Syllabus
Advanced Digital Forensics
1155-EEL6803XDA1155_mscnsol-56919

GENERAL INFORMATION

PROFESSOR INFORMATION

Instructor:	Prof. Francisco R. Ortega, Ph.D
Office:	ECS 263
Office Hours:	By Appointment
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COURSE DESCRIPTION AND PURPOSE

This is a course designed as a graduate-level course which covers an introduction to digital forensics with a research perspective. The course will cover the fundamentals of the computer and network forensics and media exploitation techniques and introduces students to computer forensic software and hardware tools. This course also looks at digital forensics with the perspective of a researcher. Since the course is intended to serve students with a background in either in Computer Engineering, Electrical Engineering, Computer Science, Management Information Sciences or Information Technology, basic computer skills are expected. However, no programming language is required. Topics covered include introduction to digital forensics, file systems, image recovery, and mobile forensics, among others. At the end of the course you would have learned the key techniques required flor digital forensics and digital forensics research.

Module availability is open and can be completed at the student's individual pace. Projects will be completed in groups and will be due approximately every 2-4 weeks depending on the project. A group is between 3 to 5 students. With the permission of instructor, the group could have less or more students (even one). The instructor reserves the right to change the amount of students per group once the roster is complete. Evaluation will be done within 3 weeks of the submission. However, the instructor reserves the right to modify this. Communication will take place primarily via messages and adobe connect, one a week, every Sunday at 10am EST. The videos will be available on demand. Presentation times will be announced at a later time. The professor reserves the right right to make changes.

COURSE OBJECTIVES

Students will be able to:

- Identify basic concepts of digital forensics (technical concepts)
- Identify hidden information in file systems.
- Recognize problems with digital forensics.
- Propose digital forensic topics to research
- Experiment with File Systems for Digital Forensics
- Compare different tools of digital forensics
- Debate about digital forensics topics
- Solve complex digital forensics technical problems
- Criticize digital forensic research
- Create digital forensics projects that add value to a company or research lab
- Collect digital forensics data
- Evaluate presentations of peers

IMPORTANT INFORMATION

POLICIES

Please review the FIU's Policies webpage. The policies webpage contains essential information regarding guidelines relevant to all courses at FIU, as well as additional information about acceptable netiquette for online courses.

TECHNICAL REQUIREMENTS & SKILLS

One of the greatest barriers to taking an online course is a lack of basic computer literacy. By computer literacy we mean being able to manage and organize computer files efficiently, and learning to use your computer's operating system and software quickly and easily. Keep in mind that this is not a computer literacy course; but students enrolled in online courses are expected to have moderate proficiency using a computer. Please go to the "What's Required" webpage to find out more information on this subject.

This course utilizes the following tools:

- Computer running Windows
- Computer or virtual machine running Linux
- Fast Internet if possible

Please visit our Technical Requirements webpage for additional information.

ACCESSIBILITY AND ACCOMMODATION

Please visit our ADA Compliance webpage for information about accessibility involving the tools used in this course.

Please visit Blackboard's Commitment Accessibility webpage for more information.

For additional assistance please contact FIU's Disability Resource Center.

COURSE PREREQUISITES

There are no prerequisites for this course.

PROCTORED EXAM POLICY

This course requires one proctored exam.

Through a careful examination of this syllabus, it is the student's responsibility to determine whether this online course requires proctored exams. Please visit our Student Proctored Exam Instructions webpage for important information concerning proctored exams, proctoring centers, and important forms.

TEXTBOOK

Guide to Computer Forensics and Investigations 5th Edition ***(Required)***
Bill Nelson, Amelia Phillips, Christopher Steuart
Cengage Learning, 2015

ISBN-10: 1285060032
ISBN-13: 9781285060033
Book Info. You may purchase your textbook online at the FIU Bookstore.

Be sure to purchase the 5th Edition as the assignments will be taken only from this edition.

EXPECTATIONS OF THIS COURSE

This is an online course, which means most (if not all) of the course work will be conducted online. Expectations for performance in an online course are the same for a traditional course. In fact, online courses require a degree of self-motivation, self-discipline, and technology skills which can make these courses more demanding for some students.

