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| block m_cropped.gif | **Integrated Science & Technology 454 Network Defense Course Syllabus** |

**Fall 2014  
Online Class**

**Instructor:** Bill Gardner, Assistant Professor  
**Office:** 213 Prichard Hall   
**Email**: [gardner62@marshall.edu](mailto:gardner62@marshall.edu)   
**Phone:** 304-696-2658   
**Office Hours**: MWF 2:00 pm – 3:00 pm, and TTh 9:00 am – 11:00 pm.

**Course Start Date August 25, 2014**  
**Course End Date December 12, 2014**  
 **Textbooks**

# *The Dissecting The Hack: The Forb1dd3n Network*. Jayson Street, Kent Nabors, Brian Baskin. Syngress; 1st edition (July 15, 2010). ISBN-13: 978-1597495684

**Course Description**

IST 454 examines the basics of Network Defense. During the semester we will take an in-depth look at the components that make up Network Defense, as well the steps and technical tools used by network attackers and network defenders, as well as case studies to illustration the techniques used by both groups.  
  
**Credit**The course is three (4) credit hours.

**Pre/co-requisites**  
IST 261 Introduction to Linux  
IST 362 Network Protocols  
IST 363 Network Administration

Computer Requirements: Students will need to install virtualization software on their computers to complete this course. Students should also have a basic knowledge of Linux and basic Linux commands.**Course Learning Objectives**

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| **Course Student  Learning Outcomes** | **How students will practice each outcome in this Course** | **How student achievement of each outcome will be assessed in this Course** |
| Students will **Apply** the principles the principles the Network Defense to properly secure networks. | Learning Modules 5, 7, 8, 9, 12, 14: Low Stakes writing assignments, Lab exercises, and Class forums | Module 5 - Lab 5; Module 7 – Hacking 3DNF Project; Module 8 – Writing Assignments, Lab 8, Midterm; Module 9 – Writing Assignment, Lab 9, Final; Module 12 – Writing Assignment, Lab 12, Final; Module 14 – Writing Assignment, Final. |
| Students will effectively **identify** and **explain** the network attacks and proper defenses. | Learning Modules 4, 5, 8, 11, 12, 13, 14, 15: Low Stakes writing assignments, Lab exercises, and Class forums | Module 4 – Lab 4, Midterm; Module 5 - Lab 5, Midterm; Module 8 – Writing Assignments, Lab 8, Midterm; Module 11 – Discussion Board, Lab 11, Final; Module 12 – Writing Assignment, Lab 12, Final; Module 13 – Writing Assignment, Lab 13, Final; Module 14 – Final; Module 15 – Writing Assignment, Lab 15, Final. |
| Students will effectively **identify** and react to network attacks | Learning Modules 4, 5, 8, 11, 12, 13, 14, 15: Low Stakes writing assignments, Lab exercises, and Class forums | Module 4 – Lab 4, Midterm; Module 5 - Lab 5, Midterm; Module 8 – Writing Assignments, Lab 8, Midterm; Module 11 – Discussion Board, Lab 11, Final; Module 12 – Writing Assignment, Lab 12, Final; Module 13 – Writing Assignment, Lab 13, Final; Module 14 – Final; Module 15 – Writing Assignment, Lab 15, Final. |
| Students will **demonstrate** the ability to identify best practices and tools used to defend networks. | Learning Modules 4, 5, 6, 7, 8, 11, 12, 13, 14, 15: Low Stakes writing assignments, Lab exercises, and Class forums | Module 4 – Lab 4, Midterm; Module 5 - Lab 5, Midterm; Module 6 – Discussion Board, Lab 6, Midterm; Module 7 - Hacking 3DNF Project; Module 8 – Writing Assignments, Lab 8, Midterm; Module 11 – Discussion Board, Lab 11, Final; Module 12 – Writing Assignment, Lab 12, Final; Module 13 – Writing Assignment, Lab 13, Final; Module 14 – Final; Module 15 – Writing Assignment, Lab 15, Final. |
| Students will correctly **interpret** common threats and best practices to defend against common threats. | Learning Modules 1, 2, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16: Low Stakes writing assignments, Lab exercises, and Class forums | Module 1 – Quiz 1, Lab 1, Midterm; Module 2 – Lab 2, Quiz 2, Midterm; Module 3 – Writing Assignment, Lab 3, Midterm, Module 4 – Lab 4, Midterm; Module 5 - Lab 5, Midterm; Module 6 – Discussion Board, Lab 6, Midterm; Module 7 - Hacking 3DNF Project; Module 8 – Writing Assignments, Lab 8, Midterm; ; Module 9 – Writing Assignment, Lab 9, Final; Module 11 – Discussion Board, Lab 11, Final; Module 12 – Writing Assignment, Lab 12, Final; Module 13 – Writing Assignment, Lab 13, Final; Module 14 – Final; Module 15 – Writing Assignment, Lab 15, Final; Module 16 – Writing Assignment, Final. |
| Students will **Identify** key figures, conferences and concepts in hacker culture | Learning Modules 2,16: Low Stakes writing assignments | Module 2 – Lab 2, Quiz 2, Midterm; Module 16 – Writing Assignment, Final. |

