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| <b>Instructor</b>   |
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| <b>Required Text(s)</b>   |
| None  |
| <b>Recommended Texts</b>  |
| Reis, G. <i>Photoshop CS3 For Forensic Professionals</i> . ISBN#: 978-0-470-11454-4<br>Russ, J. <i>The Image Processing Cookbook (2<sup>nd</sup> Ed.)</i> ISBN#: 978-1456531010<br><i>**Handouts and supplementary materials are supplied by the instructor via MUOnline</i>  |
| <b>Course Description</b>   |
| This three (3) credit hour Forensic Image & Video Analysis course (CRN #2668) 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.   |
| <b>Prerequisites</b>  |
| None  |
| <b>Computer Requirements</b>  |
| 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.<br><br>All students are responsible for knowing the University Computing Services' Acceptable Use Policy available at <a href="http://www.marshall.edu/ucs/CS/accptuse.asp">http://www.marshall.edu/ucs/CS/accptuse.asp</a> .<br><br>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.<br><br>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 <a href="http://www.marshall.edu/isat/software/">http://www.marshall.edu/isat/software/</a> . |
| <b>Course Objectives/Outcomes</b>   |
| 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:   |   |   |
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| Course Student Learning Outcome   | How Practiced in This Class   | How Assessed in This Course   |
| <ul style="list-style-type: none"> <li>Identify and define professionally and legally accepted methodologies, standards, and best practices for the forensic processing of video and image evidence.</li> </ul>   | <ul style="list-style-type: none"> <li>Identification and explanation of SWGDE, SWGIT, LEVA, and NIST standards and best practices.</li> </ul>  | <ul style="list-style-type: none"> <li>Completion of Module 1- Introduction to Forensic Image &amp; Video Analysis, Exam 1, Laboratory Project 1</li> </ul>                           |
| <ul style="list-style-type: none"> <li>Analyze and apply the correct forensic tool, technique, or methodology to enhance, archive, and print a digital image without compromising its authenticity as evidence. Analyze and apply the correct advanced tool, technique, or methodology to enhance, archive, and print a digital image without compromising its authenticity as evidence</li> </ul>  | <ul style="list-style-type: none"> <li>Application of various forensic enhancements to forensic images using various forensic tools and software</li> </ul>   | <ul style="list-style-type: none"> <li>Completion of Module 2- Forensic Image Analysis, Exam 1, Laboratory Project 2</li> </ul>   |
| <ul style="list-style-type: none"> <li>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</li> </ul>  | <ul style="list-style-type: none"> <li>Application of various advanced-level forensic enhancements to forensic video using various forensic tools and software</li> </ul>   | <ul style="list-style-type: none"> <li>Completion of Module 3- Forensic Video Analysis, Exam 2, Laboratory Project 3</li> </ul>   |
| <ul style="list-style-type: none"> <li>Compare and contrast image and video evidence utilizing scientific methodologies, standards, and best practices.</li> </ul>  | <ul style="list-style-type: none"> <li>Comparison of questioned vs. known images and patterns and articulating findings of that comparison.</li> </ul>  | <ul style="list-style-type: none"> <li>Completion of Module 4- Forensic Image &amp; Video Comparison, Exam 2, Laboratory Project 4</li> </ul>   |
| <ul style="list-style-type: none"> <li>Develop and articulate forensic image and video enhancements and comparisons in a forensic report format.</li> <li>Construct a courtroom presentation that is legally acceptable in a court of law</li> </ul>  | <ul style="list-style-type: none"> <li>Creation of a comprehensive forensic report that adheres to certain forensic best practices and standards.</li> <li>Construction of a courtroom presentation that illustrates forensic comparisons made in an investigation</li> </ul> | <ul style="list-style-type: none"> <li>Completion of Module 5- Forensic Reporting &amp; Courtroom Presentations- Putting it All Together, Exam 2, Final Laboratory Project</li> </ul> |
| <p>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.</p> <p>This Forensic Image &amp; 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.</p> |   |   |

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](http://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](http://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](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 (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. 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.

#### 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 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.

Academic Dishonesty includes cheating, fabrication and falsification of data or information, plagiarism, bribes/favors/threats, and complicity (i.e., helping or attempting someone commit an act of dishonesty). As stated in the policy, "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" (MU Undergraduate Catalog). If you are found cheating on projects or plagiarizing answers from the Internet or other sources there will be no second chance. In this course, STUDENTS ARE NOT TO "COPY & PASTE" MATERIAL FROM A SOURCE INTO ANY ASSIGNMENT UNLESS SPECIFICALLY AUTHORIZED BY THE INSTRUCTOR. 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 projects and assignments. All assignments 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. 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. Storage Quiz, 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 | <b>A</b> |
| 80-89  | <b>B</b> |
| 70-79  | <b>C</b> |
| 60-69  | <b>D</b> |
| 0-59   | <b>F</b> |