Students are expected to:

- Review the how to get started information located in the course content
- Introduce yourself to the class during the first week by posting a self introduction in the appropriate discussion forum
- Take the practice quiz to ensure that your computer is compatible with Blackboard
- Interact online with instructor/s and peers
- Review and follow the course calendar
- Log in to the course three times per week
- Respond to discussion boards, blogs and journal postings within two days
- Respond to messages within two days
- Submit assignments by the corresponding deadline

The instructor will:

- Log in to the course three times per week
- Respond to discussion boards, blogs and journal postings within two - three days
- Respond to messages within two days
- Grade assignments within 14-21 days of the assignment deadline

COURSE DETAIL

COURSE COMMUNICATION

Communication in this course will take place **via Blackboard Course Messages.**

Messages is a private and secure text-based communication system which occurs within a course among its Course members. Users must log on to Blackboard to send, receive, or read messages. The Messages tool is located on the Course Menu, on the left side of the course webpage. It is recommended that students check their messages routinely to ensure up-to-date communication.

Visit our Writing Resources webpage for more information on professional writing and technical communication skills.

DISCUSSION FORUMS

Keep in mind that your discussion forum postings will likely be seen by other members of the course. Care should be taken when determining what to post.

Discussion Forum Expectations:

Introduce Yourself

- Students will post their course self introduction in this forum using the guidelines posted within the first week of class.
- Available dates - unlimited

General Help Forum

- Students may post general concers related to the class.
- Students cannot post any assigment results/answers or related files.
- Available dates - unlimited
- Forums are not graded; it is another means to hep through peer discussion

Paper Presentation and Final Project Discussion Forum

- Students may use this forum to discuss the final project and paper presentation related matters.
- Students may share publications or references or ask questions to your peers.

GROUPS

Group Expectations:

- Students will self-enroll in groups of their choice during the first week of the course.
- Groups will consist of 3-5 students, but may consist of less with the permission of the instructor.
- The instructor reserves the right to change the amount of students per group once the roster is complete.
- Students will work within these groups for the Paper Presentation and Final Project.
- Students may work on assignments individually with the permission of the instructor.

ASSESSMENTS

In order to mitigate any issues with your computer and online assessments, it is very important that you take the "Practice Quiz" from each computer you will be using to take your graded quizzes and exams. It is your responsibility to make sure your computer meets the minimum hardware requirements.

Assessment Expectations:

- This course consists of one online proctored final exam during the last week of the course.
- Scores will be posted 7-10 days after exam submission. (21 days in worst case scenario)

Assessments in this course are not compatible with mobile devices and should not be taken through a mobile phone or a tablet. If you need further assistance please contact FIU Online Support Services.

ASSIGNMENTS

Assignment Expectations:

Hands-On Projects

- Project assignments are opportunities for students to practice skills outlined in the course.
- Project assignments are available in your textbooks and are titled Hands-On Projects.
- Projects that do not correspond with chapters covered in the course are not assigned, but are suggested.
- These assignments are graded and serve as preparation for exams.
- Students will upload screenshots of each assignment in the Hands-On Project Assignment Dropboxes.
- Projects should be done in the same groups as the Paper Presentation and Final Project.

Paper Presentation

- Please see lecture videos posted in course modules for assignment instructions.
- A text version of instructions are also provided in the course.
- The Paper Presentation will be done in a group formed during the first week of the course.
- Late assignments are accepted for a 20% grade deduction.
- Please see the Paper Presentation Instructions file and the lecture video in the appropriate module for the grading criteria.
- Evaluation will be done within three weeks of assignment submission.

Final Project

- Please see lecture videos posted in course modules for assignment instructions.
- A text version of instructions are also provided in the course.
- The Final Project will be done in the group formed during the first week of the course.
- The Final Project Proposal will be submitted in the corresponding Assignment Dropbox for instructor approval.
- Late assignments are accepted for a 20% grade deduction.
- Please see the lecture video and the Final Project Instructions file for the grading criteria.
- Evaluation will be done within three weeks of assignment submission.

