

Instructor

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Required Text(s)

Bommisetty, S, Mahalik, H, Tamma, R. (2014). *Practical Mobile Forensics*. Packt Publishing. ISBN: 978-1-78328-831-1

Recommended Texts

Hoog, A. (2011). *Android Forensics*. ISBN 978-1597496513
Hoog, A. & Strzempka, K. (2007). *iPhone & iOS Forensics*. ISBN 978-1597496599

Resource Sites

<http://www.cellebrite.com> (Information on Cellebrite UFED Device)
<http://bkforensics.com/mpsc> (Information on Mobile Phone Seizure Certification-MPSC)
<https://www.nowsecure.com/forensics> (Information on NowSecure Android Forensic Analysis Tools)

Course Description

This three (4) credit hour Mobile Device Forensics course (CRN #2816), through lecture, demonstration, and practical “hands-on” training, is designed to provide students theories and practices of identification, preservation, collection, analysis, and reporting techniques and tools used in the forensic examination of mobile devices such as cell phones and GPS units.

Prerequisites

IST 264- Technology Foundations
IST 449- Data Recovery & Analysis

Computer Requirements

Students will be required to complete assignments using Cellebrite UFED & Physical Analyzer, AccessData’s Forensic Toolkit (FTK Imager), and other Linux command line utilities (i.e. Android VM’s).

All students are responsible for knowing the University Computing Services’ Acceptable Use Policy available at <http://www.marshall.edu/ucs/CS/accptuse.asp>.

Students will receive emails via Marshall email (Please setup your Marshall account if you have not done so). E-mail will be used to make any general announcements, last minute changes, etc. It is mandatory that you monitor both your email and MUOnline messages at least once a day. PLEASE ONLY SEND TO MY MARSHALL EMAIL ADDRESS FOR QUICK CORRESPONDENCE. Messages left on MUOnline may result in delayed responses.

The IST department maintains agreements with various software publishers to provide software for its computer labs as well as for its faculty, staff, and students. Students enrolled in IST department courses are eligible to receive a variety of software applications at no cost for use in their academic endeavors. This includes many of the same applications used in IST courses. You can find this information and more on the IST Web site at <http://www.marshall.edu/isat/software/>.

Course Objectives/Outcomes

This course is designed to build on the material learned in previous foundational courses and apply those concepts. This course places a strong emphasis on utilization of mobile forensic tools and techniques and hands on exercises to emphasize the procedures that students will utilize in the field when analyzing mobile devices.

Upon completion of the Mobile Device Forensics course, students will be able to:		
Course Student Learning Outcome	How Practiced in This Class	How Assessed in This Course
Explain and understand the underlying technology of mobile devices and wireless networks, emphasizing how the data they contain can be used as evidence.	In-class lecture & hands on laboratory exercises.	Classroom Discussion, End of Module Exercises, In-Class Laboratory Exercises, Midterm Exam, Final Exam
Utilize and gain proficiency of specialized mobile forensic tools such as Cellebrite, and other mobile forensic software tools.	In-class lecture & hands on laboratory exercises.	Classroom Discussion, End of Module Exercises, In-Class Laboratory Exercises, Midterm Exam, Final Exam
Understand core forensic methodology as it relates to mobile devices. Understand proper evidence handling procedures for mobile devices	In-class lecture & hands on laboratory exercises.	Classroom Discussion, End of Module Exercises, In-Class Laboratory Exercises, Midterm Exam, Final Exam
Be able to create physical and logical acquisitions of various mobile devices.	In-class lecture & hands on laboratory exercises.	Classroom Discussion, End of Module Exercises, In-Class Laboratory Exercises, Midterm Exam, Final Exam
Be able to extract data from SIM cards in a forensically sound manner	In-class lecture & hands on laboratory exercises.	Classroom Discussion, End of Module Exercises, In-Class Laboratory Exercises, Midterm Exam, Final Exam
Understand the underlying technologies and be able to extract data from various mobile operating systems and platforms such as Android, iOS, Blackberry, Nokia, Windows Mobile, and GPS Devices	In-class lecture & hands on laboratory exercises.	Classroom Discussion, End of Module Exercises, In-Class Laboratory Exercises, Midterm Exam, Final Exam
Students will be confident in analyzing and examining digital evidence that will stand up to standards required for criminal and/or civil cases.	In-class lecture & hands on laboratory exercises.	Classroom Discussion, End of Module Exercises, In-Class Laboratory Exercises, Midterm Exam, Final Exam
Students will obtain knowledge that will allow successful completion of field-recognized certifications such as the Mobile Phone Seizure Certification (MPSC)	In-class lecture & hands on laboratory exercises.	Classroom Discussion, End of Module Exercises, In-Class Laboratory Exercises, Midterm Exam, Final Exam
<p>This Mobile Device Forensics course will meet every MWF from 11:00am-11:50am in the Weisberg Applied Engineering Complex (WAEC) Room 1232 (Digital Forensics Laboratory) with an associated lab on Wednesdays from 12:00pm-12:50pm in WAEC 1232. The class will consist of lecture/demonstration with accompanying labs and/or exercises.</p> <p>Students will be given multiple in-class, instructor-led lab exercises that focus on a variety of mobile forensic methodologies. Students will also complete various out-of-class end of module practical</p>		

