

CS 483 – Analysis of Algorithms (Spring 2025)
Department of Computer Science
George Mason University

COURSE INFORMATION

Course Number and Title: CS 483 – Analysis of Algorithms
Section Number and CRN: Section 005 – CRN 19786
Class Meeting Time: 1:30pm to 2:45pm MW
Class Location: Lecture Hall 1, Fairfax Campus

Important Notice: Course syllabus, gradebook, exercises, quizzes, assignments, and project will be hosted on [Canvas](#). If the campus closes, or if a class meeting needs to be canceled or adjusted due to weather or other concern, students should check Canvas for updates on how to continue learning.

GENERAL INFORMATION

Instructor: Angkul Kongmunvattana, Ph.D. (Dr. K)
E-mail address: akongmun@gmu.edu (start your “Subject” line with [CS483])
Office Location: ENGR 4428, Fairfax Campus
Office Hours: 3:30pm to 4:30pm on Monday and by appointments

TEXT AND RESOURCES

Recommended Textbooks:
Jon Kleinberg and Eva Tardos, *Algorithm Design*, 1st Edition, Pearson, 2005.
Tim Roughgarden, *Algorithms Illuminated*, Omnibus Edition, 2022.

COURSE CATALOG DESCRIPTION

Analyzes computational resources for important problem types by alternative algorithms and their associated data structures, using mathematically rigorous techniques. Specific algorithms analyzed and improved.

Credit hours: 3
Prerequisite: CS 310, CS 330, and MATH 125 with a grade of C or higher in all.

COURSE OUTCOMES

Students will identify and solve classical problems in Computer Science.
Students will recognize and apply classical algorithm design techniques.
Students will assess solutions using classical algorithm analysis strategies.
Students will design and analyze new algorithms to solve computational problems.
Students will demonstrate an ability to reason algorithmically.

EVALUATION METHODS

Exercises	4%
Quizzes	8%
Project	8%
Assignments	20%
Midterm Exam	20%
Final Exam	40%

COURSE GRADING

Grade	Cut-Off	Grade	Cut-Off	Grade	Cut-Off	Grade	Cut-Off
A+	98%	B+	88%	C+	78%	D	60%
A	92%	B	82%	C	72%	F	0%
A-	90%	B-	80%	C-	70%		

COURSE CONTENT AND CALENDAR (tentative)

Session	Date	Topic
1	Jan 22	Class Administration and Intro to Algorithms
2	Jan 27	Asymptotic and Amortized Analyses
3	Jan 29	Asymptotic and Amortized Analyses
4	Feb 03	Graphs and Graph Algorithms
5	Feb 05	Graphs and Graph Algorithms
6	Feb 10	Greedy Algorithms
7	Feb 12	Greedy Algorithms
8	Feb 17	Greedy Algorithms
9	Feb 19	Divide and Conquer Algorithms
10	Feb 24	Divide and Conquer Algorithms
11	Feb 26	Sorting Algorithms
12	Mar 03	Midterm Review Session
13	Mar 05	Midterm Exam
	Mar 10 – Mar 16	Spring Break
14	Mar 17	Programming Project Administration
15	Mar 19	Dynamic Programming
16	Mar 24	Dynamic Programming
17	Mar 26	Dynamic Programming
18	Mar 31	Network Flow
19	Apr 02	Network Flow
20	Apr 07	Network Flow
21	Apr 09	Network Flow
22	Apr 14	NP-Complete Problems
23	Apr 16	NP-Complete Problems
24	Apr 21	NP-Complete Problems
25	Apr 23	Randomized Algorithms
26	Apr 28	Contemporary Topics
27	Apr 30	Contemporary Topics
28	May 05	Final Review Session
Final Exam	May 07	Final Examination

COURSE POLICIES

Exercise Policy

Exercises are given on Canvas, covering materials in each topic. Exercises are designed to check and to reinforce the learning of materials. Exercises can be taken multiple times. A score from the highest attempt will be recorded. Exercises cannot be submitted after the last day of class (05/05/2025).

Quiz Policy

Quizzes are also given on Canvas and can be attempted only once. There are no make-up quizzes. A quiz is assigned when substantial topics have been covered in class and practiced

through exercises. Each quiz is 30 to 60 minutes in duration, depending on the complexity of the topics. When assigned, quizzes are released at 6:00pm on Monday with a due date at 6pm on Sunday of the same week. While quizzes will remain open after their due dates for studies and reviews, late quizzes will get a zero grade.

Assignment Policy

Assignments are also given and submitted on Canvas. They are assigned when substantial topics have been covered in class, practiced through exercises, and preliminary assessed through quizzes. When assigned, assignments are released at 6pm on Monday with a due date at 6pm on Sunday of the same week. No late submissions will be accepted. Students are expected to type their work and submit it as a PDF file in Canvas.

Project Policy

A programming project will be assigned during the week after spring break. A list of possible problems for the projects will be given, but students are also allowed to propose their own projects for approval by the instructor. Students can choose C, Java, or Python as the language of implementation, but the submitted codes must be able to compile and execute via command-line on Zeus. Other project requirements, milestones, due dates, and grading rubrics will be given in the project handout.

Midterm Exam Policy

Midterm exam is in-person using pencil/pen and paper. It is scheduled for the week before spring break. A grade of zero will be assigned for the missed exam without an excused absence (e.g., illness, unforeseen emergency, etc.). If the instructor deems the absence is excused, then the final exam grade will also be used for the missed midterm exam.

Final Exam Policy

Final exam is also in-person using pencil/pen and paper. It covers all materials. The Registrar Office has scheduled our final exam for Wednesday May 7th, 2025, from 1:30pm to 4:15pm. According to the [University Policy \(AP.3.10.1\)](#), absences from final exam will not be excused by the instructor except for sickness on the day of the exam.

Grade Contesting Policy

You have one week after grades are released to contact your GTA (for assignments and project) or instructor (for exercises, quizzes, project, and exams) with a grading issue. After this one-week period, no grades will be changed.

There are no extra-credit assignments and/or projects.

COURSE POLICY ADDENDUM

Students are expected to refer to the [Common Course Policies](#) for the following information. Students will be held responsible for knowing this information.

- Academic Standards
- Accommodations for Students with Disabilities
- FERPA and Use of GMU Email Addresses for Course Communication
- Title IX Resources and Required Reporting

IMPORTANT DATES

Midterm Exam	March 5, 2025, during class period
Final Exam	May 7, 2025, 1:30pm to 4:15pm

See [Spring 2025 Academic Calendar](#) for other important dates.

The syllabus may be adjusted if deemed necessary by the instructor.