Syllabus: CmpSci 4730
Computer Networks and Communication
Department of Mathematics and Computer Science
Spring 2016

Instructor Details

INSTRUCTOR: Michael Schulte
OFFICE: 313 ESH
E-MAIL: schulte@cs.umsl.edu
PHONE: (314) 516-5239
COURSE URL: www.cs.umsl.edu/~schulte/cs4730

OFFICE HOURS:
M 1000-1100
T 1730-1830
WTh 1500-1600

Cheating (z.B., projects or exams which I think are too close for coincidence) will be rewarded by at least removal of all points for that project or exam by all involved.
Discussion with other students on the project is fine; copying is not.
All exams are closed-book, closed-notes, closed-friends, open-mind exams.

Course Details

CATALOG DESCRIPTION:
CMP SCI 4730 Computer Networks and Communications: 3 semester hours
Prerequisites: CMP SCI 2750 and MATH 1320. This course provides a broad overview of computer networks and communications. Covers the fundamental principles and protocols across the whole layering structure of the Internet protocol stack. A top-down approach covers multiple topics including network application layer, transport layer, network layer, link layer, and physical layer protocols. May also include a range of related technologies such as WWW, HTTP, FTP, DNS, SMTP, TCP, UDP, ICMP, IPv4, IPv6, OSPF, RIP, BGP, IEEE 802.11 (WiFi), cellular networks, LANs, Ethernet, CSMA/CD, CDMA, multimedia networking, network management, and security in Internet.


TOPICS:
• Network Stack: TCP model & OSI model
• Protocols; Application Protocols
• Transport Layer; UDP vs. TCP; Guarantees of TCP
• Network Layer; Routing and IP Addressing
• Link/Physical Layer; Physical Medium Sharing Protocols
• Wireless; CDMA, WiFi
• Multimedia
• Intro to Network Security
Course schedule

<table>
<thead>
<tr>
<th>WEEK</th>
<th>CHAPTER</th>
<th>TOPICS</th>
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<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Introduction; OSI and TCP/IP Reference Models</td>
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<tr>
<td>2</td>
<td>2</td>
<td>Application Layer: DNS, Mail</td>
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<td>3</td>
<td>2</td>
<td>WWW, etc.</td>
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<tr>
<td>4</td>
<td>3</td>
<td>Transport Layer: Services &amp; Protocols, TCP/UDP</td>
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<tr>
<td>5</td>
<td>3</td>
<td>Transport Layer: TCP, Flow Control &amp; Congestion</td>
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<tr>
<td>6</td>
<td>—</td>
<td>UNIX socket programming</td>
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<td>7</td>
<td>—</td>
<td>UNIX socket programming; review</td>
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<tr>
<td>8</td>
<td></td>
<td>Midterm</td>
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<tr>
<td>9</td>
<td>4</td>
<td>Network Layer: Routing</td>
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<tr>
<td>10</td>
<td>4</td>
<td>Network Layer; Multicasting</td>
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<tr>
<td>11</td>
<td>5</td>
<td>Link Layer: Physical Access Protocols, Ethernet</td>
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<tr>
<td>12</td>
<td>5, 6.1-6.3</td>
<td>Link Layer: Wireless, ATM, PPP</td>
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<tr>
<td>13</td>
<td>8</td>
<td>Security &amp; Cryptography</td>
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<tr>
<td>14</td>
<td>8</td>
<td>Security</td>
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<tr>
<td>15</td>
<td>7</td>
<td>Multimedia</td>
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<td></td>
<td>7</td>
<td>Multimedia</td>
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Other course information

For many courses, you can find sample projects, sample tests and/or study guides, and additional relevant material, under the Computer Science Students organization on mygateway.umsl.edu.

I also have put information about how to set up a TCP connection on www.cs.umsl.edu/~schulte/cs4730/

Course grading

We will use the standard 10% grading scale: 90% and above gives A, 80% and above B, 70% and above C, 60% and above D, else F.

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>2 Tests</td>
<td>60.00%</td>
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<tr>
<td>1 Project</td>
<td>40.00%</td>
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The midterm is expected about 10 March.
The final will be on 12 May at 1000-1200.

