Fall 2007

CSC 3990 – Computing Research Topics
Syllabus

Instructors	Mirela Damian, MSC 167A mirela.damian@villanova.edu Phone: (610)519-7414	Thomas Way, MSC 160A thomas.way@villanova.edu Phone: (610)519-5033
Office Hours	M 10:30 – 11:30 am W 12:30 – 1:30 pm	M 12:00 – 1:00pm W 10:00 – 11:00am
Course Meets	MW 1:30 pm – 2:45 pm in Mendel Science Center G88	
Prerequisites	CSC 2053 – Algorithms and Data Structures III	

Course Description

The main goal of this course is to establish an understanding of the techniques and issues related to the process of conducting research. Towards this goal, students will complete a structured research project on a topic selected from four research areas: **Natural Language Processing**, **Parallelizing Compilers**, **Wireless Networks** and **Computational Geometry**. Students will be required to write a literature survey on their topic and construct a research proposal. Incremental deliverables will provide feedback over the course of the semester. Additional assignments will include participating in class discussions, giving in-class presentations and creating a personal research website.

Student Learning Outcomes

1. Students will demonstrate an ability to critically read and synthesize research papers.
2. Students will successfully write a literature review on a computer science research topic.
3. Students will demonstrate an ability to formulate research questions.
4. Students will successfully develop and write a research plan.
5. Students will demonstrate an ability to give good technical presentations.
6. Students will demonstrate knowledge of research ethics and responsible conduct in research.

Resources

We will not be using a textbook for this class. Instead, course-related materials such as updated course calendar, resources and readings will be posted online at:

http://www.csc.villanova.edu/~mdamian/csc3990/

Please make sure you check the class page regularly.

Course Requirements

1. **Literature Survey.** In the first part of the semester students will research and write a literature survey of a computer science research topic of their choice. The survey paper will introduce a research topic, motivate its importance, summarize and critically discuss related research contributions, and identify promising directions for future work. The literature survey will include at least five different research articles.

2. **Research Proposal.** In the second part of the semester students will write a research proposal on an open problem in the surveyed research area. The research proposal will introduce the open problem, motivate its importance, summarize related work, and outline promising ideas to solve the problem.

3. **Assignments.** A number of smaller assignments will be assigned during the course of the semester. These include paper summaries for selected reading assignments, reviews of peer literature surveys and research proposals, and written feedback on peer presentations.

4. **Class Presentations.** Each student will be required to present and lead a discussion on one of the papers in their literature survey, and to present their survey paper and research proposal.

5. **Final Exam.** There will be no final exam in this class. The final version of the research proposal and presentation will be required in place of a written final exam.

6. **Class Attendance.** All students are expected to attend class regularly, keep up with the assigned readings, and actively participate in class discussions.

7. **Late Policy.** All assignments are due at the beginning of the class on the due date. No credit will be given to late assignments. Exceptions to this policy will be granted only in extraordinary circumstances.

Tentative Grading Procedure

The following allocation of points is tentative and may change during the semester:

Literature Survey:	30%
Research Proposal:	20%
Other Assignments:	25%
Participation and Presentations:	25%

Academic Integrity

Cheating, plagiarism and helping others commit these acts are all forms of academic dishonesty, and will not be tolerated. We will be discussing plagiarism and proper citation techniques in the class. If you have questions about what is acceptable, please bring them to us *before* submitting your work. Academic misconduct can result in disciplinary action that may include, but is not limited to, suspension or dismissal. To read the entire Code on Academic Integrity, consult

http://www.academics.villanova.edu/AcademicIntegrity.html

Special Arrangements

If you have a disability or other problem that warrants the need for special accommodation to complete the course work, please contact the instructors at your earliest convenience.

Tentative Course Schedule

The course schedule below is approximate and subject to change as the semester progresses. It is the responsibility of the student to learn and adjust to changes. Please refer to the course website periodically for schedule changes.

Date	**Topics / Activities**	**Milestones**
Week 1 – Aug. 27, 29	Overview. Plagiarism.	
Week 2 – Sep. 3, 5	Literature Review.	
Week 3 - Sep. 10, 12	Survey Analysis and Critique.	Topic Selection.
Week 4 - Sep. 17, 19	Paper Analysis and Critique.	Broad Bibliography.
Week 5 - Sep. 24, 26	Technical Writing Style.	
Week 6 - Oct. 1, 3	How to Give a Good Presentation.	Annotated Bibliography.
Week 7 – Oct. 8, 10	Research Topic and Survey Discussion.	
Oct. 15 – 21	**Fall Break – ENJOY !**	
Week 8 - Oct. 22, 24	Research Topic Presentations.	Literature Survey Outline
Week 9 - Oct. 29, 31		
Week 10 – Nov. 5, 7	How to Write a Research Proposal.	Literature Survey Draft
Week 11 – Nov. 12, 14	Literature Survey Presentations.	
Week 12 – Nov. 19		Final Survey Draft
Nov. 20 - 25	**Thanksgiving Recess – ENJOY !**	
Week 13 – Nov. 26, 28	Research Topics	Research Proposal Draft
Week 14 – Dec. 3, 5	Research Proposal Presentations	
Week 15 – Dec. 10, 12		**Final Research Proposal**