



**Integrated Science & Technology 461 Cyber Warfare Course  
Syllabus**

**Fall 2015  
TTh 12:30 – 1:45  
WAEC 1232**

**Instructor:** Bill Gardner, Assistant Professor  
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**Phone:** 304-696-2658  
**Office Hours:** MWF 2 pm – 3 pm, WF 11 am – Noon, TTH 2 pm – 3 pm

**Course Start Date August 25, 2015  
Course End Date December 3, 2015**

**Course Description:** This is a three (3) credit course. This course provides students with knowledge of cyber warfare history, actors, types, rules, causes, strategies, and outcomes.

**Instruction Method:**

There will be three (3) contact hours of classroom lecture and discussion per week. Coursework will include classroom lectures, and exams along with in-class discussion using real-world examples and scenarios. You are expected to take an active role in your learning. Discussions and writing assignments play significant roles in the conduct of the course.

**Course Learning Objectives**

<b>Course Student Learning Outcomes</b>	<b>How students will practice each outcome in this Course</b>	<b>How student achievement of each outcome will be assessed in this Course</b>
Students will <b>categorize</b> the key players in cyber warfare	In-class discussion, writing assignments and other homework.	Writing Assignments, Midterm Exam and Final Exam
Students will <b>compare</b> and <b>contrast</b> different types and goals of cyber warfare.	In-class discussion, writing assignments and other homework.	Writing Assignments, Midterm Exam and Final Exam
Students will <b>categorize</b> cyber	In-class discussion, writing	Writing

warfare strategies and outcomes.	assignments and other homework.	Assignments, Midterm Exam and Final Exam
Students will <b>analyze</b> and <b>differentiate</b> the use of cyber warfare in traditional and nontraditional global conflicts.	In-class discussion, writing assignments and other homework.	Writing Assignments, Midterm Exam and Final Exam
Students will <b>demonstrate</b> the ability to understand the background and purposes of cyber warfare.	In-class discussion, writing assignments and other homework.	Writing Assignments, Midterm Exam and Final Exam
Students will <b>demonstrate</b> an understanding of how hactivist and other non-nation-state have changed the nature of cyber warfare.	In-class discussion, writing assignments and other homework.	Writing Assignments, Midterm Exam and Final Exam

**Required Textbook and Materials:**

*Cyber War.* Clarke (April, 10 2012). Harper Collins Publishers, ISBN13: 978-0-06-196224-0

*Inside Cyber Warfare.* Carr (December, 31 2011). O'Reilly, ISBN13: 978-1-4493-2

**Topics and Methodologies:**

The following outline delineates the tentative class schedule with topics to be addressed during the course. Textbook reading assignments are listed below. Additional reading and other assignment are listed in Blackboard.

<b>Week/Reading Assignment</b>	<b>Lecture Topics</b>
<b>1.</b> Carr pp. 1-14, 15-25, 31-39 and Clarke pp. ix, pp 1-32	Defining is Cyber Warfare
<b>2.</b> Carr pp. 45-74, 77-86, 89-99, 103 – 119 and Clarke pp. 33-68	Cyber Warfare Threat Actors
<b>3.</b> Carr pp. 121-129, 131-140, 141-152, and Clarke 69-102, 291-276	Attribution, Crime, Malware
<b>4.</b> Carr pp. 161-176, 179-188, 191-203 and Clarke 103-150, 151-178	Military Doctrine in Cyber Warfare

5. Carr pp. 217-241 and Clarke pp. 179-218	Information Warfare
6. No textbook reading assignment	Anonymous Ops and Lulzsec
7. Carr pp. 243-261, pp. 263-268, pp. 273-281	Capabilities by Nation-State
8. Clarke pp. 219-236, pp. 257-280	Hactivisim, Terrorism, and other Non Nation-States
9. No reading assignment	U.S. Government Mass Surveillance Programs
10. No reading assignment	Chinese Operations Against United States Targets
11. No reading assignment	United States Patriotic Hackers
12. No reading assignment	Chanology, WikiLeaks, and Operation Payback
13. No reading assignment	Arab Spring and HBGary Federal
14. No reading assignment	Op Sony and Occupy Movement
15. No reading assignment	Lulzsec, AntiSec, Stratfor, and Sabu
16. No reading assignment	Operation Last Resort and the Future of Cyber Warfare

**Reading Assignments** Students are expected to keep up with all reading assignments and come to class **prepared** to discuss the material.

**Important Note:** I will be attending a teaching workshop in South Charleston, WV on September Wednesday, September 3, and I will be speaking at an Information Security conference in Louisville, KY on Friday, September 26. We will not have class on those two days.

**Exams:**

There are two exams: the Midterm and the Final. They cover all the course material to that particular point.

**Evaluation Method:**

Course grades will be based on a total points system. Your grade will be based on a percentage of the total points possible.

