Spring 2-1-2018

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
Teaching assistant Jasmin York Social Sciences 423

Textbook: Announced on first day of class

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.

The above concrete outcomes will contribute to students ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

Attendance policy: Attendance is required. Attendance will be graded as whether you in your assigned seat before class begins at 10AM. Students that arrive <10 minutes late will be given half credit for the day. Students arriving later than 10 minutes late will receive no attendance credit (but will nonetheless benefit from the lecture).

Homework: Homework assignments will be corrected, but will not count towards the final grade; like the lecture, its purpose is to prepare students for quizzes and the final exam. Students are welcome to work on homework in teams, which will be assigned. The team with the highest homework score (again, not counted in the grades) at the end of the course will win a prize.

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 TBA from TBA to TBA.

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)

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.