CSE 762
"Advanced Operating Systems Laboratory''

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Outline

- CSE 762 / Background / New Format
- Capstone criteria
- Issues

- Caveats:
  - Haven't seen student final project demos
  - Haven't seen teaching evals
  - I need to leave at 12:50 ☹

Background

- Operating systems sequence
  - CSE 660 – Basics of operating systems
  - CSE 662 - Implementation of basic uniprocessor OS modules
  - CSE 760 - Concurrency / Distributed algorithms
  - CSE 762 - ``advanced operating system laboratory - capstone class
    - 25 word description: Construction of advanced operating system components: internet, client-server, remote file server, distributed namespace, user interface software.

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- Old Format
  - Focus on operating system shell implementation and sockets programming
  - Well defined labs
- Capstone requirements
  - Open-ended design projects
- Technology Trends
  - Middleware replacing ``distributed operating systems''
- Revision discussed last spring (OS course report)

New Format

- Web-services as the implementation vehicle
- Open-ended distributed software design projects
- Team work
- More independent work
  - Define projects
  - Learn details of underlying technologies somewhat independently
- Project details:
  - Distributed software with web-services, including a non-trivial client
  - Must have a significant distributed algorithm

Detailed Outline

- First 3 weeks:
  - Web-services, XML, SOAP, WSDL, UDDI, Jax-RPC
- Weeks 4-5
  - Student project proposals
- Weeks 6-10
  - Project progress report and discussions
- Final:
  - Final project demo and write-up

Projects

- A distributed production/sales management software for a manufacturing company (distributed mutual exclusion)
- A bank with a replicated database (voting protocols)
- A bank with distributed database (commit protocols)
- A war game with potentially malicious generals (byzantine generals)
- A web-based file sharing system

Capstone Criteria

- No. 1: Senior level class
- No. 2: Prereqs: 601 and 662 (and others by transitivity)
- No. 3: Design decisions everywhere (even the project definition)
- No. 4: Web-service standards are used
- No. 5: Written documentation is a requirement
- No. 6: Several oral presentations from each team
- No. 7: All work in teams
- No. 8: 30 official cap, only 14 this time

Issues

- Started with 8 UGs, ~20 Grads, finally, 6 UGs, 8 Grads
  - Need to advertise the class better to UGs
- Prereq not changed while revising the class:
  - 662 not needed, but students need to have advanced systems programming background
  - 662/621/677 or permission of instructor ?
  - Could attract more UGs
- 3 credits currently, should it be 4 credits ?
- Was it too open ended (have 1 well-defined lab before the open project ?)