## Course Point Distribution

Midterm Exam	100 pts
Final Exam	100 pts
Writing Assignments	320 pts

**Total Points Possible: 520 points**

### Example:

Midterm Exam	89 points
Final Exam	87 points
Writing Assignments	220 points

**Total points**

**396 divided by 520 = 0.761 In the example your grade would be 76%**

**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

**In the above example your final grade would be 86, which would be a B.**

### Grading Policy:

Instructor reserves the right to adjust these values based on the overall class performance.

### Absence from Final Exams

Students are required to take all regular examinations. If a student attends a course throughout the semester and is absent from the final examination without permission, the instructor counts the examination as zero and reports the final

grade of F. If the absence is the result of illness or some other valid reason beyond the student's control, the instructor reports a grade of I. In all cases, the student must verify the reason for the absence. (See "Incomplete" under Grades and Quality Points).

**Rescheduling of Final Exams** If a student has final exam conflicts or has three or more final exams scheduled for the same day, he/she should follow these steps:

- pick up a "Final Examination Rescheduling Form" from the major department or the college office;
- fill in the top part of the form in which he/she must show his/her complete final exam schedule;
- take this to the dean for verification;
- take the verified form to one of his/her class instructors and attempt to make a rescheduling agreement (date, time, place);
- if the student and instructor reach an agreement, the instructor should sign the form, keep a copy, and send a copy to the dean of the student's college;
- if an agreement cannot be reached, the instructor should note this fact and sign the form. In this case, the student should try to reach an agreement with the instructor of another class in conflict;
- if no instructors agree to reschedule and the student has all comments and signatures on the form, take the form to the Provost and Senior Vice President for Academic Affairs (OM 110);
- the Provost or designee will determine if an exam should be rescheduled and if so, the time, date, and place—the student and the instructor will receive written notice of any rescheduling;
- the Provost's ruling can only be modified by an agreement between the instructor and the student;
- if the student rejects a ruling by the Provost, he/she thereby agrees to take each exam at the scheduled time.

Note: the Provost will not consider any form submitted less than one week before the first day of finals, or any form that is incomplete. An instructor is not required to reschedule a final exam at the student's request.

### **Undergraduate Attendance Policy**

Students are expected to attend punctually all class meetings, laboratory sessions, and field experiences and to participate in all class assignments and

activities as described in the Course Syllabus. Absences are counted from the first class meeting after the student registers. Students registering late are expected to make up all missed assignments in a manner determined by the instructor. Students should be aware that excessive absences, whether excused or unexcused, may affect their ability to earn a passing grade.

The instructor of each class shall establish a policy on class attendance and make-up work, and provide the policy to students in the Course Syllabus. This policy must not conflict with university policies, including this policy. Class attendance may be a criterion in determining a student's final grade in the course if the instructor provides a statement to this effect in the course syllabus.

Students must promptly consult with their instructors about all class absences. Instructors will work with students to identify appropriate documentation and discuss any missed class time, test, or assignments.

Except in the case of University Excused Absences, it is the decision of the instructor to excuse an absence or to allow for additional time to make up missed tests or assignments. A student may not be penalized for an excused absence, provided that the student, in a manner determined by the instructor, makes up the work that has been missed.

Instructors are required to honor valid University Excused Absences and to provide reasonable and equitable means for students to make up work missed as a result of those absences. Academic obligations that cannot be made up should be addressed by the course instructor in consultation with the student to ensure that continued enrollment is feasible while there is still an opportunity to drop the course within the established withdrawal period.

This policy excludes academic endeavors that require the completion of a specific number of clock hours, such as clinical experiences and internships. For those courses, the department chair or program supervisor will determine the maximum number of absences. This policy does not supersede program accreditation requirements.

This policy also excludes laboratory courses that require significant preparation and monitoring. For such courses, departments will determine the minimum number of laboratories a student must complete to pass the course. If a student cannot complete this number of labs, the instructor may recommend that the student withdraw from the class.

If the instructor believes that the number of absences accrued under the terms of this policy (whether excused or unexcused) is such that a student cannot fulfill the learning experience and mastery that a course requires, the instructor may recommend that the student withdraw from the class.

## University Excused Absences

These are addressed by the instructor or the Dean of Student affairs as described in each item. Appropriate documentation is required for each absence.

The Dean of Student Affairs will notify course instructors of his or her actions using the university e-mail system.

1) *University-sponsored activities.* Student participation in authorized activities as an official representative of the university. Such activities include official athletic events, ROTC, student government and student organization activities, regional or national meetings or conferences when endorsed by an academic or organization faculty advisor, performances, debates, and similar activities. The Dean of Student Affairs addresses these absences.

2) *Medical circumstances.*

a) A student who is briefly ill or injured with fewer than three consecutive hours of class (see (b) below), and is therefore unable to attend class, should first consult with his or her course instructor about the absence. If necessary, the instructor may refer the student to the Dean of Student Affairs.

b) The Dean of Student Affairs will address absences of three or more consecutive hours of class. This includes absences of three consecutive one-hour class meetings, one three-hour class meeting, etc.