laboratory exercises throughout the semester.

Students will sit for the Mobile Phone Seizure Certification (MPSC) which focuses proficiency testing in the collection, documentation and preservation of cell phones and related evidence. The questions focus on basic elements of collection, preservation and documentation of mobile phones and related equipment. The score obtained in this examination will count towards your midterm exam grade.

A midterm examination will be given to gauge the student's knowledge on modules covered up to that date. The date for the midterm exam is listed in the syllabus schedule below.

Lectures and course materials will be available from MUOnline as they become available. You can log into the course website using your MU student ID at the following address: www.marshall.edu/muonline

University Policies

By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to www.marshall.edu/academic-affairs and clicking on "Marshall University Policies." Or, you can access the policies directly by going to http://www.marshall.edu/academic-affairs/?page_id=802

Academic Dishonesty/Excused Absence Policy for Undergraduates/Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment

Professionalism/Attendance Policy

This class is predominately lab and project based, with a good majority of our time devoted to class time computer work and hands-on tutorials with forensic tools and other plugins that are only available in the laboratory environment. With that said, any missed classes will result in lost points, put the student behind, and make it difficult to pick up with the next class lessons. However, in the event that you MUST miss class, it is the student's responsibility to meet with the instructor to discuss absences due to illness or other reasons. Any excused absences must adhere to the University's excused absence policy.

In this course you will be treated as professionals and will be expected to behave and perform as such. As professionals, you will be expected to attend class, be on time, complete all of your assignments, meet deadlines, ask questions when you don't understand, and participate. Your classroom language and demeanor should also be professional. Also, please set your mobile devices to "Vibrate Only" mode (or turn it off) during class.

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Professionalism/Attendance Policy

This class is considered a hands-on involved course, with some of our time devoted to exploring different types of technology. With that said, any missed classes will result in lost points (1 pt. per class), put the student behind, and make it difficult to pick up with the next class lessons. However, in the event that you MUST miss class, it is the student's responsibility to meet with the instructor to discuss absences due to illness or other reasons. Any excused absences must adhere to the University's excused absence policy.

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turn it off) during class.

Social networking Policy

I often receive friend requests from students via Facebook. It is my policy however, not to accept these requests from current students. This is absolutely nothing personal, so please do not take it as such. You are welcome to follow me on Twitter (@joshbrunty) and/or join my network on LinkedIn. You can also follow our department through our MU ISAT or MU Digital Forensics Facebook group pages.

Inclement Weather Policy

Students can find information concerning Marshall's policy regarding inclement weather regarding inclement weather online via <http://www.marshall.edu/ucomm/weather.html>. Please note that a two-hour delay means that classes that begin at 10:00 a.m. begin on time. Classes that begin at 8:30 a.m. meet at 10:00 a.m. and continue for the remaining period of that class.

Makeup Policy

The tentative dates for the exams and due dates of projects/reports are shown in the course schedule. If you have other plans on any of these dates, please make arrangements now to change them, or inform the instructor of your plans. If for any unforeseen reason you must miss an exam or project due date, you must have a verifiable, well-documented excuse. If the instructor accepts the excuse you will be given a make-up exam on the date specified. Otherwise, you will be given a zero (0) grade for the missed exam and/or assignment.

