

SYLLABUS

Old Dominion University • College of Sciences • Department of Computer Science

CS 381 • Introduction to Discrete Structures • Spring 2026

Instructor Dr. Andrey Chernikov

- Email: achernik@odu.edu, please include “CS381” in the subject line.
- Office location: ECS 3311A, phone: 757-683-7732.
- Office hours: MW 12:45pm – 2:45pm. Zoom link: <https://odu.zoom.us/my/chernikov>.
- Send email for appointments outside office hours.

Mode of delivery

Scheduled in-class meetings, TR 3:00pm – 4:15pm, Dragas 1117.

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.

Prerequisites

MATH 163 and a grade of C or better in any of: CS 150, CS 151, CS 153, DASC 257, ENGN 122.

Course Objectives

Students completing this course should be able to think logically and mathematically. To achieve this goal, they will learn mathematical reasoning and the different ways problems are solved. Five important themes are interwoven in this course: mathematical reasoning, combinatorial analysis, discrete structures, algorithmic thinking, and applications and modeling.

Outline

- The Foundations: Logic and Proofs
- Basic Structures: Sets, Functions, Sequences, Sums, and Matrices
- Algorithms
- Induction and Recursion
- Counting
- Discrete Probability
- Graphs, Trees
- Relations

Required textbook

Discrete Mathematics and Its Applications by Kenneth H. Rosen (8th edition), McGraw Hill, 2019.

Attendance policy

- Class attendance is not factored into the grade. However, participation in class meetings is strongly encouraged as they provide a helpful environment to stay focused and to ask questions.
- **Extended absences** Reasonable accommodations, at the discretion of the instructor, will be provided to students who encountered extended roadblocks, or absences, to making progress that have been verified by the Student Outreach & Support (SOS) office. The definitions of recognized events that cause extended absences, as well as required documentation can be found at <https://www.odu.edu/life/dean-students/student-outreach#tab134=1&done1612907281342>. The request for an absence notification must be filed within five business days of the event.
- **Short absences** Disruptive life events that are not recognized as extended absences by the SOS office will not be considered valid excuses for missed deadlines. In order to minimize the impact of such events it is strongly advised to submit all assignments well before their deadlines. A one-time blanket excuse, however, is automatically granted to every student that consists in not counting their lowest quiz score (which could be a zero due to a missed deadline) towards the final grade.

Disability

Students are encouraged to self-disclose disabilities that have been verified by the Office of Educational Accessibility by providing Accommodation Letters to their instructors early in the semester in order to start receiving accommodations. Accommodations will not be made until the Accommodation Letters are provided to instructors each semester.

Assignments

- 80% of the overall grade is allocated to all quizzes, posted weekly on Fridays and open until 11:59pm on the following Friday.
- 20% is allocated to the final exam which will be open online on Tuesday, May 12th, from 9:00am to 11:59pm (expected to take two to three hours to complete).

Grades

The final percentage score will be computed as follows:

$$\text{final score} = \frac{\text{individual total quiz score} - x}{\text{maximum total quiz score} - y} \times 80 + \frac{\text{individual final exam score}}{\text{maximum final exam score}} \times 20,$$

where x is student's lowest quiz score, and y is the number of points allocated for it. The letter grade will be looked up from the following table.

final score:	0	45	50	55	60	65	70	75	80	85	90	95	100
letter grade:	F	D-	D	D+	C-	C	C+	B-	B	B+	A-	A	

Submission rules

- All assignments will be published and submitted through the Canvas system. No other medium will be accepted without prior instructor's permission.
- Late assignments will not be accepted. Make-up assignments may be allowed only if student's absence has been verified by the SOS office. The final exam can be taken outside the scheduled interval only with the permission from the dean's office.
- An interruption in the Canvas accessibility will not be recognized as a reason for deadline extension, unless accompanied by a note from the university ITS department.
- Weekly quizzes will have week-long intervals for submission. Once the interval expires, the test will close automatically.
- For file-upload questions either typed or handwritten (and then scanned) answers can be submitted. However, appeals of low grades based on misread handwriting will not be accepted.
- The portable document format (pdf) is preferred, as formulas and charts sometimes do not render correctly across platforms when native formats are used.
- The writing must be clear and concise. Points will be taken off for unnecessarily wordy or incomprehensible solutions.

Academic integrity

- All assignments must be completed individually. No person or artificial intelligence, except the instructor and the teaching assistant, can be asked for help with solving the assignments.
- Any electronic or printed texts can be consulted as needed. However, all sources (except the textbook) used in the graded work must be cited. If a cited source has to be quoted verbatim, quotation marks and indentation must be used.
- Students are cautioned against replicating problem solutions found on the internet, as they are sometimes incorrect and often poorly written. The goal of the class is developing individual proficiency in the material. The instructor may question the student to determine if submitted work corresponds to student's proficiency and assign the grade accordingly.
- Students must be familiar with and abide by the University Honor Code:
<https://www.odu.edu/about/monarchcitizenship/student-conduct/code>.