CptS 464/564 Syllabus
Distributed Systems Concepts and Programming
Spring, 2003

TTh 4:15-5:30

Pullman EME B-46

WHETS TV in WSU Tri Cities Room 209W

WHETS TV in WSU Spokane SIRTI 301

http://www.eecs.wsu.edu/~hauser/CS564

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Instructor: Prof. Carl Hauser

Office: EME 53; **Office phone:** 335-6470; **E-mail:** hauser@eecs.wsu.edu

Office Hours: 4:00-5:00 Monday and Wednesday – or email me for an appointment – I'm happy to see you at other times. Students at the WHETS sites should feel free to call during office hours or make an appointment for me to call you.

TA: Vaishali Chattopadhyay

Office: Sloan 318; **Office Phone:** 335-6377 **E-mail:** vaishali@eecs.wsu.edu

TA Office Hours (in ETRL 301): None scheduled, yet; we will have some associated with each assigned programming project.

Tri Cities WHETS Contact: Aaron Brumbaugh, Media Services Manager,

Phone: 509-372-7284, **E-mail:** brumbau@tricity.wsu.edu

Spokane WHETS Contact: Mike Bergam

Phone: 509-358-7898, **E-mail:** bergam@wsu.edu

Web page: http://www.eecs.wsu.edu/~hauser/CS564/

Lecture notes, assignments, and other reading will be posted after class as PDF files. I will not, as a rule, provide hardcopy handouts of the notes. You are expected to take your own notes during class.

Mailing List: cs564@eecs.wsu.edu.

Clarifications about projects and homework and other announcements may be sent to the list between class sessions.

Lab space: ETRL 301, the SNIF Lab

Your EECS computer account is required for access to these computers. If you don't have an EECS account you will need to get one by visiting the helpdesk on the 3rd floor of Sloan. WHETS students should contact the TA for information about accounts. The door code for the lab is available on-line from https://helpdesk.eecs.wsu.edu.

1) Background

The last few years have seen a significant number of advances in computer and communications technologies, as well as the sharp decline in their cost. These developments, coupled with the growing ubiquity of network and internet connections, have resulted in the huge growth in the size and diversity of computer programs, which are executed across multiple computers. The most prominent examples use the World Wide Web (WWW), which has been called "the last gold rush of the millennium," but other examples abound.

This course will examine the state of the art and practice in distributed systems and will provide significant experience in programming them.

2) Course Objectives

As a result of this course, students will:

- Be well-versed in the fundamental issues involved in designing, programming, and using distributed systems
- Be familiar with some of the most significant new software technologies for creating distributed programs
- Have significant experience using CORBA, the most technologically advanced software framework for creating distributed programs.

3) Text

a) Required Text:

Verissímo, Paulo and Rodrigues, Luís. *Distributed Systems for System Architects*, Kluwer Academic Publishers, 2001, ISBN 0-7923-7266-2.

b) Optional Texts:

Van Steen, Martin and Tanenbaum, Andrew S. *Distributed Systems: Principles and Paradigms.* Prentice Hall, 2002, ISBN: 0130888931.

Iona Software. *Orbacus Manual.* A few copies will be available in the lab. You'll be able to get your own hardcopy at Cougar Copies in the Cub for about $10, or download a PDF file from the class web page.

4) Additional Reading

Additional papers will be either handed out, linked to the web page, or both.

5) Course Prerequisites

Cpt. S. 360 (Systems Programming), or permission from the instructor. Also ***fluency and significant experience*** in C++ or Java. If you do not meet these prerequisites, you MUST come and talk with me the first week of class. I reserve the right to drop you from the course if it becomes obvious that you do not meet the prerequisites.

6) Course Requirements

You are *required* to attend every lecture. If you miss one, it is your responsibility to find out what happened and to collect any material that was handed out in class. Videotapes of the lectures will be available at the WHETS control room in Murrow 54 (and at the WHETS control rooms in Spokane and Tri Cities) for a few days following each lecture. You are also expected to participate in class discussions. This aids your learning and that of your classmates, and provides valuable feedback on the lecture. I reserve the right to lower the grade of any student who is markedly deficient in attendance and/or participation.

I expect ***you*** to ***own*** your degree of success in this class. *And*, I expect you to contribute to the success of others. Examples:

1. If a lecture point is unclear, ask a question, either in class, during office hours or by e-mail. You are probably not alone in your confusion. I enjoy engaging in technical conversations with students with the goal of helping them create an accurate understanding of course

material. Participating in such conversations is very favorable for your class participation grade. *I hate talking about grades and how you can get a better one.*

2. If another student is confused, help him or her out.

3. If I am systematically doing something that inhibits your learning, tell me.

7) Assigned Work and Tentative Grading Policy

There will be one mid-term exam and one final examination; the final exam will only cover the material discussed and assigned after the first exam. There will be three homework assignments given out. There will be five programming projects, all involving C++ or Java and CORBA.

The following allocation of grade percentages is *tentative*, and may change during the semester:

Component	464	564
Exams (2):	45%	45%
Homeworks (3) and Surprise Quizzes :	15%	15%
Projects (4):	40%	40%

564 students will be given additional material to read, as well as additional homework, programming requirements, and exam questions. Accordingly, 464 and 564 will be graded on separate curves.

8) Policies and Expectations

a) Do your own work

Your exams, homeworks, and programming projects are subject to the academic honor code. **DO NOT CHEAT IN ANY WAY: *DO YOUR OWN WORK*!** Side effects of cheating may involve expulsion, revocation of assistantships, etc., not to mention eliminating any chance of your *ever* working with me.

It is quite acceptable to ask others things like "Have you gotten this exception before?," and even have them look at your stack trace and its code It is quite unacceptable, on the other hand, to have them spend hours helping develop or seriously rearrange your program's logic. If in doubt, ask me first….

b) Responsibility for learning

1. I expect you to demonstrate critical thinking across the spectrum of course work. Adaptations of the WSU Critical Thinking Rubric will be used in grading some of the projects and homework.

2. I expect you to cooperate with other students and to pull your share in class discussions. Respect that different people in your group may have different ways of learning and different strengths. Seek ways of taking advantage of those differences.

3. I expect you to engage in *active learning*: speak up when you don't understand, question assumptions, relate course material to your experience outside class, seek out additional experience and reading related to the class. *You* must *construct* your understanding of the material.

4. I expect you to promptly review feedback you receive from me, the TA, or other students; to actively clarify the feedback if the material is still unclear; and to incorporate the feedback in your future work.

5. I expect you to spend adequate time on the course. Adequate time includes getting enough rest so that time you spend on course tasks is well-spent time. Adequate time includes proofreading and reviewing your assignments before you hand them in.

6. I expect you to have high expectations of yourself: set goals for yourself and try to do your very best. Consciously think about the balance between what you do to earn a grade and what you do to learn. (If I'm doing something that puts these in opposition to each other *please* let me know.)

7. You are expected to know and observe the WSU Academic Integrity Standards and the EECS Academic Integrity Policy. Copying of other students' work, working together on individual assignments, plagiarism of published sources and other forms of academic dishonesty will result in zero credit on the assignment for all students involved and a lower grade in the class. A second offense (across the University) will result in an automatic F in the course and exposes the violator to University sanctions up to and including expulsion. All offenses will be reported to Student Affairs.

8. I will supply a folder in which to keep your work. Please make sure that you collect all your graded work in the folder and bring it with you to class or to any appointments you have with me. I may ask you to turn in the folder from time to time for my review and I will expect you to use it to check the final grade sheet just prior to the end of the term.

c) Accommodations for disabilities

Reasonable accommodations are available for students who have a documented disability. Please notify me during the first week of class of any accommodations needed for the course. Late notification may cause the requested accommodations to be unavailable. All accommodations must be approved through the Disability Resource Center (DRC) in Administration Annex room 205, 335-1566, mailto:drc@mail.wsu.edu.

d) Advice

1. Don't wait until the last minute to do homework or projects. The lab gets busy, computers break down, and people get sick. These are not sufficient excuses for an extension.

2. Save early; save often!

3. Come see me if you are confused. Don't wait for office hours -- send email.

4. Come see me anyway. I'd like to know more about you.

5. If you have trouble with spelling and grammar, get and use and word processor that has spelling and grammar flagging.

9) Tentative Schedule (Updated 1/1/03; all dates after this tentative!)

#	Day	Topic	Text	HW	Project
1	1/14	Introduction and Overview of DSs	Slides		
2	1/16	DS Foundations	1		
3	1/21	DS Foundations (cont.); Middleware overview	1	**1 out**	
4	1/23	CORBA-I (Basics)	Slides		
5	1/28	CORBA-II (Basics) & Project 1	Slides	**1 due**	**1 out**
6	1/30	DS Paradigms	2		
7	2/4	DS Paradigms (cont.)	2		
8	2/6	DS Paradigms (cont.)	2		
9	2/11	DS Paradigms (cont.)	2		**1 due**
10	2/13	Project 2 discussion, CORBA smart proxies etc.	handout		**2 out**
11	2/18	DS Paradigms (cont.)	2	**2 out**	
12	2/20	DS Paradigms (cont.)	2		
13	2/25	Models of DC	3		
14	2/27	Models of DC (cont.)	3	**2 due**	
15	3/4	Models of DC (cont.)			
16	3/6	**MIDTERM EXAM**			**2 due**
17	3/11	Go over midterm			
18	3/13	DSs & Platforms			
	3/18	Spring Break NO CLASS			
	3/20	Spring Break NO CLASS			
19	3/25	DSs & Platforms(cont.)	4; 11, some 12		
20	3/27	CORBA-III (Event Service, other) & Project 3	Slides		**3 out**
21	4/1	Real Time DSs	11		
22	4/3	Real Time DSs	12		
23	4/8	CORBA-IV (Security) & Project 4	Slides		**3 due** **4 out**
24	4/10	Overview of DS Security	16		
25	4/15	Security (cont.)		**3 out**	
26	4/17	Management	21		
27	4/22	Management (cont.)	22		
28	4/24	Embedded DSs	Paper		
29	4/29			**3 due**	**4 due**
30	5/1	Review for final exam			
	5/5	**Monday: FINAL EXAM 3:10-5:10,** Regular Rooms			

Student Survey (complete, tear off, and return to instructor)

a) Which courses (or their equivalents at other schools) have you taken?

WSU #	What	Taken before	Taking Now	Not taken ever
CS 460	Operating Systems			
CS 455	Intro Networks			
CS 555	Comp. Comm. Net			
CS 557	Advanced Networks			
CS 360	Systems Programming			
EE 414	Digital Systems Design			
CS 425	Network Security			
CS 427/527	Computer Security			
CS 451/551	Database Systems			
CS 461	Embedded Systems			

b) What is your Major and what category of student are you:

	CptS	Cpt Eng	EE	ME	Other(list)
Undergraduate					
Graduate					

c) What experience do you have with these different languages and environments?

What	0	1	2	3	4	5
C++						
Java						
LISP						
Ada						
CORBA						
DCOM/COM+						
.NET						
Microsoft OLE						
Microsoft Programming environments (Visual C++/J++, etc)						
Linux						
Windows NT or Windows 2000						
Other (specify):						

0 == none or vague familiarity; 1 == played with it a little; 2 == used in 1-2 courses; 3 == used in lots of courses, and am one of the best at it among my peers; 4 == used for years and a local guru; 5 top 1000 in the US in it.