UMSL Course Policies

1. Participation (expectations)
   - It is vitally important that our classroom environment promote the respectful exchange of ideas. This entails being sensitive to the views and beliefs expressed during discussions whether in class or online. Please speak with me before recording any class activity. It is a violation of University of Missouri policy to distribute such recordings without my authorization and the permission of others who are recorded.
   - Turn off beepers, cell phones, and other devices during class. Adherence to the Student Conduct Code is expected.
   - I am committed to insuring a positive learning environment by respecting that University policy (p. 66): http://www.umsl.edu/~studentplanner/index.html.
   - Your success in this course will heavily depend on your ability to communicate, engage and participate in all course activities. Successful completion of this course requires that a student keep up with all assignments, quizzes, projects and tests.
   - If you are unable to participate in the scheduled class activities, you must notify the instructor within the week of that class module. An unexcused failure to engage or participate with the class will be counted as an absence; unexcused absences may result in failure. The instructor reserves the right to make judgment to accept and/or make–up assignments missed because of failed participation in the course activities.

2. Academic Integrity/Plagiarism
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- Students are responsible for being attentive to and observant of campus policies about academic honesty as stated in the University’s Student Conduct Code (p. 60): http://www.umsl.edu/~studentplanner/index.html
- To avoid accusations of academic dishonesty, please submit all written work to the Turnitin system before finalizing what you submit for evaluation. Check information about The Writing Center @UMSL that is linked to MyGateway Home.
- Plagiarism is the use of another person’s words or ideas without crediting that person. Plagiarism and cheating will not be tolerated and may lead to failure on an assignment, in the class, and dismissal from the University. View this campus policy here: http://www.umsl.edu/services/academic/policy/academic-dishonesty.html

3. Mandatory Reporting: Under Title IX, all UMSL faculty, staff, and administrators (with limited exception) are obligated to report any incidents of sexual harassment, sexual misconduct, sexual assault, or gender discrimination to the Student Affairs office and/or other University officials. This ensures that all parties are protected from further abuses and that victim(s) are supported by trained counselors and professionals. Note: There are several offices at UMSL (e.g., Counseling Services, Health Services, Community Psychological Service, Center for Trauma Recovery, and Student Social Services) whose staff are exempt from Title IX mandated reporting, when the information is learned in the course of a confidential communication.

4. Access, Disability and Communication
- Students who have a health condition or disability, which may require accommodations in order to participate effectively in this course, should contact the Disability Access Services Office. Information about your disability is confidential.
  - 144 Millennium Student Center
  - Phone: (314) 516-6554
  - Website: http://www.umsl.edu/services/disabled/
- If you have difficulty communicating in English with the instructor of this course, contact the Office of International Students and Scholar Services:
  - Phone: (314) 516-5229
  - Email: iss@umsl.edu
  - Website: http://www.umsl.edu/~intelstu/index.html

Student Support and Services
- Technical Support
  - My Gateway (Blackboard): If you have problems logging into your online course, or an issue within the course site, please contact the Technology Support Center:
    - Phone: (314) 516-6034
    - Email: helpdesk@umsl.edu
    - Website: http://www.umsl.edu/technology/tsc/
Wimba: If you have any questions regarding Wimba Classroom and Wimba Voice Tools, contact the Faculty Resource Center:
- Phone: (314) 516-6704
- Email: frc@umsl.edu
- Website: http://www.umsl.edu/technology/frc/
- Outside normal office hours, you may also contact Wimba for 24/7 assistance:
  - Phone: (866) 350-4978
  - Email: technicalsupport@wimba.com

• Academic Support
  - The Online Writing Lab: At our My Gateway site, students can send their papers to our tutors, who will read them and send them back with suggestions. Students can also access SafeAssign, which identifies quoted material in their essays.
    - Visit the online Writing Lab page on MyGateway to submit drafts online.
    - We try to respond within 48 hours, but it may take longer, so allow ample time.
  - NetTutor: Online tutoring in many subjects is now available through NetTutor. In your courses on MyGateway, click on Tools and select NetTutor® to log in.

• Student Services
  - The Center for Student Success offers assistance tailored to specific student needs.
    - 225 Millennium Student Center
    - Phone: (314) 516-5300
    - Email: css@umsl.edu
    - Website: http://www.umsl.edu/services/css/

• Departmental Tutoring
  - The department offers tutoring for up to Cmp Sci 3130, and occasionally for other courses
  - Check MyGateway organization CSTutoring.