Review sockets programming

noitsation Organization

pyright @ William C. Cheng

L# toejorq qumrsW 🔷

- The instructor cannot give D-clearance
- Please use the on-line D-clearance system

Prof. Heidemann's section of CS 551 (or talk to me)

- PhD students to take Prof. Govindan's or - I have never waived a pre-requisite for anyone

 - - - Thute Stuff Calificative Stuff
 - slisteb for details Replaces the old Diagnostic Exam
 - Placement Exams

Today's Topics

Computer Communications - CSCI 551

Computer **C2221**

Communications

Bill Cheng

http://merlot.usc.edu/cs551-f12

Computer Communications - CSCI 551

Class Resources

- Lecture notes posted here soon (hopefully) after class

- You should check this site regularly - News section teil gnibseA = - Project assignments & may be HWs Class web page: http://merlot.usc.edu/cs551-f12
- but, you should check with the instructor as soon as - usually, the lecture slides are correct a set of lecture slides that has been covered in class "rules" between what's on the class web page and what's on If you see inconsistencies, especially regarding any type of
 - o so that things can be consistent again

- You must be a member of the class Google Group Class Google Group
- All important announcements will be posted to this group
- There are two way to use the class Google Group
- 1) use it as an e-mail reflector (i.e., don't need to "login" to
- the Google Group)
- det an e-mail copy of everything posted to the group

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- send postings to the group
- if you are a conscientious objector to Google, this may you don't need a Google account
- messages posted to the class Google Group) be your only option (and you will have to manage ALL
- 2) full access (i.e., "login" to the group, search the message
- archive, post using web form, etc.)
- you must have a Google account
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go offline when approprate

o if appropriate for whole class

Exchanging ideas are allowed

assignments

notification e-mail

Office Hours: (TBD)

or by appointments

Email: 24 hour turn-around <ubox>
<u

= Email: 24 hour turn-around

before the assignment is due

Grader: Abhiram Kalluru kalluru@usc.edu

Coogle group

You can also initiate discussions about course material

= Instructor & TA will also post answers to questions here

illustrate ideas are allowed; short means < 5 lines)

Posting code is not allowed (short code segments to

Student-to-student discussions about programming

Class Google Group

- The grader will hold office hours after you get grade

We have different rules about grader involvement

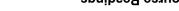
Please do not contact the grader about an assignment

— Office Hours: in SAL 218, M/Tu/W/Th 2:00pm - 3:00pm

Class Structure

- Lecturs: MW 10:00am - 11:20am in ZHS 252 Linetructor: Bill Cheng

bill.cheng@usc.edu>



Course Readings

Research Papers in Networking

- Collection of classical and topical research

about 40 papers

enilno eldslisvA =

in the "additional information" field (so I can verify ♦ make sure you provide your USC e-mail address 2) apply for membership with your "other" e-mail

that you are really in my class)

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CSCI 221, Fall 2006

Class Structure

səpils -Tectures mostly based on papers

= little use of optional textbooks

You have to interpret the papers

- will discuss this later

You need to read the papers

What should you look for in the papers?

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- lectures should be interactive

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btS

Я

- On a curve, class average is probably a B+

- Loose guideline depicted below: - C's will likely be given, F's if necessary

Final grade assigned by the instructor

+8

Grading (cont...)

2-3 assignments, do not turn in

Grading

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Copyright @ William C. Cheng "Pthreads Programming"

B. Nichols, D. Buttlar, and J. P. Farrell

anevets .R. Stevens "BGP4, Inter-domain Routing in the Internet"

- John W. Stewart III "Computer Networks: A Systems Approach"

- L. L. Peterson and B. Davie Textbook as background, not required

o may add papers as we go along

1) do not accept the invitation Google Group, please apply for membership

= If you want to use a different e-mail address to access

e-mail reflector

the default mode of using the class Google Group is

By default, I will use your USC e-mail address class Google Group some time during the first week of class

If you are on the class roster, I will invite you to join with the

Class Google Group

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🗘 No extra credit

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MH <

Exams graded by the TA or the instructor

Try your best from the beginning!

Projects graded by the grader

Without fairness, grades have little meaning

- The instructor must treat all students equally and cannot

offers you, he must offer to the entire class

= But the rule the instructor must follow is that whatever he

your circumstances are special (understandably, everyone This may seem unfair to you because you believe that that are explicitly allowed by the university)

instructor because of your circumstances (except for ones - Therefore, please do not ask special favors from the

give special treatment to any particular student csənrisə 🗘

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Grading (cont...)