#### Example:

|                                   |               |
|-----------------------------------|---------------|
| Lab Projects (160/200) (80%)      | x .50 = 40    |
| Exams 1 & 2 (92%)                 | x .35 = 32.2  |
| Attendance/In-Class Labs (83/100) | x .15 = 12.45 |
|                                   | -----         |
|                                   | 84.65 (85% B) |

Percentage of grades will be distributed as follows:

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| Lab Projects<br>4 projects @ 50 pts each.        | 50% |
| Exams 1 & 2                                      | 35% |
| Attendance/In-Class Labs<br>(Point value varies) | 15% |

#### 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 (35%)

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 (15%)

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 one (1) pt. and will be calculated as a score at the end of the semester. Any in-class quizzes or labs given by the instructor will also factor into this percentage calculation

| CLASS SCHEDULE   | Marshall University Dates/<br>Important Dates  | WEEK                  |
|--|--|-----------------------|
| <p><b>NOTE:</b> 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><b>Week 1</b><br/>                     Module 0 (Course Introduction)<br/>                     Module 1 (Introduction to Forensic Image &amp; Video Analysis)</p>   | <p>✓ August 28, Friday<br/>                     Last day to add a class</p>  | <p>Aug 24-28</p>      |
| <p><b>Week 2</b><br/>                     Module 1 (Introduction to Forensic Image &amp; Video Analysis) Cont.</p>   | <p>✓ August 31, Monday<br/>                     "W" period begins<br/>                     ✓ Lab Project 1 Distributed 9/4</p>       | <p>Aug 31- Sept 4</p> |
| <p><b>Week 3</b><br/>                     Module 2 (Forensic Image Analysis-Basic Enhancements)</p>  | <p>✓ September 7, Monday-Labor Day - University Closed<br/>                     ✓ Lab Project 1 Due 9/11 @ 9AM</p>                   | <p>Sept 7-11</p>      |
| <p><b>Week 4</b><br/>                     Module 2 (Forensic Image Analysis-Advanced Enhancements) Cont.</p>   | <p>✓ No Class Friday 9/18</p>  | <p>Sept 14-18</p>     |
| <p><b>Week 5</b><br/>                     Module 2 (Forensic Image Analysis-Advanced Enhancements) Cont.</p>   |  | <p>Sept 21-25</p>     |
| <p><b>Week 6</b><br/>                     Module 2 (Forensic Image Analysis-Advanced Enhancements) Cont.</p>   | <p>✓ Lab Project 2 Distributed 10/2</p>  | <p>Sept 28- Oct 2</p> |
| <p><b>Week 7</b><br/>                     Exam 1<br/>                     Module 2 (Forensic Image Analysis-Forensic Photography)</p>  | <p>✓ Exam 1-10/5 @ 9AM</p>   | <p>Oct 5-9</p>        |
| <p><b>Week 8 (Module 5)</b><br/>                     Module 3 (Forensic Video Analysis)</p>  | <p>✓ Lab Project 2 Due 10/16 @ 9AM</p>   | <p>Oct 12-16</p>      |
| <p><b>Week 9</b><br/>                     Module 3 (Forensic Video Analysis) Cont.</p>   |  | <p>Oct 19-23</p>      |
| <p><b>Week 10</b><br/>                     Module 3 (Forensic Video Analysis) Cont.</p>  | <p>✓ October 30, Friday- Last day to drop a full semester individual course<br/>                     ✓ Lab Project 3 Distributed</p> | <p>Oct 26-30</p>      |
| <p><b>Week 11</b><br/>                     Module 4 (Forensic Image &amp; Video Comparison)</p>  | <p>✓ November 2, Monday<br/>                     December 6, Friday- Complete withdrawals only from the University</p>               | <p>Nov 2-6</p>        |

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| <b>Week 12</b><br>Module 4 (Forensic Image & Video Comparison)   | ✓ Lab Project 3 Due 11/13 @ 9AM   | Nov 9-13      |
| <b>Week 13</b><br>Exam 2<br>Module 5 (Forensic Reporting & Courtroom Presentations- Putting it all Together)         | ✓ Exam 2- 11/16 @ 9AM<br>✓ Lab Project 4 Distributed  | Nov 16-20     |
| <b>Week 14</b><br>No Class   | ✓ Thanksgiving/Fall Break - Classes Dismissed   | Nov 23-27     |
| <b>Week 15 (Module 11)</b><br>Module 5 (Forensic Reporting & Courtroom Presentations- Putting it all Together) Cont. | ✓ Lab Project 4 Due 12/4 @ 9AM<br>✓ Lab Project 5 (Final) Distributed 12/4<br>✓ "Dead Week" | Nov 30- Dec 4 |
| <b>Week 16</b><br>Project 5 (Final) Presentations (Friday 12/11 8-10AM)  | ✓ Lab Project 5 Due (12/11 @ 8AM)   | Dec 7-11      |



*“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