Spring 2-1-2019

CSCI 332.01: Design/Analysis of Algorithms

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CSCI 332 Design and analysis of algorithms

Brief course description:
Students will learn classic algorithms, how they were discovered, how they are constructed, and how to analyze their theoretical runtimes.

Instructor:
Oliver Serang, Social Science 408

Time and place:
MWF 4pm, GBB201

Textbook: Algorithms in Python, Serang (2018), available free:
https://alg.cs.umt.edu/media/serang-algorithms-in-python.pdf

Learning goals:

1. Analyze and understand the fundamentals of classic algorithms.
2. Understand the theoretical underpinnings of modern computer science.

Learning outcomes:
Students will learn basic algorithm classifications, theoretical complexity analysis, sorting algorithms, recurrence closed forms, heaps, minimum spanning tree approximation of the traveling salesman problem, Gauss multiplication, Karatsuba multiplication, Strassen matrix multiplication, fast Fourier transform (FFT), FFT fast convolution, subset-sum, knapsack, convolution trees, min- and max-convolution, reductions, computability, and basic complexity classes.

Attendance policy:
As a primarily lecture-/discussion-based course, attendance is required. Attendance will be graded as whether you in your assigned seat before class begins at 4pm. Students arriving after attendance has been called will receive no attendance credit for the day (but will nonetheless benefit from the lecture).

Students are permitted up to 6 absences; with 7 or more absences, the student receives a failing grade, regardless of other performance.

Homework:
Homework assignments are optional and are assigned to help reinforce understanding and prepare for quizzes / exam.

Grading:
Final grades will be curved at the instructor's discretion. The pre-curved grades will combine grades with the following weight:

25% attendance
25% quizzes
50% final exam

Final exam:
The final exam will be held in room GBB201 on Wednesday May 1 from 3:20-5:20

Academic honesty and plagiarism:
All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code: (http://www.umt.edu/vpsa/policies/student_conduct.php). Take care not to take out / use cell phones, even briefly, on quizzes or your exam. Doing so, even briefly, will result in a 0 awarded for the task at hand.

Disability policy:
The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you have a disability that adversely affects your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154.