CS535 Algorithm Design and Analysis
Spring 2017, MW 4:00–5:15 pm, EMS 180
`http://www.cs.uwm.edu/classes/cs535`

1 Prerequisite

Undergraduate with junior status or Graduate student; Math 211, 213, 221 or 231; C or better in both CS 317 and 351.

2 Instructor Info

Instructor: Christine Cheng, EMS 1011, 229-5170, `ccheng@uwm.edu`.
Office Hours: MW 3 to 4 pm or by appointment.

3 Textbook:

M. Goodrich and R. Tamassia, *Algorithm Design: Foundations, Analysis and Internet Examples*, John Wiley and Sons, Inc.

4 Objectives:

CS 535 is an introduction to data structures and algorithms commonly used in programming. At the end of this course you should be able to

- describe and use the basic data structures in Computer Science, and evaluate their performances in different situations,
- theoretically analyze the time complexities of algorithms,
- design and prove the correctness of efficient algorithms for many problems that arise in Computer Science.

5 An Outline

1. Framework for Algorithm Analysis, Sections 1.1-1.4.
2. Basic Data Structures, Chapter 2
3. Advanced Data Structures, Chapter 3
4. Sorting, Sets, and Selection, Chapter 4
5. Fundamental Techniques in Algorithm Design, Chapter 5

6. Graph Algorithms, Chapter 6
7. Weighted Graph Algorithms, Chapter 7

6 Grading

Grades and homeworks will be posted on the D2L page of this class. Homeworks will also be posted on the class website (see url above).

The grade for the course will be computed as follows:

30% Homeworks
A homework consisting of about three problems for the undergraduate students and four problems for the graduate students will be assigned each week. It will be due the following week in class. No late homeworks will be accepted. But the lowest two homework scores will be dropped when the final homework average is computed.

It is best that you do the homeworks *early* (i.e., not just the night before or the morning of the submission date) and *on your own*. If you're stuck, email the instructor or the grader for clarification or hints. Most of your learning occurs when you answer the problems on your own.

If you choose to collaborate with your peers, we will not stop you. If you choose to consult other books, websites, etc., we will not stop you. However, you must (1) write up the solutions in your own words and (2) cite your collaborators or the books and websites you consulted. In other words, do not plagiarize by submitting other people's work as your own. There will be a penalty if this policy is violated.

30% Midterm
There will be a midterm exam covering the first half of the material. A sample exam will be posted to give you an idea on the types of questions that will asked.

30% Final Exam
The final exam is on May 17, 2017 (Wednesday) from 3 to 5 pm in the same room. The coverage is on the second half of the material.

10% Maximum of HW Average, Midterm Score, Finals Score
That is, 40% of your final grade is based on your best score in the three categories.

Attendance is not checked. However, active participation in class will be taken into account when the final score is in between two letter grades (e.g., between a B and a B-, etc.).

7 Academic Misconduct

Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources and for respect of others' academic endeavors. A more detailed description of Student Academic Disciplinary Procedures may be found at
http://uwm.edu/academicaffairs/wp-content/uploads/sites/32/2015/02/uws14facdoc1686.pdf

8 Notes

In case of an emergency, contact the instructor at the earliest possible opportunity via e-mail or phone. No arrangements will be made for missed exams unless these rules are followed, and an acceptable evidence of legitimate emergency is submitted.

If you will be needing any accomodation in this course for any reason, please contact the instructor. Please also be aware of the standard University policies at:
www4.uwm.edu/secu/news_events/upload/Syllabus-Links.pdf.