system. I will report to Honor Council hearings if summoned." By attending Old Dominion University you have accepted the responsibility to abide by this code. This is an institutional policy approved by the Board of Visitors. For more information please visit [Honor Council](#).

**Educational Accessibility**

Old Dominion University is committed to ensuring equal access to all qualified students with disabilities in accordance with the Americans with Disabilities Act. The Office of Educational Accessibility (OEA) is the campus office that works with students who have disabilities to provide and/or arrange reasonable accommodations.

- If you experience a disability which will impact your ability to access any aspect of my class, please present me with an accommodation letter from OEA so that we can work together to ensure that appropriate accommodations are available to you.
- If you feel that you will experience barriers to your ability to learn and/or testing in my class but do not have an accommodation letter, please consider scheduling an appointment with OEA to determine if academic accommodations are necessary.

The Office of Educational Accessibility is located at 1021 Student Success Center and their phone number is (757)683-4655. Additional information is available at the [OEA Website](#).

**Disability Services**

In compliance with PL94-142 and more recent federal legislation affirming the rights of disabled individuals, provisions will be made for students with special needs on an individual basis. The student must have been identified as special needs by the university and an appropriate letter must be provided to the course instructor. Provision will be made based upon written guidelines from the University's [Office of Educational Accessibility](#).

All students are expected to fulfill all course requirements.

**University Email Policy**
The Old Dominion University e-mail system is the official electronic mail system for distributing course-related Communications, policies, Announcements and other information. In addition, the University e-mail user ID and password are necessary for authentication and access to numerous electronic resources (online courses, faculty Web pages, etc.) For more information about the policy, please visit: Electronic Messaging Policy for Official University Community Policy 3506 For more information about student email, please visit http://occs.odu.edu/accounts/studemail/

Withdrawal

A syllabus constitutes an agreement between the student and the course instructor about course requirements. Participation in this course indicates your acceptance of its teaching focus, requirements, and policies. Please review the syllabus and the course requirements as soon as possible. If you believe that the nature of this course does not meet your interests, needs or expectations, if you are not prepared for the amount of work involved - or if you anticipate that the class meetings, assignment deadlines or abiding by the course policies will constitute an unacceptable hardship for you - you should drop the class by the drop/add deadline, which is located in the ODU Schedule of Classes. For more information, please visit the Office of the University Registrar.

Student Acknowledgement

“I, ____________________ , have completely read this syllabus and understand and agree to the course requirements”.