Instructor: Mohammad Tanviruzzaman

Office Hours: TuTh 10:30AM – 12:00 PM, 3:00 PM – 4:30 PM, Room: Cudahy 357. Or, you can email me at mohammad.tanviruzzaman@marquette.edu, to set up an appointment.


Website: Course website is [http://www.mscs.mu.edu/~mtanviru/index_files/COSC3100.html](http://www.mscs.mu.edu/~mtanviru/index_files/COSC3100.html)


Prerequisites:

COSC 2100 or COSC 2010 are the prerequisites for this course. The programming homeworks require the student to be able to write correct programs in a programming language like Java. You may use a free IDE (Integrated Development Environment) like NetBeans or Eclipse to write programs in Java.

Grade Policy:

Tests 30%, homeworks 30%, programming assignments 15%, and final exam 25%. Grade scale is: 91+ (A), 89–91 (AB), 81–89 (B), 79–81 (BC), 71–79 (C), 69–71 (CD), and 60–69 (D).

Course Objectives:

Upon completion of this course you will be able to:

- apply important algorithmic ideas, such as: divide and conquer, dynamic programming, greedy technique, parallel algorithms, etc. to computational problems.
- analyze the efficiency of an algorithm and make trade-off between various resources like space and time.
• recognize limitation of computational power and cope with those limitations.

Tentative Course Outline:

Introduction (Jan 17, 19) .................................. Chapter 1
Analysis of efficiency (Jan 24, 26, 31) ......................... Chapter 2
Brute force (Feb 02, 07) .................................. Chapter 3
Decrease and conquer (Feb 09) ................................. Chapter 4
  ➤ First Test (Feb 14) .................................. Chapter 1,2,3
Decrease and conquer (Feb 16, 21) .......................... Chapter 4
Divide and conquer (Feb 23, 28, Mar 01) ....................... Chapter 5
Transform and conquer (Mar 06) ............................... Chapter 6
  ➤ Second Test (Mar 08) .................................. Chapter 4,5,6
Space and time trade-offs (Mar 20, 22) ....................... Chapter 7
Dynamic programming (Mar 27,29, Apr 03) .................... Chapter 8
Greedy technique (Apr 05, 10) ................................ Chapter 9
  ➤ Third Test (Apr 12) .................................. Chapter 7,8,9
Limitations of algorithm power (Apr 17,19) .................... Chapter 11
Coping with limitations (Apr 24,26) ............................ Chapter 12
Parallel and Probabilistic algorithms (May 01) ............. Notes and Slides
Review (May 03) ........................................... The course
  ➤ Final Exam (May 11, 10:30AM – 12:30PM, CU412) Whole syllabus

Lecture:

Lecture slides will be posted regularly on D2L. Test and homework solutions will be posted on D2L in the earliest appropriate time. The best programming exercise solution (along with the name of the submitter) will be posted on D2L after the latest submission date. You are expected to attend every class and take advantage of the office hours.

Homework:

Homework will be assigned along the lectures via D2L. They are due in the beginning of class on the specified due date and must be submitted in hard copies. There will be programming assignments, which are to be submitted via D2L. All programming assignments must be submitted before midnight on the due date. It is your responsibility to debug your code and submit a program that runs, if it does not compile, you will receive 0 points.

Late homework and programming assignments will be penalized 10% per day (24 hours) up to two days (48 hours). Assignments submitted later than 48 hours after the due date will receive 0 points. If I am not in my office when you submit your homework, please slide it under my door.

Academic Honesty:

You are encouraged to study and discuss in small groups of 2-3 people. However, each person individually writes up an answer set to be turned in. Each person is responsible for the answers turned in. If you cannot explain your answer and how it was derived, it is considered cheating. Copying someone else’s homework, source code and implementation details is absolutely prohibited. Make sure that you read this.