Spring 2019   CIS 620 Syllabus
Advanced Operating Systems

Instructor:	Janche Sang
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Office Hours:	M W 4–5PM, T Th 3:30PM–4:30PM
	(others by appointment)
Lectures:	M W 2–3:40PM, BH306A
Withdrawal:	Friday, Jan. 25 (without W grade), Friday, Mar. 29 (with W grade)
Final Exam:	Wednesday, May 8, **12:30PM–2:30PM**
Text:	*Distributed Systems: Principles and Paradigms*, 2nd ed.,
	by Tanenbaum and Van Steen , Prentice Hall, 2007
	Interprocess Communication in Linux, by J. Gray, Prentice Hall
Prerequisites:	CIS345

[handwritten: report, not code / Hand copy report / hard copy]

Grading Policy:

Projects, Homeworks, Quizzes & Class Attendance/Participation	35%
Midterm	30%
Final	35%

The course grade is based on a student's overall performance through the entire Semester.
The total points will be curved. No makeup exams will be given unless notified and agreed to
in advance. No makeup quizzes.

Course Description: Distributed systems and surrounding issues are explored. Topics include: Distributed
processes, communication, naming, synchronization, replication, fault tolerance, file systems, security
and advanced Operating System concepts. Lab work involves processes, interprocess communication,
network interfaces and socket programming.

Course Outcomes: A student successfully completing this course will:

- Be familiar with the techniques for handling concurrency, communications, naming, and file
  systems.
- Understand the principles and concepts involved in the design and implementation of distributed
  systems including consistency, fault tolerance, and security.
- Understand the basics of parameter passing between local and remote code. Use this under-
  standing to correctly implement distributed applications.

Other Information:

- Late homeworks and projects **cannot** be accepted for any reason. All assignments are due at the beginning of the class on the specified date.

- Students are encouraged to discuss homeworks/projects with classmates. However, each student must do his/her own work. Evidence of copying will result in a zero grade for for all students involved. Also, students are responsible for protecting their own programs and homeworks. Academic misconduct and cheating will not be tolerated. Violations will be subject to disciplinary action as specified in the CSU Student Conduct Code.

- Programming assignments are to be done on one (or more) of the department Linux workstations (in FH133E) such as bach, chopin, degas, etc. The department server, grail, may **not** be used! Note that these Linux machines have been shut off from outside access by IS&T with the exception of grail and spirit. Therefore, you have to use a secure shell client program (e.g. putty) to login grail or spirit and then use the command ssh to access the other workstations.

Tentative Course Outline:

1. UNIX Review, Source and object library in UNIX, Make (Gray 1, Handout)

2. Processes/Threads and Interprocess Communication (Gray 3,6,7,8,11, Tanenbaum 3.1)

3. Networking Interfaces (Gray 10, Tanenbaum 4.1, Handout)

4. Remote Procedure Calls (Gray 9, Tanenbaum 4.2, Handout)

5. Introd. to Distributed Systems (Tanenbaum 1)

6. Distributed System Architectures (Tanenbaum 2)

7. Processes (Tanenbaum 3)

8. Naming (Tanenbaum 5)

9. Synchronization in Distributed Systems (Tanenbaum 6)

10. Consistency and Replication (Tanenbaum 7)

11. Fault Tolerance (Tanenbaum 8)

12. Security (Tanenbaum 9)

13. Distributed Object-based Systems (Tanenbaum 10)

14. Distributed File Systems (Tanenbaum 11)