Academic Dishonesty Policy

As described in the Marshall University Creed, Marshall University is an "Ethical Community reflecting honesty, integrity and fairness in both academic and extracurricular activities. "Academic Dishonesty is something that will not be tolerated as these actions are fundamentally opposed to "assuring the integrity of the curriculum through the maintenance of rigorous standards and high expectations for student learning and performance" as described in Marshall University's Statement of Philosophy. A student, by voluntarily accepting admission to the institution or enrolling in a class or course of study offered by Marshall University accepts the academic requirements and criteria of the institution. It is the student's responsibility to be aware of policies regulating academic conduct, including the definitions of academic dishonesty, the possible sanctions and the appeal process. For the purposes of this policy, an academic exercise is defined as any assignment, whether graded or ungraded, that is given in an academic course or must be completed toward the completion of degree or certification requirements. This includes, but is not limited to: Exams, quizzes, papers, oral presentations, data gathering and analysis, practical and creative work of any kind.

Your assignments may be analyzed using the anti-plagiarism suite of tools powered by Turnitin. Please visit <http://turnitin.com> for more information.

If you are found cheating on projects or plagiarizing answers from the Internet or other sources there will be no second chance. Your penalty is that you will receive a failing grade for the course. In those cases in which the offense is particularly flagrant or where there are other aggravating circumstances, additional, non-academic, sanctions may be pursued through the Office of Judicial Affairs. Notice of an act of academic dishonesty will be reported to the Department Chair, Dean of the College of Science, and to the Office of Academic Affairs. Please refer to the Marshall University Undergraduate Catalog for a full definition of academic dishonesty.

Project Submission Guidelines

The course includes a number of laboratory projects. All laboratory projects are due BY THE BEGINNING OF CLASS on their due date and must be submitted through via MUOnline (unless otherwise noted by the instructor). NO LATE ASSIGNMENTS WILL BE ACCEPTED. These assignments will usually be distributed and due on Thursdays (lab days). Please see the instructor if extenuating circumstances exist that may merit an extension or modification of the assignment. Please do not procrastinate in working on your assignments or trying to submit through MUOnline as many others have done in the past. If you wait until the last night to start on the project or the last minute to submit, chances are, you will fail.

All electronic submissions MUST follow this file naming convention:
IST467_LastName_FirstInitial_Assignment Name.doc (“*IST467_brunty_j_project1.doc*”)

Assignments must be submitted in the format specified by the instructor for a given assignment. I WILL NOT accept projects submitted in non-approved formats or naming conventions.

Assignments & projects must convey information in a clear, concise, and technical matter; hence obvious grammatical mistakes will be deducted. Projects will be available for download & submitted via MUOnline unless otherwise noted by the instructor.

All course assignments will:

- 1) Be completed on time
- 2) Meet guidelines and scoring rubrics for the assignment

Grading Policy

Student materials and grades will be returned as soon as graded to the student and can be viewed via MUOnline. Should you wish to appeal a grade, test question, etc, you need to follow this procedure. You should send an email via MUOnline to me. The title of the email must read “GRADE APPEAL – Assignment Name” (i.e. Practical 1, Project 2, etc). The body of the email must include the question, question number, your answer, and why you think you deserve credit. For tests and quizzes in MUOnline, this should be done immediately after completion, before you leave class. You can copy and paste this information to make things simple. I will get back to you as soon as possible.

Grading

Final letter grades will be based on the following scale:

90-100	A
80-89	B
70-79	C
60-69	D
0-59	F

Percentage of grades will be distributed as follows:

In-Class Participation/Labs	25%
Practical Lab Exercises	25%
MPSC/ ExamMidterm	25%
Final Exam	25%

Example:

In-Class Participation/Labs (86%)	x .25 = 21.5
Practical Lab Exercises (86%)	x .25 = 21.5
MPSC Exam/Midterm (91%)	x .25 = 22.75
Final Practical Exam (84%)	x .25 = 21

	86.75 (87% B)



