

CENTRAL WASHINGTON UNIVERSITY

Course Syllabus - Math 498 - Numerical Methods and Computer Tools

12:00 - 12:50 p.m. - MTWRF - Hebel Hall 106

12:00 - 12:50 p.m. - WF - Hebel Hall 203 PC Lab

Professor: Dr. Jane Whitmire
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Phone: 509-963-2268
Office: Black Hall 225-32
Office Hours: Tuesday and Thursday 1:00-1:50 p.m., Monday 3:00-3:50 p.m.
Textbook 1: A Primer in Mathematical Writing by Steven Krantz
Textbook 2: Numerical Methods with Applications by Autar Kaw

http://numericalmethods.eng.usf.edu/topics/textbook_index.html

Course Description

This course is designed to enhance mathematical ability through its application in computer science. We begin this exploration with mathematical typesetting using MikTeX and end programming mathematical modeling applications using Visual Studio. The focus will remain on learning content at a level whereby one can communicate it to another; through publication and by creating source code that solves math modeling problems.

Teaching Philosophy

The computer has allowed mathematical exploration of topics that were extremely computationally challenging in the past. Programming mathematical content not only reinforces ones own understanding of the material, but also provides a means of study for performing mathematical research, publication, or problem solving. If you have mathematical talent and are detailed orientated, then not knowing how to communicate and apply your abilities with current technology is a major setback to future success. My hope is to take students to a level where they not only know how to solve mathematical problems, but can transfer this insight into other creative forms of communication.

Homework

Each homework assignment will have two parts: a copy of your source code and file output. Assignment announcements and due dates will be posted on the course Blackboard website. Late homework assignments loses 2% of its worth each day.

Quiz

We will use classroom clickers for voting questions that will spark discussion of topics during class. If you miss class, you must schedule a make-up quiz within one week. However, students who attend and participate in the quiz will receive scores of 100% by default. Any quiz taken outside of class will be scored according to mathematical accuracy.

Final Exam

The final MUST be taken to pass the course. The final is comprehensive, covers all material discussed in class, and is to be taken at the time scheduled by Central Washington University: Tuesday June 5, 2012 from noon to 2:00 p.m.

Grading

Everyone is graded the same way. NO EXCEPTIONS. Letter grades A/A-/B+/B/B-/C+/C/C-/D+/D/D-/F are based on a strict percentages: 93-100/90-92.9/87-89.9/83-86.9/80-82.9/77-79.9/73-76.9/70-72.9/67-69.9/63-66.9/60-62.9/BELOW 60 cutoff. Grades are not rounded either up or down.

Problems are graded by the clear and evident content of what is actually written down and nothing more. Your solution to a problem must clearly show a grasp of relevant concepts as well as a correct result for full credit. Organization counts. Neatness counts. If an approach is specified in a problem, then that approach must be used (as indicated by procedures written on the paper) in solving the problem. If no approach is specified, then any valid method is acceptable.

The course grade can be calculated as points earned divided by total possible:

<i>Quizzes</i>	→	25%
<i>Homework</i>	→	50%
<i>Final</i>	→	25%

Anticipated Learning Outcomes

The successful student will learn how to....

- Utilize the computer to solve engineering problems.
- Utilize programming logic, structure, and syntax to develop multi-functional algorithms to solve engineering problems.
- Integrate existing solutions (subroutines) into mathematical algorithms.
- Determine errors present in numerical solutions.
- Integrate programming and numerical methods to solve mathematics and engineering problems.
- Improve technical writing skill in mathematics.

Special Needs Statement

As soon as possible, students with disabilities who wish to set up academic adjustments in this class should provide a copy of their "Confirmation of Eligibility for Academic Adjustments". Eligible students without this form should contact the Disability Support Services Office by visiting Bouillon 205, emailing dssrecept@cwu.edu, or calling the phone number 509-963-2171.