DIGITAL FORENSICS
INFORMATION ASSURANCE

Professor

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Required Text(s)

None

Recommended Texts

Russ, J. *Forensic uses of Digital Imaging*. ISBN#: 978-1498733076
Reis, G. *Photoshop CS3 For Forensic Professionals.* ISBN#: 978-0470114544
***Handouts and supplementary materials are supplied by the instructor via MUOnline*

Course Description

This three (3) credit hour Forensic Image & Video Analysis course (CRN #2618) is intended to provide the student with the basic use of digital images and digital video in a forensic setting. This includes the use of best practices to exceed the requirements of court, utilizing various industry standard tools such as Adobe Photoshop and other commonly used software tools, and developing a workflow from archiving to courtroom testimony. Students will be provided methodology to perform imaging tasks that are commonly faced in the law enforcement community today.

Prerequisites

None

Computer Requirements

This course is designated as an upper level digital forensics course, with much of the learning focused around hands-on learning. In this course we use tools that are part of the Adobe Creative Suite (specifically Adobe Bridge and Photoshop) and other additional plugins that you will be required to have for the course (i.e. ClearID). Adobe software is available on any on-campus machines at Marshall University. We will be configuring your machines in WAEC 1232 specifically for use in this course.

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(s) 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 at least once a day. PLEASE ONLY USE MY MARSHALL EMAIL ADDRESS FOR QUICK CORRESPONDENCE. Messages left on MUOnline or any other social media may result in delayed responses.

Course Objectives/Outcomes

This course is designed to apply the concepts of digital forensic analysis to that of forensic image analysis and enhancement. This course places a strong emphasis on digital forensic procedures, digital forensic tools, and legal issues relating to digital imaging and forensic video analysis. This course uses advanced forensic tools and hands on exercises to emphasize the procedures that students will utilize in the field as forensic investigators.

In this course, learning outcomes are gauged as followed:

Course Student Learning Outcome	How Practiced in This Class	How Assessed in This Course
▪ Identify and define professionally and legally accepted methodologies, standards, and best practices for the forensic processing of video and image evidence.	▪ Identification and explanation of SWGDE, SWGIT, LEVA, and NIST standards and best practices.	▪ Completion of Module 1- Introduction to Forensic Image & Video Analysis, Exam 1, Laboratory Project 1
▪ Analyze and apply the correct forensic tool, technique, or methodology to enhance, archive, and print a digital mage without compromising its authenticity as evidence. Analyze and apply the correct advanced tool, technique, or methodology to enhance, archive, and print a digital mage without compromising its authenticity as evidence	▪ Application of various forensic enhancements to forensic images using various forensic tools and software	▪ Completion of Module 2- Forensic Image Analysis, Exam 1, Laboratory Project 2
▪ Analyze and properly apply the correct forensic tool, technique, or methodology to enhance, investigate, and generate/render enhanced video evidence without compromising its authenticity as evidence	▪ Application of various advanced-level forensic enhancements to forensic video using various forensic tools and software	▪ Completion of Module 3- Forensic Video Analysis, Exam 2, Laboratory Project 3
▪ Compare and contrast image and video evidence utilizing scientific methodologies, standards, and best practices.	▪ Comparison of questioned vs. known images and patterns and articulating findings of that comparison.	▪ Completion of Module 4- Forensic Image & Video Comparison, Exam 2, Laboratory Project 4
▪ Develop and articulate forensic image and video enhancements and comparisons in a forensic report format. ▪ Construct a courtroom presentation that is legally acceptable in a court of law	▪ Creation of a comprehensive forensic report that adheres to certain forensic best practices and standards. ▪ Construction of a courtroom presentation that illustrates forensic comparisons made in an investigation	▪ Completion of Module 5- Forensic Reporting & Courtroom Presentations- Putting it All Together, Exam 2, Final Laboratory Project

A variety of methods will be used to evaluate learning of each of the above outcomes. These include: classroom discussion, in-class case studies and exercises, exams, and in-class and out-of-class projects.

This Forensic Image & Video Analysis course will meet every Monday, Wednesday, and Friday from 9:00-9:50AM in Weisberg Applied Engineering Complex (WAEC) 1232 (Digital Forensics Laboratory). Our journey of knowledge will consist of lecture with accompanying labs and/or projects. Each student will receive required course materials and readings pertaining to the course.

Evaluation of student's performance will be based on the quality of your performance on classroom projects, student participation/presentations, and exams.

Lectures and course materials will be available from MUOnline as they become available. You can log into the course website using your 901 student number 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 be 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 project based, with much 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 (5 pts. 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. 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.

Instructor Contact & Social Media Policy

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 Digital Forensics or MU Forensics Facebook group pages. For class-related questions, however, please email me (no DM's, Snaps, etc.). You are also encouraged to stop by my office. Please note, however, that I rarely answer or walk you through lab-related questions via email. In these circumstances, you are encouraged to stop by my office during posted office hours and/or make an appointment.