3) Death or critical illness of an immediate family member. Immediate family is defined as parents, legal guardians, siblings, children, spouse or life partner, grandparents, and grandchildren. The Dean of Student Affairs addresses these absences.

4) *Other official activities.*

a) Short-term military obligations. The Dean of Student Affairs addresses these absences. Students who are subject to federal military activation are covered by a separate policy. Please consult the catalog for this policy.

b) Jury duty, subpoenas for court appearance, religious holidays, and other official activities deemed by the Dean of Student Affairs to warrant an excused absence.

5) *Extreme personal emergencies.*

Examples of such events include house fires, serious crimes, and other grave emergencies deemed by the Dean of Student Affairs to warrant an excused absence

## **Academic Dishonesty Policy:**

Academic Dishonesty is defined as any act of a dishonorable nature which gives the student engaged in it an unfair advantage over others engaged in the same or similar course of study and which, if known to the classroom instructor in such course of study, would be prohibited. Academic Dishonesty 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.

In this course, **STUDENTS ARE NOT TO "COPY & PASTE" MATERIAL FROM A SOURCE INTO ANY ASSIGNMENT UNLESS SPECIFICALLY AUTHORIZED BY THE INSTRUCTOR.**

If you are found cheating on projects or plagiarizing answers from the Internet or other sources (among other things), 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.

## **Class Grade Appeals:**

Should you wish to appeal a grade, test question, etc, you **MUST** follow this procedure. You should send an email to 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 Blackboard, 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.

## **Electronic Submission Format:**

File Names: All electronic submissions must follow this file naming convention: ist461\_Last Name\_First Initial\_Assignment Name.doc Example:  
ist461\_gardner\_b\_researchpaper.doc

## **Communications**

Private E-mail will be used to make any general announcements, last minute changes, etc. It is **mandatory** that you monitor your email messages at least once a day. **PLEASE ONLY USE MY MARSHALL EMAIL ADDRESS FOR CORRESPONDENCE:** [gardner62@marshall.edu](mailto:gardner62@marshall.edu). Messages left on Blackboard



will result in a delayed response.

**Please read and follow the guidelines outlined in the “How to Email Your Professor” blog post:** <http://mleddy.blogspot.com/2005/01/how-to-e-mail-professor.html>

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

### **Disclaimer**

The instructor reserves that right to modify the course schedule and evaluation system should it become necessary for the effective conduct of the course.

### **Policy for Students with Disabilities**

Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities. University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304-696-2271 to provide documentation of their disability.

Following this, the DSS Coordinator will send a letter to each of the student's instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit <http://www.marshall.edu/disabled> or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271.

### **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

### **University Holidays and Important Dates:**

<http://www.marshall.edu/calendar/academic/fall2015.asp>

## **Dead Week**

The last five class days of the fall and spring semesters are designated as “dead week.” During this period, instructors cannot give exams that count as 15% or more of the final course grade. They can assign major papers and/or projects which count as 15% or more of the final course grade ONLY if the assignment is stated in the course syllabus. Instructors can introduce new material and give make up exams during the Dead Week. Exemptions from this policy include night classes, laboratories, freshman English composition courses, and any classes meeting once a week. Dead Week is not applicable to Intersession or Summer Session.

## **IST Software Store**

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/>.

## **Accessing the Store**

Students enrolled in this course will receive an email sent to their Marshall accounts containing information on accessing the store. Students will need to complete their account setup – which includes setting a password and agreeing to the included terms – in order to download the software. Once completed, students can use their individual accounts to “purchase” the applications. Purchasing an application will provide a license key and a link to download an installer.

## **Social Networking:**

Follow me on Facebook: <https://www.facebook.com/oncee>

Twitter: @oncee

Linkedin: [www.linkedin.com/in/304blogs/](http://www.linkedin.com/in/304blogs/)

## **Other Twitter accounts to follow:**

Twitter:: @MUDigForensics and @AppyIDE

## **Other websites of interest:**

Appalachian Institute of Digital Evidence - <http://www.appyide.org> Integrated Science and Technology - <http://www.marshall.edu/ISAT/>

### **About Me**

My name is Bill Gardner, and I am an Assistant Professor at Marshall University where I teach in the Digital Forensics and Information Assurance program in the Integrated Science and Technology in the College of Science. I am the coauthor of “Building an Information Security Awareness Program: Defending Against Social Engineering Hacks and Technical Threats”, and I am also the co-founder and an organizer of Hack3rcon based in Charleston, WV and past-president of the Appalachian Institute of Digital Evidence (AIDE) based in Huntington, WV.

I am an active member of the Information Security community where I'm known as oncee.

My goal in this and my other classes is to teach you the skills that you would need if you were applying for a job at my company. In this course you will learn real world skills that are in demand in today's job market.

For more detailed information me please visit my LinkedIn profile at <https://www.linkedin.com/in/304blogs>