

# 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, number of problems solved, and biweekly reflection papers.

## Course Information

Home Page    <http://acm.cs.jmu.edu/>  
Class Time    Thu, 3:30 PM – 4:45 PM (plan to stay until 5:00 PM)  
Location      ISAT/CS 143 (Linux lab)  
Corequisite    CS 240 or instructor approval

## Instructor Information

Dr. John Bowers, <a href="mailto:bowersjc@jmu.edu">bowersjc@jmu.edu</a>	Dr. Mike Lam, <a href="mailto:lam2mo@jmu.edu">lam2mo@jmu.edu</a>
Office: ISAT/CS 217, (540) 568-8771	Office: ISAT/CS 227, (540) 568-3347
Hours: Tu/Th 13:30–15:30 PM, We 10:00–11:00	Hours: Tu 13:00–15:30, Th 9:30–12:00

## 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 programming contest each week, consisting of several problems. Points will be awarded based on class attendance as well as the number of problems solved and attempted. ‘B’ students are expected to solve at least one problem per week on average; ‘A’ students will solve more than one problem per week on average.

### Reflection Papers

Every two weeks, you will submit a reflection paper describing the most interesting, clever, or unique solution you have produced this semester (preferably in the last two weeks). You may not submit more than one solution reflection for the same problem.

Each reflection must include 1) a 1–paragraph description of the problem, 2) a 1–3 paragraph discussion of your solution, 3) your solution code. Your solution discussion should highlight any challenges you encountered and how you overcame them, and any techniques from the class that helped you construct your solution.

You may create your reflection using whatever software you prefer, but you must submit it as a PDF. Your document should be cleanly formatted and free of spelling and grammar errors.

We will NOT have a written exam during finals week.

### Grading Details

Your final grade will be based on:

- 50% Weekly Contests
- 50% Solution Reflections

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 September 6, and the last day to withdraw from a course with a W grade is October 27.

### 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.