Catalogue Description:

An advanced treatment of selected topics from various areas of computer science with emphasis on appropriate research methods. Practical skills are acquired in technical writing, critical reading, and presentation of technical literature in preparation for the senior project.

Prerequisites:

Completion of the computer science core or permission of the instructor.

Class Meetings:

Tuesday and Thursday 11:00 am–12:15 pm and Friday 2:30 pm–4:20 pm, Room 101, Alden Hall.

Final Examination:

Saturday, May 6, 2005, 9:00 am.

Course Objectives:

1. To gain facility in reading, understanding, and evaluating the literature in computer science, and using reference tools to access the literature.

2. To develop an understanding of the nature of research in computer science. This is to include an understanding of the research methods and techniques used in computer science research, understanding the scientific method and its limitations, and developing the skill of choosing a problem, forming a hypothesis, and establishing a method of approach for solving the problem.

3. To learn to formulate research proposals and produce documents that include a rationale, a description of the problem, a review of the pertinent background information, and an outline of a method of approach to solving the problem.

4. To refine writing and oral skills in presenting technical material.

5. To become more aware of the professional responsibilities of a computer scientist.

6. To design and write a proposal for a senior thesis.

Textbooks:

The text material consists of selected papers from the literature in computer science. In addition, the book Learning \LaTeX{} by D. F. Griffiths and D. J. Higham has been ordered for the bookstore and should be in shortly. This is an optional book, but is recommended if you have never used \LaTeX{} before.
Course Structure:

The course is a seminar where computer science faculty members and students will present talks and summaries/analyses of selected papers, discuss the content of the papers and follow-up research ideas, develop research proposals, and critique one another’s work. Each faculty member in the Department will present an overview of one or more research areas and select a paper from one of these areas. Students will present summaries/analyses of the papers, and subsequently the members of the seminar will engage in discussion and develop research ideas based on the work described in the papers.

Course Requirements:

1. Presentation of papers and class discussion.
2. Presentation of four research proposals based on the faculty overview presentations and the subsequent student presentations and discussions of the assigned papers.
3. Quizzes on all assigned papers prior to the presentation.
5. Class attendance is required. Each member is expected to add regularly to the discussions that accompany the presentations and the research idea development sessions. This is difficult to do when you are not present. Further, attendance correlates well with performance in the course. You are expected to be there for every class meeting.

Attendance Policy:

It is expected that students in this course will attend every class. Attendance will be taken periodically and excessive absence can adversely affect the student’s grade. In addition, quizzes will be given and a student who has missed a quiz due to an unexcused absence will receive a 0 (zero) grade for that quiz and will not be permitted to make up the quiz. The instructor must be advised of a legitimately excusable absence (such as illness, death in the family, or some college sponsored activities) prior to the missed class.

Honor Code:

All students enrolled at Allegheny College are bound by the honor code. It is expected that your behavior will reflect that commitment. To this end, we expect that you will adhere to the following Department Policy:

Department of Computer Science Honor Code Policy

It is recognized that an important part of the learning process in any course, and particularly in computer science, derives from thoughtful discussions with teachers, student assistants, and fellow students. Such dialogue is encouraged. However, it is necessary to distinguish carefully between the student who discusses the principles underlying a problem with others, and the student who produces assignments that are merely variations on someone else’s work. It will therefore be understood that all assignments submitted to the faculty of the Department of Computer Science are to be the original work of the student submitting the assignment, and should be signed in accordance with
the provisions of the Honor Code. Appropriate action will be taken when assignments give evidence that they were derived from the work of others.

You are encouraged to periodically review the specifics of the Honor Code as stated in the College Catalogue and elsewhere.

Assignments and Lab Reports:

All assignments and labs will have a due date. The products of your work are to be turned in at the class or lab meeting on the due date. Late assignments will be accepted for up to one week past the assigned due date with a 10% penalty. All late assignments must be submitted at the beginning of the first class or laboratory scheduled one week after the given due date. No assignments will be accepted for credit after the one week late period. It is the student’s responsibility to keep secure backups of all assignments and labs.

Basis for grade:

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Presentations</td>
<td>25%</td>
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<tr>
<td>Class Participation and Discussion</td>
<td>10%</td>
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<tr>
<td>Proposals in the Modules</td>
<td>20%</td>
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<tr>
<td>Quizzes</td>
<td>15%</td>
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<tr>
<td>Senior Thesis Proposal</td>
<td>20%</td>
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<tr>
<td>Senior Thesis Proposal Presentation</td>
<td>10%</td>
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</tbody>
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Office Location and Hours:

**Faculty Offices:** Alden Hall.

**Office Hours:** See postings on faculty office doors for office hours.