**Course Schedule**

**Week 1 - Learning Module 1 – Why Defend Networks (Threats)**

**Week 2 - Learning Module 2 – The Forb1dd3n Network**

**Week 3 - Learning Module 3 – Recon – Social Networking**

**Week 4 - Learning Module 4 – Recon – Google Hacking and Learning Module 5 – Recon – Deep Web Searching**

**Week 5 - Learning Module 6 – Recon – Physical Surveillance**

**Week 6 - Log Analysis and Module 7 - Recon - Do It Yourself: Hacking 3DNF (Project) Week 7 - Module 8 - Scan – Wardriving**

**Week 8 - Module 9 - Scan - Scanning Tools**

**Week 9 - Midterm and Module 10 - Explore - Authentication Security**

**Week 10 - Module 11 - Explore - Physical Security**

**Week 11 - Module 12 - Explore - Network Traffic Sniffing**

**Week 12 – Module 13 – Exploit - Social Engineering, Module 14 - Exploit - Email Security**

**Week 13 and Week 14 - Module 15 - Exploit - Metasploit**

**Week 14 and Week 15 - Module 16- Hacker Culture**

**Week 16 – Final Exam**

**Course Point Distribution**

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| Midterm Exam | 200 |
| Final Exam | 400 |
| Project | 100 |
| Quizzes | 200 |
| Low Stakes Writing Assignments | 1,000 |
| Lab Exercises | 1,200 |
| **Total** | **3,100** |
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Final letter grades are determined based on the following grading scale:

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

The following grading symbols are commonly used at Marshall University and will be used in this course:

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| Grades | Description |
| **A** | Achievement of distinction |
| **B** | Competent and acceptable work |
| **C** | Below average performance, minimally competent work |
| **F** | Failure, given for unsatisfactory work |
| **“I”** | Incomplete |
| **“W”** | Withdraw |

**Grading Rubric**

90-100% = A = sustained creative and critical inquiry of subject

90-89% = B = usually creative and critical inquiry of subject

70-79% = C = substantial understanding and integration of material

60-69% = D = adequate general understanding of material

00-59% = F = below what is expected of a undergraduate student

**COMMUNICATION**

The best way to contact me is via my email address: gardner62@marshall.edu. I will respond within 24 hours.

**UNIVERSITY POLICIES**

**Academic Dishonesty**

All students should be familiar with the university’s policy concerning academic dishonesty. This policy can be found on pp. 66 - 68 of the undergraduate catalog http://www.marshall.edu/catalog/undergraduate/ug\_10-11\_published.pdf, or on pp. 61 – 63 in the 2009 online graduate catalog http://www.marshall.edu/catalog/graduate/S2009/gr\_sp09\_published.pdf. (Faculty are encouraged to add any additional information specific to their expectations and/or rules regarding academic dishonesty in their class).

**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 Computing Services’ Acceptable Use Policy:**

All students are responsible for knowing this policy, which can be found on the web at <http://www.marshall.edu/ucs/CS/accptuse.asp>.

**Affirmative Action Policy**:

This course will follow Marshall University’s policy on Affirmative Action, which can be found on p. 63 of the undergraduate catalog http://www.marshall.edu/catalog/undergraduate/ug\_10-11\_published.pdf, or on pp. 16-17 of the 2008 graduate catalog http://www.marshall.edu/catalog/graduate/S2009/gr\_sp09\_published.pdf. Specifically, all students will be afforded equal opportunity without regard to race, color, sex, religion, age, disability, national origin, or sexual orientation.

**Important Dates:** http://www.marshall.edu/calendar/academic/fall2014.asp

**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” scheduled to be published on July 14, 2014, 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 where 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](https://www.linkedin.com/in/304blogs" \t "_blank)