ADOBE CONNECT PRO MEETING

Adobe Connect is an online meeting room where you can interact with your professor and fellow students by sharing screens, sharing files, chatting, broadcasting live audio, and taking part in other interactive online activities. We will be utilizing this tool to conduct lectures.

- **Meetings will be available on Sundays from 10:00 AM - 12:00 PM.**

Recorded meetings will be available for those students unable to attend in real-time.

Requirements for using Adobe Connect:

- Disable any window pop-up blocker.
- Adobe Flash Player is required to successfully run your Adobe Connect meeting. You can test your computer to make sure your computer and network connections are properly configured to provide you with the best possible Adobe Connect meeting experience.
- Use of a combination headset and microphone with USB connection is recommended to ensure quality sound and reduce technical difficulties.

  Reference Adobe Connect (Tutorials & Help) to learn about the tool, how to access your meeting rooms and recordings.

GRADING

Course Requirements	Number of Items	Points for Each	Total Points Available	Weight
Paper Presentation	1	200	200	20%
Exam	1	400	400	40%
Hands-On Projects	2	50	100	10%
Final Project	1	300	300	30%%
Total	**6**	**1000**	**1000**	**100%**

Letter	Range (%)	Letter	Range (%)	Letter	Range (%)
A	Above 90	B-	76 - 79	D+	60 - 62
A-	87 - 89	C+	73- 75	D	55 - 59
B+	84- 86	C	70 - 72	D-	50 - 54

B	80 - 83	C-	63 - 69	F	< 50

COURSE CALENDAR

MODULE WEEKLY SCHEDULE

Module 1 - Introduction to Digital Forensics

5/11 - 5/16

Supports Course Learning Objective(s):

- Identify basic concepts of digital forensics (technical concepts)

Module Level Learning Objective(s):

- Make judgment of scholarly work

Tasks:

- Form groups by next week
- Review slides after reading Chapters 1, 3, and 4
- Attend / review Adobe Connect Lecture
- Start looking for publications in an area related to digital forensics

Module 2 - File Systems

5/17 - 5/23

Supports Course Learning Objective(s):

- Identify basic concepts of digital forensics (technical concepts)
- Propose digital forensic topics to research
- Experiment with file systems for digital forensics

Module Level Learning Objective(s):

- Identify low-level disk formats

Tasks:

- Start working on Final Project proposal within group.
- Review article findings within group.
- Review slides after reading Chapters 5 and 7
- Attend / review Adobe Connect Lecture
- Complete Hands-On Project 1 (Chapters 5 and 7) - **due 5/23 at 11:59 PM**
- **Review Paper Presentation Instructions**
- **Review Final Project Instructions**

Module 3 - Comparing Tools, Analysis, Validation, and VM

5/24 - 5/30

Supports Course Learning Objective(s):

- Compare different tools of digital forensics
- Debate about digital forensics topics

Module Level Learning Objective(s):

- Compare tools and report results

Tasks:

- Review slides after reading Chapters 6, 9, and 10
- Attend / review Adobe Connect Lecture
- Review article for IEEE conferences and ACM Conferences and journals

Module 4 - Recovering Graphics Files and Cloud Forensics

5/31 - 6/6

Supports Course Learning Objective(s):

- Solve complex digital forensics technical problems
- Criticize digital forensic research
- Create digital forensics projects that add value to a company or research lab

Module Level Learning Objective(s):

- Recover graphics files

Tasks:

- Review slides after reading Chapters 8 and 13
- Attend / review Adobe Connect Lecture
- Review reading research publications
- Paper Presentation (PART A - List) - **due 5/30 at 11:59 PM**
- Final Project (Proposal) - **due 5/30 at 11:59 PM**
- Complete Hands-On Project 2 (Chapters 8 and 13) - **due 6/6 at 11:59 PM**

Module 5 - Email, Social Media, and Mobile Forensics

6/7 - 6/13

Supports Course Learning Objective(s):

- Collect digital forensics data
- Criticize digital forensics research

Module Level Learning Objective(s):

- Recover emails

Tasks: