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/cs4780
OFFICE HOURS:  
T 2015-2100  
Th 1600-1700  
or by appointment

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.

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<tbody>
<tr>
<td>Projects</td>
<td></td>
<td>40.00%</td>
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<tr>
<td>Midterm</td>
<td></td>
<td>30.00%</td>
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<tr>
<td>Final</td>
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<td>30.00%</td>
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I will put the individual grades into MyGateway. MyGateway does NOT compute an overall grade for this class. I presume that you know how to find your current overall grade. I also presume that you know that if you don’t show up for class regularly, the chance of a good grade go down.

The midterm is expected about 7 July.
The final will be on 3 Aug, 1730-1930.

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 4780 Computer and Network Security: 3 semester hours

Prerequisite: CMP SCI 2750. This course provides a broad overview of computer and network security technologies and concerns from multiple perspectives, such as cryptography, Public Key Infrastructures (PKI), hashes and message digests, computer viruses and malware, email security, TCP/IP security, IPSec, Secure Socket Layer (SSL), Transport Layer Security (TLS), Virtual Private Networks (VPN), Firewall, AAA (Authentication, Authorization, Accounting), wireless and mobile systems security, secure identifications (IDs), cloud security, privacy and integrity, network attacks, system monitoring, and Intrusion Detection System (IDS). Management and human factors related to security will also be discussed.


TOPICS:

- Ciphers as functions
- Possible attacks
- Symmetric vs. Asymmetric algorithms
- Chaining modes
- Applications
- DES: theory and cracking
- AES: theory (I will also need to talk about Galois Fields)
- Introduction to Number Theory (no proofs)
- Public Key Encryption: RSA, ElGamal, Diffie-Hellman Key Exchange
- Message Integrity and Hashing
- Digital Signatures
- Key Distribution
- Authentication
- Secure Socket Layer
- IPSec
- Digital Cash
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>Intro to Security; Cipher Chaining</td>
</tr>
<tr>
<td>2</td>
<td>4, 5</td>
<td>Symmetric Key Methods, DES, AES</td>
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<tr>
<td>3</td>
<td>3; 6</td>
<td>Number Theory; RSA and Method</td>
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<tr>
<td>4</td>
<td>7.5</td>
<td>ElGamal Method, Diffie-Hellman Key Exchange, Elliptic Curves</td>
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<tr>
<td></td>
<td></td>
<td>MIDTERM</td>
</tr>
<tr>
<td>5</td>
<td>8, 9</td>
<td>Message Integrity; Hashes; Signatures</td>
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<tr>
<td>6</td>
<td>10</td>
<td>Key Distribution; User Authentication</td>
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<tr>
<td>7</td>
<td>10 --</td>
<td>SSL: Security in Transport Layer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IPSec: Security in Network Layer</td>
</tr>
<tr>
<td>8</td>
<td>11</td>
<td>Digital Cash</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FINAL</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.
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 insure a positive learning environment by respecting that University policy (p. 66): [http://www.umsl.edu/~studentplanner/index.html](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
   - 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](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](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/](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](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/](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/](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.
Syllabus: CmpSci 4780
Computer and Network Security
Department of Mathematics and Computer Science
Summer 2017

- 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.