

TCOM/CFRS 661 Sec B01 & B02–Digital Media Forensics
Department of Electrical and Computer Engineering
George Mason University
Summer, 2013

Syllabus revised 2012-05-13

Administrative Information

Instructor: **Dr. Aleksandar Lazarevich**

Email: alazarev@gmu.edu [subject=GMU-TCOM/CFRS 661-B01/02 Your name](mailto:alazarev@gmu.edu)

Phone: 703-393-2247

Office hours: By appointment

Teaching Assistant: TBD

Classes: Monday and Wednesday, ENG 1505 (Engineering Building, Room 1505), 4:30 pm – 7:10 pm

Course Description

TCOM/CFRS 661 - Digital Media Forensics (3:3:0)

Prerequisites: TCOM 548 and TCOM 556 or TCOM 562; a working knowledge of computer operating systems (e.g. CS 471 or equivalent) or permission from instructor. This course deals with the collection, preservation, and analysis of digital media such that the evidence can be successfully presented in a court of law (both civil and criminal). The relevant federal laws will be examined as well as private sector applications. The seizure, preservation, and analysis of digital media will be examined in this course.

Textbooks

- File System Forensic Analysis, Brian Carrier, Addison-Wesley, 2005, ISBN:0-321-26817-2
<http://www.digital-evidence.org/>
- Computer Forensics: Investigating Hard Disks, File and Operating Systems, EC-Council, Cengage Press, 2010 , ISBN:1-4354-8350-2,
http://www.cengage.com/search/productOverview.do?jsessionid=1hhqMtpGSNyNy2HyhzJc5rC9y77yRRfkyW2zZGWNJddTGhtMY33t!-1930700699?N=+16&Ntk=P_Isbn13&Ntt=9781435483507
- Computer Forensics: Investigating Data and Image Files (Volume 3 of 5), EC-Council, Cengage Press, 2010 , ISBN: 1-4354-8351-0,
http://www.cengage.com/search/productOverview.do?N=+14+11&Ntk=P_Isbn13&Ntt=9781435483514
- Computer Forensics Investigating Wireless Networks and Devices (Volume 5 of 5), EC-Council, Cengage Press, 2010 , ISBN: 1-4354-8353-7,
http://www.cengage.com/search/productOverview.do?N=+14+11&Ntk=P_Isbn13&Ntt=9781435483538
- In order to investigate hard drives, you will need to purchase a USB 2.0 to IDE & SATA cable kit. These can be obtained on line, at Microcenter or through the Patriot Computer Center. Prices will range from \$20 to \$50.

Grading

Raw scores may be adjusted to calculate final grades. Grades will be assessed on the following components:

Homework (4@15% each)	60%
Mid-term exam	20%
Final exam	20%

These components are outlined in the following sections.

Homework

All material necessary for the homework projects is available at the web site, <http://www.cengage.com/community/eccouncil> link for the appropriate book. The use of an eBook may not give you access to the student resource site so verify with publisher. Purchasing a used book may require you to purchase access to the student resources separately. The online access code is in your texts. Use the correct code for each text. You may use either the software provided or go to the software manufacturer's site and download the current trialware. You may use alternative software to do the homework if you wish.

- **Homework 1** - Complete the hands on project on pages 2-19 through 2-29 of the text, Computer Forensics: Investigating Data and Image Files (Volume 3 of 5)_and write a 3-5 page report describing your findings.
- **Homework 2** - Complete the hands on project on pages 3-22 through 3-25 of the text, Computer Forensics: Investigating Data and Image Files (Volume 3 of 5)_and write a 3-5 page report describing your findings.
- **Homework 3** – Complete the hands on project on pages 5-28 through 3-31 of the text, Computer Forensics: Investigating Hard Disks, File and Operating Systems_and write a 3-5 page report describing your findings.
- **Homework 4** - Complete the hands on project on pages 6-32 through 6-39 of the text, Computer Forensics: Investigating Hard Disks, File and Operating Systems_and write a 3-5 page report describing your findings.

Homework will due in Weeks 2, 4, 6, and 7. Late reports will be assessed a penalty of 25% of the assignment grade for each week or part there of it is late.

Available Forensics Lab hours:

VSE Lab Hours (Engineering Building Room 1506):

Normal Summer semester lab hours:

Day	Open	Close
Mon-Fri	9:00 am	5:00 pm

<http://labs.ite.gmu.edu/>

Mid-term exams

The mid-term exam will be take home and will cover material discussed in Weeks 1-3. The mid-term exam will be released the week before it is due. No collaboration is authorized.

