

CS 422 section 1, Winter 2009

Instructor: Michael Kowalczyk

Office: 1127 New Science Facility

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Office Hours: Noon - 12:50pm MWRF, or by appointment

Email: mkowalcz@nmu.edu

Class Meetings: 1:00pm-1:50pm MWF in 1205 New Science Facility

Course Home Page: <http://cs.nmu.edu/~mkowalcz/cs422>

Overview:

This course involves three main aspects: 1) Designing algorithms to solve computational problems, 2) formulating convincing arguments for algorithm correctness and 3) estimating the time (or space) required to run different algorithms. The first aspect involves mastering certain design techniques, such as *divide-and-conquer*, *greedy algorithms*, and *dynamic programming*. The later two involve the application of logic and mathematical techniques to understand the behavior of algorithms. We will also learn about the famous theory of *NP-Completeness*, around which is centered the most important unresolved problem in computer science: " $P=NP$?"! If time permits, we will study some select additional topics from *computability theory* or *computational complexity theory*.

Prerequisites:

CS222 and one of MA161 or MA271.

Textbook:

Our textbook is the 2nd edition of *Introduction to Algorithms*, by Cormen, Leiserson, Rivest, and Stein. It's a great textbook and it's also nice to add to your personal "CS library" after you're done with the course; I've used it countless times as a reference over the years.

Grading:

Grades will be based upon homework, class participation, and exams. The breakdown is as follows:

- 50% Homework
- 15% Participation
- 15% Midterm
- 20% Final

Late Policy:

I strive to grade and hand back your work as quickly as I can, and I sometimes provide model solutions at the time when your work is due. Because of this, it usually isn't possible to get a grade for late work. If for some reason you are not able to hand something in on time, I still encourage you to hand it in, and I will be happy to correct it and give you valuable feedback, but it is unlikely to count for a grade (although in some cases, late work may count for a little bit if your final grade in the course turns out to be on the border between two letter grades).

Exam Dates & Schedule Conflicts:

The midterm exam will be during our regular class meeting on Friday, February 27 (just before Spring break). The final exam will be on Tuesday, April 28 from 10:00am until 11:50am. Any conflicts with class meetings or the exams (due to religious observances, other coursework, intercollegiate athletics, etc) must be made known to me within the first two weeks of the semester.

Laptop Use:

Laptops open up great opportunities and possibilities in the classroom, but using it for stuff not related to the course will distract others and negatively impact your participation grade.

Academic Conduct:

Students are expected to uphold the student code and work with honesty and integrity. In particular, academic dishonesty of any sort will almost certainly result in a letter to the Dean of Students, with consequences outlined in section 2.2.3 of the student code. If you aren't sure if a particular action is allowed, ask me. If you're not sure if the way you are using someone else's work might constitute plagiarism, cite the source (or ask me).

Disability Services:

If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Disability Services Office by: coming into the office at 2001 C. B. Hedgcock; calling 227-1700; or e-mailing disserv@nmu.edu. Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.