CLASS SCHEDULE	Marshall University Dates/ Important Dates/Notes	WEEK CLASS DATE
<p>NOTE: When projects are assigned for a week, the due date will be reflected within the posted assignment via MUOnline. It is expected of the student to submit the project to MUOnline prior to the due date/cutoff time (which is usually the beginning of class). Failure to do so will result in a zero for the project. Please see the instructor if extenuating circumstances exist that may merit an extension or modification of the assignment. Late, incomplete or poorly organized assignments will result in point deductions. The following outline delineates the tentative class schedule with topics to be addressed during the course. Please note this is a tentative schedule and it may change upon class progress:</p>		
<p>Week 1 Module 0: Introduction to Mobile Device Forensics Module 1: Mobile Phone Seizure (MPSC)</p>	<ul style="list-style-type: none"> ✓ August 28, Friday Last day to add a class ✓ Read MPSC Study Materials ✓ Read Module 0 Handouts 	Aug 24-28
<p>Week 2 Module 1: Mobile Phone Seizure (MPSC)</p>	<ul style="list-style-type: none"> ✓ August 31, Monday "W" period begin ✓ Read Chapter 1 (pp. 7-22) ✓ Read MPSC Study Materials 	Aug 31- Sept 4
<p>Week 3 Module 2: History & Cell Networks</p>	<ul style="list-style-type: none"> ✓ September 7, Monday-Labor Day - University Closed ✓ Read Module 2 Handouts ✓ MPSC Exam Cert. Due to MUOnline by 11:59PM Friday 9/11 	Sept 7-11
<p>Week 4 Module 3: Legal Issues</p>	<ul style="list-style-type: none"> ✓ No Class Friday 9/18 ✓ Read Chapter 1 (pp. 23-25) ✓ Read Module 3 Handouts 	Sept 14-18
<p>Week 5 Module 4: Cellular Records</p>	<ul style="list-style-type: none"> ✓ Read Module 4 Handouts 	Sept 21-25
<p>Week 6 Module 5: SIM Cards & Analysis</p>	<ul style="list-style-type: none"> ✓ Read Module 5 Handouts 	Sept 28- Oct 2
<p>Week 7 Module 6: Handsets</p>	<ul style="list-style-type: none"> ✓ Read Module 6 Handouts 	Oct 5-9
<p>Week 8 Exam #1 Module 7: Introduction to Cellebrite UFED</p>	<ul style="list-style-type: none"> ✓ Exam #1 Monday October 12 @ 11AM ✓ Read Module 7 Handouts 	Oct 12-16
<p>Week 9 Module 8: Introduction to Cellebrite Physical Analyzer</p>	<ul style="list-style-type: none"> ✓ Read Module 8 Handouts 	Oct 19-23
<p>Week 10 Module 9: iOS Forensics</p>	<ul style="list-style-type: none"> ✓ October 30, Friday- Last day to drop a full semester individual course ✓ Read Chapter 2 (pp. 27-52) 	Oct 26-30
<p>Week 11 Module 9: iOS Forensics (Cont.)</p>	<ul style="list-style-type: none"> ✓ November 2, Monday December 6, Friday- 	Nov 2-6

	Complete withdrawals only from the University ✓ Read Chapter 3 (pp. 53-84) ✓ Read Chapter 4 (pp. 85-111)	
Week 12 Module 10: Android Forensics	✓ Read Chapter 7 (pp. 159-176) ✓ Read Chapter 8 (pp. 177-200)	Nov 9-13
Week 13 Exam #2 Module 10: Android Forensics (Cont.)	✓ Read Chapter 9 (pp. 201-222) ✓ Read Chapter 10 (pp. 223-235) ✓ Exam #2 Monday November 20 @ 11AM	Nov 16-20
Week 14 No Class	✓ Thanksgiving/Fall Break - Classes Dismissed	Nov 23-27
Week 15 Module 11: Android and iOS App Analysis & Overview Final Exam Prep	✓ "Dead Week" ✓ Read Chapter 11 (pp. 237-253)	Nov 30- Dec 4
Week 16 Final Exam	✓ Final Exam Time- Tuesday December 8, 10:15AM-12:15PM	Dec 7-11



**Syllabus meets requirements set forth by MUBOG Policy AA-14*