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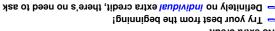












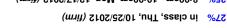


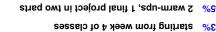




































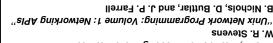
















will lose all class participation credits ♦ failure to do so would be considered cheating and signature, please e-mail me to do it for you

bring a note from a doctor to receive credit If you are sick or have a family emergency, please

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"requalizer" o this is served as an "equalizer" they can miss stuffs happening in the class DEM students normally have a slight disadvantage that to sign row sheets = If you are enrolled in the DEN section, you are not required For on-campus students only Sign Row Sheet

o point if arrive way late or leave way early Inioq S\r uima to bna Inioq S/F nime to bna Sign Row Sheet Summary Sign Row Sheet (Cont...) Computer Communications - CSCI 551

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not be accepted human-unreadable formats such as LaTeX source will o proprietary formats such as MS-Word or - Acceptable formats are ASCII, PDF, PostScript, or HTML Short programs in ns and nam Based on readings and discussion (do not turn in for this semester)

Homework Assignments

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Programming projects Programming/Project Assignments

 group projects not allowed - 2 small warm-up projects (10% each) meaning of all its return codes - You need to learn to be very precise - Hopefully will give some practical insight Sockets, multiple processes, multiple threads, etc.

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rules group of two students allowed, but must follow strict o part (2) depends on part (1) working properly (45% for part (1) and 35% for part (2)) → 1 large (5,000+ lines) final project, delievered in two parts

- Animates ns traces (and more!) Tam: network animator - Implements many Internet protocols Discrete event simulator (OTcl front-end) ns: network simulator msnan/ubə.isi.www//:qttd = Experimental but highly popular software packages ns and nam CSCI 221' E9II 5000

Arrive on-time, Leave early

Arrive late, Leave on-time

nim01

start of

10min arrive

CSCI 221, Fall 2006

Programming/Project Assignments (Cont...)

- Grading will be harsh Programming projects (cont...)
- you do not get credit for simply coding, you get credit
- Grading guidelines provided at least one week before for making sure your code works according to spec
- submission deadline
- this is exactly how we will grade your program
- o no other grading procedure will be used
- o so, you should run your code through them

Programming/Project Assignments (Cont...)

that your code does not have to run from your account

 test your code in someone else's account to make sure - We can only grade from our grading account on nunki

- Many requirements, please see specifications

Programming/Project Assignments (Cont...)

- Must compile and run on nunki.usc.edu

Final project

- Can be done either individually or by a team of two
- students
- ${\color{blue} \circ}$ deadline for the commitment forms is ${\color{blue} 2}$ weeks before send commitment forms for team projects
- the project due date
- From past records, there is no apparently advantage in
- coordinate with a partner may not be so easy having a partner for the final project
- wait till the last day to integrate code most likely will be
- o if you choose to do an individual project, please do not
- complain that others have an edge because they

pave a partner

e-mail from the instructor (or at your own risk)

oxisid. zpi.oxisid-(AERU) \$ lxvo xsiq ;bo

the resulting tgz file to the instructor:

Delete the directory only after you get an confirmation

then gzip the content of your -/.bistro directory and e-mail

= If you must delete your →. bistro directory, you should tar

Please do not delete or alter anything in your -. bistro

o use your judgement under special circumstances

Use bsubmit and the Bistro system (see web page for details) Electronic Submissions (Cont...)

No other form of submission will be accepted

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(...tnoo) =

C/C++ only

Electronic submission only

- No solutions will be given

Programming projects (cont...)

= Makefile - make must work as is

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Late Policy

Electronically Submitted Assignments

submission is valid - Be paranoid! = It is your responsibility to make sure that your

- Very important: verify your submissions

we cannot trust any file timestamp

Bistro system gives tickets and receipts

- You can make multiple submissions

will grade last submission by default

Very important: read output of bsubmit

web page for details

allowed to resubmit it after the deadline

 $\ensuremath{\circ}$ if you forget a file in your submission, you are not

see the bottom of the Electronic Submission Guidelines

we can only trust things that have made it to our server

 ${\color{blue} \circ}$ these are proofs that the server got your submission

Use bsubmit and the Bistro system (see web page for details)

Electronic Submissions

- You can submit multiple times, only the last submission
- will be graded (unless you send us an e-mail)
- = 15 minutes grace period
- = 80% of your score if within one day late beyond grace

- Although in the first 100 minutes of this period, you will
- See next page for details only lose 1% of your grade every 5 minutes
- Time is based on Bistro server timestamp
- e.g., scheduling conflict with work will not be excused or other form of official proof of family emergencies Extension only possible if you have a note from a doctor



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directory

Iluł getting full

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Late Policy

I must stick to my policies

- have a documented proof of illness or a documented 1) Please do not ask for individual extension unless you
- offer it to the whole class" 2) My "fairness" policy is: "Whatever I offer you, I must proof of family (not personal) emergency
- Car broken? Cousin got stuck at the airport? My house - What if your laptop died? Home Internet disrupted? ▼ This is why I cannot give individual extensions

was on fire? Need to go to court? Need to go to Miami?

- These are personal emergencies ...no os bnA
- O Please see (1) and (2)

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1 day late (round up to the nearest per thginbim thginbim Late Policy Computer Communications - CSCI 551

Modifications After Deadline (cont...)

- Try things out before your first submission deadline to

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Grades will be sent to individuals via e-mail

You must register for the class mailing list

- Submit within 1 week of initial grade notification Regrade requests in writing

o must follow instruction in grade notification e-mail

Regrade Policy

Additional modifications at 3 points per line (same deadline)

one line (128 characters max) of change is defined as

o clearly, this is not meant for major changes

not be exactly what you thought you had submitted

you may want to anticipate that your submission may

via e-mail to the instructor, within 24 hour of the project

- You are allowed up to 3 lines of free changes, submitted

Modifications After Deadline

- Regrade can be done after the 1-week deadline, but you
- We reserve the right to regrade the whole thing must initiate a regrade request within 1 week

a filesystem timestamp can be easily forged, so they • we cannot accept missing files after deadline this is your responsibility o do not forget to submit files, verify your submission - Applies to source code and README files - Afterwards, it costs 30 points per line for the next 6 days - Afterwards, additional modifications cost 12 points per line After the submission deadline has past (cont...)

file after deadline cannot beused as proof that you have not modified the

- get familiar with the Bistro system
- Re-lest your code after you have submitted to be sure

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Scheduling Conflicts

msx3 mrətbiM 🔷

with the instructor at lease one week before the exam = scheduling conflict with midterm exam must be resolved

mex3 leni7 🔷

= scheduling conflict with final exam means

1) you have another exam that overlaps in time with our

2) you have two or more other final exams on the same

if you only have another final exam on the same day is

= scheduling conflict with work is not considered a not considered a scheduling conflict

Documented illness will get an incomplete grade scheduling conflict

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one of the following:

submission deadline

tesq san enilbaeb noissimdus ent refte

x and 1 line before (or after) line x

x ənil əsələb 🔾

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Academic Integrity Policy

All work submitted for the class is to be done individually

The USC Student Conduct Code prohibits plagiarism

section on the Course Description web page

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(or is this okay)?

pnol oot tisw t'nod -

o can you ask this during exams?

o find a different way to ask

release do not ask these questions in e-mails:

- Ask the TA or the instructor for help When you get stuck with programming

Thyou feel that you are falling behind

- Talk to the instructor as soon as possible

Here is what I am thinking of or doing... is it acceptable

o if you attended lectures, you can ask this during office I don't understand X. Could you explain X to me?

Here is my understanding of X. Am I right? Is this correct?

Student Commitments (Cont...)

We also have all projects from several previous semesters

Program Checker

CSCI 221, Fall 2006

Analyzes code structure intelligently ♦ http://theory.stanford.edu/~aiken/moss/

How do we catch cheaters?

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be cited explicitly

Do not submit someone else's code

enoissimdus nov easylans of SSOM eau eW -

except for the final project, please see web page for

semesters) are not allowed

For more details, please see the Academic Integrity Policy

- Code fragments done by yourself for other classes must

Code fragments obtained from private sources (or previous

derived or adapted from them) must be explicitly cited to

Code fragments obtained from public sources (or code

o must write code completely on your own - but be very careful when it's time to write code

this should happen at a high level ♥

You are encouraged to work with other students Academic Integrity Policy (Cont...)

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Exams mostly are based on lectures

about anything related to programming You are encouraged to ask questions, pretty much

Programs must work on nunki.usc.edu

Browse lecture slides before class

The stands work together at a high level

o do not write code together

Complete relevant reading before class

Ensure gradable assignments Turn in assignments on time

Keep up with your reading

Do your own work

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between answers of different quality

petter answer may get you more points

because everything is a blur

ot your answer

you need to show that you know the difference

- otherwise, you may only be able to give generic answers Do not review all lectures only right before the exams

generic answer usually gets you very little partial credit

- you must choose your answer and put it at the beginning please give the best answer for the following question"

Study for Exams

Exam questions are often of the form "in N words or less,

- Although I reserve the right to ask anything from required

























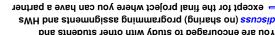










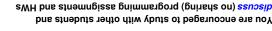


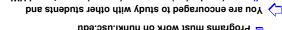








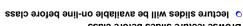








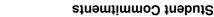












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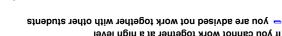














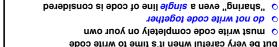


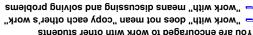


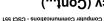












Course Content Credit

Slides and course content have evolved over many years, with contributions from:

Deborah Estrin

Ramesh Govindan

Christos Papadopoulos

John Heidemann

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Things to Do Today

Read class web page: http://merlot.usc.edu/cs551-f12

— Check course description and reading list
— Click on a "request access" link from the class web page to get user ID and password to access protected part of the class web site

o you will also get your port assignment (TCP port numbers which you must use in your projects) in the asme e-mail

o should do this even if you are not registered for the class but plan to take this class

Brief Unix Demo

Logging in to aludra/nunki

Logging in to aludra/nunki

SSH from a console (make sure to use "ssh -x -x ...")

O Ubuntu (Linux)

Transferring Files

SFTP/SCP programs

Cyberduck, Fugu, etc. (Mac)

O Cyberduck, Fugu, etc. (Windows)

Text Editors

Semacs, pico, vi

Gompiler

Compiler

Schulls, WinSCP, etc. (Windows)

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