

CS 280: Programming Challenges

James Madison University, Fall 2016 Semester, 1 Credit

Do you love to solve challenging problems? Would you like to increase your programming skills? Are you a competitive person? Do you want to prepare for interview exercises that companies like Google, Facebook, Amazon, Microsoft, Apple, and others give their future employees? Would you like to improve your ability to work in teams? If you answered “YES!” to any of these questions, then we have the perfect course for you!

CS 280 focuses on the development of strategies, techniques, and skills used in competitive programming scenarios (i.e., contests and interviews). Topics include problem solving techniques, advanced programming methodology, and many interesting algorithms. This course is a weekly lab that includes a short lecture followed by a live programming contest and discussion. Grading will be based on class participation, development of new skills, and a portfolio project.

Course Information

Home Page <http://acm.cs.jmu.edu/>
Class Time Fri, 2:30 PM – 4:30 PM
Location ISAT/CS 143 (Linux lab)
Corequisite CS 240 or instructor approval

Instructor Information

Dr. Chris Mayfield, mayfiecs@jmu.edu
Office: ISAT/CS 208, (540) 568-3314
Hours: Tu/Th, 2:00 PM – 4:30 PM

Dr. Mike Lam, lam2mo@jmu.edu
Office: ISAT/CS 227, (540) 568-3347
Hours: Mo 11:00–12:00, Tu/Th 12:00–14:00

Goals and Objectives

The overall goal of the course is to produce well-rounded computer scientists. By the end of the semester, you should be able to:

1. Categorize well-known computer science problems.
2. Work effectively in small teams to solve problems.
3. Demonstrate achievement and programming skills.

Required Textbook

Steven Halim and Felix Halim. *Competitive Programming 3*. Lulu, 2013. <http://cpbook.net/>

A detailed schedule with applicable readings and weekly problem sets will be maintained on the course home page as the semester progresses. You are strongly encouraged to read the textbook and other assigned readings, even if material is not covered during class.

Methods of Evaluation

Weekly Contests

We will hold a live programming contest during class each week, consisting of several problems. Points will be awarded by: 1) the number of problems solved, and 2) the amount of time taken to solve the problems. ‘B’ students are expected to solve at least one problem in the allotted time; ‘A’ students will solve more than one problem per week on average.

Final Portfolio

At the end of the semester, you will submit a digital portfolio of the top ten problems you have solved during the course. The portfolio will be assessed by: 1) the difficulty of the problems, 2) the variety of the problem domains, and 3) the techniques you used to solve them. You may select problems you solved both during class as well as outside of class. (We will NOT have a written exam during finals week.)

Grading Details

Your final grade will be based on:

- 50% Participation in Weekly Contests
- 50% Quality and Variety of Portfolio

Letter grades will be assigned on the scale A=90–100, B=80–89, C=70–79, D=60–69, F=0–59, with potential minor adjustments after considering the overall performance of the class and actual distribution of numeric scores. We will use “+” and “–” grades at our discretion.

University Requirements

Attendance Policy

You are expected to attend all classes and actively participate by taking notes and asking questions. Given the course is one credit and meets for two hours per week, it is expected that the majority of work will be done during class. There will be no make-up work for any missed contests.

Academic Honesty

If you violate the University’s Honor Code (<http://www.jmu.edu/honorcode/code.shtml>), you will receive a reduced or failing grade *in the course*, other penalties may be imposed, and the violation will be reported to the Honor Council. Automated tools may be used on any assignment, at any time, to detect inappropriate collaboration and to determine the originality of submissions.

Adding/Dropping

You are responsible for enrolling in courses and verifying your schedule on MyMadison. The deadline for adding a semester course is Thursday, 09/15/2016 (signatures required after Tuesday, 09/06/2016). The last day to withdraw from a course with a W grade is Thursday, 10/27/2016.

Disability Services

If you have a documented disability and need accommodations in this course, please register with the Office of Disability Services (<http://www.jmu.edu/ods>, Student Success Center, Room 1202, 540-568-6705). They will provide you with an Access Plan Letter to verify your need for services and make recommendations for the course. We will be happy to discuss your access plan with you.

Excused Absences

Students who are unable to attend class due to JMU sponsored activities (such as sports, band, academic competition, field trips, etc) or personal religious observances may request reasonable accommodations. Please notify me during the first week of class regarding potential absences so that we can determine alternative methods for you to complete the required work.

University Closings

For severe weather and other unexpected circumstances, watch for announcements relating to make-up work. See <http://www.jmu.edu/JMUpolicy/1309.shtml> for JMU's cancellation policy. Although the schedule may adapt to canceled classes, assignment deadlines generally do not change.