CS 410/510 Multimedia Security

Dr. Charles V. Wright
Office: FAB 120-07
Phone: 503-725-4252
Email: cvwright@cs.pdx.edu
Office Hours: TR 11:00–12:00, 16:00–17:00, or by appointment
Course homepage: http://www.cs.pdx.edu/~cvwright/courses/mmsec/

Course Description
This course will cover selected topics in multimedia security and privacy, including techniques for steganography (literally “hidden writing”), steganalysis (detection of steganography), digital watermarking, multimedia forensics, and format-compliant encryption. Applications include evading censorship, detecting or preventing unauthorized copying, and protecting privacy online. Students will complete well-defined programming assignments as well as an open-ended, independent final project.

Prerequisites  Upper division CS


Other Resources (free online)

Course Outline
1. Multimedia Basics (0.5 weeks)
2. Principles of Information Security (0.5 weeks)
3. Steganography: Information Hiding (1 week)
4. Steganalysis and Detection Theory (1 week)
5. Cryptographic Primitives (1 week)
6. Project Pitches (0.5 weeks)
7. Advanced Topics (4 weeks)
8. Final Project Presentations (1 week)
Grading

Final grades will be determined according to the following formula:

<table>
<thead>
<tr>
<th></th>
<th>CS 410</th>
<th>CS 510</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Participation</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Programming Projects</td>
<td>40%</td>
<td>25%</td>
</tr>
<tr>
<td>Presentation</td>
<td>n/a</td>
<td>15%</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Final Project</td>
<td>30%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Letter grades will be calculated according to the standard American system on a roughly 10-point scale. (A- ≈ 90%, B- ≈ 80%, C- ≈ 70%, etc.)

Late Work

Unless there are special circumstances, all lab assignments should be turned in no later than the assigned deadline. Some late work will be accepted, subject to the following penalties:

<table>
<thead>
<tr>
<th>Time past deadline</th>
<th>Grade Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 2 hours</td>
<td>-5%</td>
</tr>
<tr>
<td>Less than 48 hours</td>
<td>-50%</td>
</tr>
<tr>
<td>More than 48 hours</td>
<td>-75%</td>
</tr>
</tbody>
</table>

Note: If there are special circumstances (medical issues, family emergency, etc.) that prevent you from turning in an assignment by the given deadline, please let me know as soon as possible. I will work with you to find an acceptable solution.

Academic Honesty

All submissions must represent the work of the submitting team or individual. It is permissible to discuss the assignment with other students, but you must develop the solution yourselves. Do not, under any circumstances, copy another person’s program and submit it as your own. Writing any material (whether it be code, English text, or other) for use by another or using another’s work as your own, in any form (even with their permission), will be considered cheating. Cheating on an assignment or exam, including attempts to subvert the course infrastructure, will result in an automatic zero grade for that piece of work, and the initiation of disciplinary action at the University level.

Ethics

Some of the technical material studied in this course might be useful for doing things that violate university regulations, laws, or common standards of ethical behavior. Any such behavior that comes to the instructor’s attention will be reported to appropriate authorities. In particular, note that use of university computing resources is governed by the Office of Information Technology’s Acceptable Use Policy, which may be found at http://oit.pdx.edu/aup/. Use of any techniques learned in this course to harm others will be reported to the authorities for prosecution to the fullest extent of the law.