0. About CS538

• Course home page: http://www.cs.montana.edu/bhz/classes/fall-2019/csci538
  D2L is only used for submitting assignments and projects, and for me to post solutions for assignments and tests.

• We will cover computability theory, NP-completeness, and some computational complexity topics.

• Evaluation: 2 in-class tests (40%), 4 assignments (40%) and project (20%)

• Evaluation: 2 in-class tests (20%), 3 assignments (30%), project (20%) and final exam (30%)

• Project: Each student picks a research paper (related to algorithms and complexity), studies it and presents it to the class (with sufficient details). Check previous year’s projects at http://www.cs.montana.edu/bhz/classes/fall-2017/csci538/ for some hints.

• To pass the course, you must get at least 30 out of 100 in the final exam (if we choose to apply option 2).

• While using web materials is fine, you MUST perform all the work by yourself and give the corresponding references.

• In learning the materials, if you solve an open problem or contribute to generate important new knowledge, you will get an A by default.
1. Overview

- Basic concepts (for those who did not take CSCI 338—read Chapter 0 ASAP)
- Turing machines, decidability/undecidability, primitive recursive functions
- Time complexity, NP, NP-completeness, intractable problems, Turing reducibility
- Computational complexity topics, space complexity
- Approximation algorithms and inapproximability. FPT algorithms and intractability