Project Submission Guidelines

The course includes a number of projects and assignments. All assignments are due on their due date and must be submitted through via MUOnline (unless otherwise noted by the instructor). NO LATE ASSIGNMENTS WILL BE ACCEPTED. 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:
ist448_LastName_FirstInitial_Assignment Name.doc ("ist448_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 assignments

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 the Graduate Assistant and CC me. The title of the email must read "GRADE APPEAL – Assignment Name" (i.e. Project 1, Mid-Term, 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:

Lab Projects 5 projects @ 50 pts each.	50%
Exams 1 & 2	40%
Attendance/In-Class Labs (Point value varies)	10%

Example:

Lab Projects (210/250) (84%)	x .50 = 42
Exams 1 & 2 (92%)	x .40 = 36.8
Attendance/In-Class Labs (87/100)	x .10 = 8.7

	87.5 (88% B)

Laboratory Projects (50%)
There are a total of five (5) laboratory projects due during this course. Every Module (with the exception of the Introduction (Module) and Module 1 has an associated laboratory projects. These projects are due on the Module due date (see below). Laboratory projects 1-4 are worth 50 points. The Final Laboratory Project is worth 100 points.

Exams 1 & 2 (40%)
There are a total of two (2) exams administered during the semester (please see syllabus for exam date). Each of these exams will be worth 100 points. Study guides will be given in advance of each exam.

Attendance/In-Class Labs (10%)
Attendance will be taken each day of class via a sign-in sheet. It is the student's responsibility to make sure that the sheet is signed. Each class will be worth five (5) points. and will be calculated as a score at the end of the semester. Any in-class quizzes or assignments given by the instructor will also factor into this percentage calculation

CLASS SCHEDULE	Marshall University Dates/ Important Dates	WEEK
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 on Fridays @ 11:59PM. 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:		
Week 1 Module 0 (Course Introduction) Module 1 (Introduction to Forensic Image & Video Analysis)		Aug 22-26
Week 2 Module 1 (Introduction to Forensic Image & Video Analysis) Cont.	✓ August 31, Monday "W" period begins ✓ Lab Project 1 Distributed 9/2	Aug 29-Sept 2
Week 3 Module 2 (Forensic Image Analysis- Basic Enhancements)	✓ September 5, Monday-Labor Day - University Closed ✓ Lab Project 1 Due 9/9 @ 11:59PM	Sept 5-9
Week 4 Module 2 (Forensic Image Analysis- Advanced Enhancements) Cont.		Sept 12-16
Week 5 Module 2 (Forensic Image Analysis- Advanced Enhancements) Cont.		Sept 19-23
Week 6 Module 2 (Forensic Image Analysis- Advanced Enhancements) Cont.	✓ Lab Project 2 Distributed	Sept 26-30
Week 7 Exam 1 Module 2 (Forensic Image Analysis- Forensic Photography)	✓ Exam 1-10/3 @ 9AM	Oct 3-7
Week 8 (Module 5) Module 3 (Forensic Video Analysis)	✓ Lab Project 2 Due 10/14 @ 11:59PM	Oct 10-14
Week 9 Module 3 (Forensic Video Analysis) Cont.		Oct 17-21
Week 10 Module 3 (Forensic Video Analysis) Cont.	✓ Oct 28 (Friday)- Last day to drop a full semester individual course ✓ Lab Project 3 Distributed	Oct 24-28
Week 11 Module 4 (Forensic Image & Video Comparison)		Oct 31-Nov 4
Week 12 Module 4 (Forensic Image & Video Comparison)	✓ Lab Project 3 Due 11/11 @ 11:59PM ✓ Lab Project 4 Distributed	Nov 7-11

Week 13 Exam 2 Module 5 (Forensic Reporting & Courtroom Presentations- Putting it all Together)	✓ Exam 2- 11/14 @ 9AM ✓ Nov 18 (Friday)- No Class ✓ SecureWV/Hackercon 11/18-20	Nov 14-18
Week 14 No Class	✓ Thanksgiving/Fall Break - Classes Dismissed	Nov 21-25
Week 15 (Module 11) Module 5 (Forensic Reporting & Courtroom Presentations- Putting it all Together) Cont.	✓ Lab Project 4 Due 12/2 @ 11:59PM ✓ Lab Project 5 (Final) Distributed	Nov 28-Dec 2
Week 16 Module 5 (Forensic Reporting & Courtroom Presentations- Putting it all Together) Cont.	✓ "Dead Week"	Dec 5-9
Week 16 Project 5 (Final) Presentations	✓ Lab Project 5 (Final) Due (12/15 @ 11:59PM) ✓ Final Presentations 12/16 8:00AM-10:00AM	Dec 12-16

"Video and image analysis is the new DNA for law enforcement. It is the next generation of investigation."

Syllabus meets requirements set forth by MUBOG Policy AA-14