COSC 5421: Operating Systems Design
Department of Computer Science, York University
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Graduate Student Project
Due: TBA (At end of Final Exam for 4321)

1. Requirements

- Find an appropriate topic.
- Have that topic approved by the instructor.
- Perform a literature search. I can probably give you some help with this.
- Read a number of papers, then choose and focus on the most important (relevant) ones.
- Write a report about those papers.

2. The Written Report

- Critically survey and evaluate current research on the chosen topic.
- Discuss 3-4 of the most important (relevant) papers.
- Explain the good and bad points about the work described in each of the chosen papers.
- Describe where the current work is lacking, discuss avenues for future research and evaluate which of these would be most fruitful and beneficial.
- No fewer than 10 and **NO MORE** than 15 pages (using roughly 12 point font, single spaced). The paper should contain only essential information. Papers longer than 15 pages will be rejected.
- Bibliography containing references for the papers you focused on and a separate list of those papers that you decided not to include in your written report.

3. How you will be graded:

- Have you found relevant papers.
- Have you understood the papers that you've read.
- Have you been able to determine the important points about each paper and describe them clearly and concisely.
- Have you pointed out the strong and weak points in each of the papers.
- Have you been fair and unbiased.
- Have you identified possible avenues for future research and have these avenues been properly justified.
- Is your bibliography complete (in the sense that each entry contains all relevant and necessary information).

- Have you used correct spelling and proper grammar.

4. Some Possible Topics

- Single address space operating systems
- Object oriented operating systems
- Operating systems for mobile systems
- File system organization for parallel computers
- Parallel programming using clusters of workstations
- Locking techniques and requirements for multiprocessors
- Thread systems available on various UNIX systems
- Micro-kernel architectures
- Architecture independent parallel programming
- Recent research in distributed systems
- Technology trends that will influence operating system design

5. Possible Sources of Papers

- Proceedings of the ACM Symposium on Operating Systems Principles (SOSP). Look in Operating Systems Review in the library.
- Workshop on Workstation Operating Systems (WWOS proceedings)
- Symposium on Architectural Support for Programming Languages and Operating Systems (ASPLOS)
- Workshop on Object Orientation in Operating Systems (IWOOOS)
- ACM Transactions on Computer Systems (TOCS)
- ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP proceedings)
- IEEE Transactions on Parallel and Distributed Systems
- Proceedings of the ACM SIGMETRICS Conference on Measurement and Modeling of Computer Systems (SIGMETRICS). Look in Performance Evaluation Review in the library.
- USENIX Proceedings
- IEEE Computer
- Communications of the ACM (CACM)
- IEEE Transactions on Computers
- International Conference of Parallel Processing (ICPP proceedings)
- International Conference on Distributed Computing Systems
- Journal of Parallel and Distributed Computing
- The Journal of Supercomputing

- Ftp, world-wide-web sites, etc. Be sure to only use published articles and technical reports (be cautious when using/reading technical reports as they have not been refereed).