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Office Hours:
MWF, 2:30 - 3:30
And by appointment

NOTE: This course meets in Drake, Lower Level 30 every Friday.

Textbooks:

- * *Fortran95/2003 for Scientists and Engineers, 3rd Ed.*, S. Chapman
- * Supplementary materials as distributed in class

Description:

Computational science involves the design and analysis of computer models to study problems in a variety of disciplines such as biology, engineering, mathematics, chemistry, and business. This course will investigate several modern tools for the development and analysis of computational models. Additionally, topics on model design and development, analysis of results and presentation of results will be covered. The emphasis will be on applications and problem-solving.

Prerequisites

1. Knowledge of basic calculus
2. Familiarity with the Windows operating system

Objectives:

At the completion of this course you will be able to:

- Understand floating point arithmetic and its possible consequences in numerical computing.
- Gain experience in extracting information from problems for use in model building.
- Use predefined computational tools to model various phenomena.
- Evaluate computational models and results and to develop further inquiries based on these results.
- Obtain experience in numerical programming in Fortran 90.
- Present results from computational models in a coherent, ordered manner.

Topics:

1. Floating point arithmetic
2. Fortran 90 and MATLAB programming
3. Using and understanding computational models

4. Technical Writing

Grading: Your final grade is broken down into categories as:

- 60% Homework assignments (10 - 20 , 10 points each)
- 20% Two large projects
- 20% Final examination.

Your final weighted average will be determined using the weights indicated and your grade will be determined according to the following scale

| Average | Grade | Average | Grade |
|-----------|-------|-----------|-------|
| 100-95.0 | A | 74.0-76.9 | C |
| 94.9-90.0 | A- | 70.0-73.9 | C- |
| 87.0-89.9 | B+ | 67.0-69.9 | D+ |
| 84.0-86.9 | B | 64.0-66.9 | D |
| 80.0-83.9 | B- | 60.0-63.9 | D- |
| 77.0-79.9 | C+ | < 60.0 | E |

The instructor may administer quizzes in class (announced or unannounced) at any time. These will be counted as homework assignments. This will almost certainly be done if significant numbers of students fail to submit homework assignments on a timely basis or produce a very low quality of work.

Assignments:

Homework assignments given in class will have varying due dates. Short assignments will usually be due at the next class meeting while longer assignments will be due in 1-2 weeks time. These assignments typically involve analytical investigation and computer programming. Late assignments will be penalized at a rate of 25% points per day. Homework is due at the beginning of class. No assignments of any type will be accepted after the final class meeting day. Students may meet together in small groups to discuss aspects of a given assignment, but all work presented must be your own.

As the semester proceeds, all assignments will need to be produced using document processing software as MS Word. When computer output is requested, provide printouts of the programs and other material as requested. Do not submit large volumes of printed data.

Policies

Students with documented disabilities may be entitled to specific accommodations. The College at Brockport's Office for Students with Disabilities makes this determination. Please contact the Office for Students with Disabilities at 395-5409 to inquire about obtaining an official letter to the course instructor detailing approved accommodations. The student is responsible for providing the course instructor with the official letter. Faculty and staff work as a team with the Office for Students with Disabilities to meet the needs of students with disabilities.

NO CELL PHONES OR PAGERS. Please turn off your cell phone or pager prior to entering the classroom. You will lose half credit on your next homework assignment if your cellphone or pager goes off.

Attendance:

You are expected to attend all classes. Significant amounts of material are not contained in the textbook. If you miss a class, it is your responsibility to get class notes and handouts and find out what you missed. The instructor reserves the right to fail any student who acquires more than 4 unexcused absences.

No incompletes or withdrawals will be given for this course except in cases of illness, personal tragedy, or extraordinary circumstances beyond the student's control, and then only if documented to the instructor's satisfaction.

Here is the official College at Brockport Attendance Policy:

The student is responsible for all assigned course work and cannot be absolved of this responsibility. When enrolled in a particular course, the student is obligated to do all of the work assigned. Punctual and regular attendance is vital to the discharge of this obligation. Absences, excused or not, do not alter this responsibility. Absences deemed excessive by the instructor may result in a lowered grade. Students whose unexcused absences exceed 15% of the scheduled classes and laboratories will be subject to failure at the instructor's discretion. Absences will be excused for (a) documented illness, (b) official representation of the college, (c) death of a close relative, (d) religious holiday, and (e) circumstances beyond the control of the student. Excuses for official representation of the college must be obtained from the official supervising that activity or event. Policies regarding absences from quizzes, exams, and laboratory sessions will be at the discretion of the instructor. Substantiation of excused absences is, in any case, the responsibility of the student. Regulations more restrictive than those stated above may be established by the instructor.

Authorship:

When you turn in an assignment, you are certifying it as your own work. Submitting material as your own work that is not entirely of your own authorship, or knowingly providing an answer to another person constitutes cheating. If I am convinced beyond a reasonable doubt that cheating has occurred, the person(s) submitting the illicitly obtained answer, and any person(s) knowingly providing same, will receive a grade of zero for that assignment. Further disciplinary procedures may also be considered.

Buckley Amendment:

The purpose of the Buckley Amendment is to protect the confidentiality of your grades. This law states that I cannot reveal any information regarding your performance in the course to anyone other than yourself and authorized college administrators without your written permission.

Disclaimer:

Announcements given in class are considered official addenda to this policy. All policies described are subject to change as the situation warrants. Should changes be necessary, all students will be notified in a timely fashion.