Final exam

The final exam will be a practicum where you will download a hard drive image. You will need a computer (any windows computer/laptop will do) with which to perform the investigation. You will not be able to use your work computer since most will not allow you to install software. The final exam will be “take home”. No collaboration is authorized. You may use the computers in room 1506. The forensics report for the final must be submitted in a Word document. Any other format will lose points. You are responsible for finding the evidence as well as tying the evidence to your crime hypothesis. Points will be deducted for a lack of completeness and cohesiveness.

Schedule

Week	Date	Topic	Reading Assignments	Projects Due
Week 1- M	6/3/2013	Introduction/Legal Issues	Notes supplement	
Week 1- W	6/5/2013	Data Acquisition and duplication	EC-Council Data book Chapt. 1&2	
Week 2- M	6/10/2013	Forensic Investigations	EC-Council Data book Chapt. 3&4	
Week 2- W	6/12/2013	File systems	EC-Council Hard Disk book Chapt. 1	Homework 1 due
Week 3- M	6/17/2013	Hard Drives	Carrier Chapt 5 & 8 & EC-Council Hard Disk book Chapt. 2	
Week 3- W	6/19/2013	Digital Media	Carrier Chapt 9 & 10	
Week 4- M	6/24/2013	Boot Processes	EC-Council Hard Disk book Chapt. 3 and Carrier Chapt 11	Homework 2 due
Week 4-W	6/26/2013	Windows Forensics	EC-Council Hard Disk book Chapt. 4&5	Mid-term released in blackboard
Week 5-M	7/1/2013	Mid-term	Covers Weeks 1-3	Mid-term due
Week 5-W	7/3/2013	Linux Forensics & Application Password Crackers	EC-Council Hard Disk book Chapt. 6 & 7	
Week 6-M	7/8/2013	Practicum discussion Investigating Wireless Attacks	EC-Council Wireless book Chapt. 1 and Nelson Chapt. 6	Homework 3 due
Week 6-W	7/10/2013	Blackberry Forensics	EC-Council Wireless book Chapt. 2 and Carrier Chapt 14 & 15	Practicum/Final released
Week 7-M	7/15/2013	iPod & iPhone Forensics Final exam may be turned in	EC-Council Wireless book Chapt. 3	Homework 4 due
Week 7-W	7/17/2013	Android Final exam may be turned in	EC-Council Wireless book Chapt. 4 and Carrier Chapt 7	Final exam may be turned in
Week 8-M	7/22/2013	No class		Final exam may be turned in
Week 8-T	7/24/2013	Final exam Due	Covers weeks 4-8	Final exam Due

This schedule is subject to revision before and throughout the course.

Call 703-993-1000 for recorded information on campus closings (e.g. due to weather).

Important Dates

Last day to add classes	June 12
Last day to drop with no tuition liability	June 12
Last day to drop	June 19

From <http://registrar.gmu.edu/calendars/index.html>

See that Web page for more information.

Attendance Policy

Students are expected to attend each class, whether on-line or in person, to complete any required preparatory work (including assigned reading) and to participate actively in lectures, discussions and exercises. As members of the academic community, all students are expected to contribute regardless of their proficiency with the subject matter.

Students are expected to make prior arrangements with Instructor if they know in advance that they will miss any class and to consult with the Instructor if they miss any class without prior notice.

Departmental policy requires students to take exams at the scheduled time and place, unless there are truly compelling circumstances supported by appropriate documentation. Except in such circumstances, failure to attend a scheduled exam may result in a grade of zero (0) for that exam.

Communications

Communication on issues relating to the individual student should be conducted using email or telephone. Email is the preferred method – for urgent messages, you should also attempt to contact the Instructor via telephone. Email messages from the Instructor to all class members will be sent to students' GMU email addresses – if you use another email account as your primary address, you should forward your GMU email to that account.

Lecture slides are complements to the lecture process, not substitutes for it - access to lecture slides will be provided as a courtesy to students provided acceptable attendance is maintained.

Honor Code

Students are required to be familiar and comply with the requirements of the [GMU Honor Code^{\[1\]}](#).

The Honor Code will be strictly enforced in this course.

All assessable work is to be completed by the individual student.

Students must **NOT** collaborate on the project reports or presentation without explicit prior permission from the Instructor.

^[1] Available at <http://catalog.gmu.edu/content.php?catoid=5&navoid=410#Honor> and related GMU Web pages.