Fall 9-1-2000

CS 471.01: Scientific Computing

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University of Montana - Missoula

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Computer Science 471 - Autumn 2000

Scientific Computing

Prerequisites

At least one semester programming in a high-level language
At least one semester of calculus and knowledge of basic linear algebra.
Consent of instructor if student is delinquent in the above prerequisites.

Outcomes of the Course

It is expected that students will finish the course with the following skills/knowledge:
Ability to solve math-based science and engineering problems using numerical and symbolic computational methods.
Ability to discuss limitations and advantages of standard numerical and symbolic methods.
Ability to build visualisations of computational model results
Ability to write, compile, run and debug simple parallel programmes.

Instructor Information

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Office Hours


Class Meeting Times/Place

0810 - 0900 MWF
Social Sciences 362

Attendance Policy
Class attendance is not a factor in determining grades. When a class is missed, it is the STUDENT’S responsibility to obtain any notes, assignments, etc. from classmates.

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**Required Text**

*An Introduction to High-Performance Scientific Computing*, by Lloyd D. Fosdick, Elizabeth R. Jesup, et. al.

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**Grade Evaluation**

**Programming and laboratory assignments - 60%**

- Assignments will NOT be accepted after the stated deadlines.
- Approximately one assignment per week
- Assignment with lowest grade will be dropped
- Programme assignments which do not compile will not be graded.
- In general, no extensions of programme deadlines - plan ahead and anticipate system outages, etc.

**Final Project - 20%**

Either an individual programming project or a research paper should be completed by the student.

Topics will be chosen by students, subject to instructor approval.

Class presentation

**Final Exam - 20%**

Possibly a programming or laboratory assignment

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**Grading Scale**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90 or greater</td>
</tr>
<tr>
<td>B</td>
<td>80-89</td>
</tr>
<tr>
<td>C</td>
<td>70-79</td>
</tr>
<tr>
<td>D</td>
<td>60-69</td>
</tr>
<tr>
<td>F</td>
<td>less than 60</td>
</tr>
</tbody>
</table>
Tentative Course Topics

Introduction to Scientific Computing
Brief Introduction to Unix
Numerical Methods
Symbolic Methods
High-level tools for numerical and symbolic computations
Visualisation
Parallel Computing
Advanced Topics and Student Presentations

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