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| block m_cropped.gif | **Digital Forensics and Information Assurance 454Network DefenseCourse Syllabus**  |

 **Spring 2018
Online Class**

**Instructor:** Bill Gardner, Assistant Professor
**Office:** WAEC 2005
**Email**: gardner62@marshall.edu
**Phone:** 304-696-2658
**Office Hours**: Monday 10am-12pm, Tuesday 9am-12 pm, Wednesday 9am-12pm, Thursday 9am-12pm

**Course Start Date January 8, 2018**
**Course End Date May 4, 2018**
 **Textbooks**

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

# *Building an Information Security Awareness Program*. Bill Gardner Valerie Thomas. Syngress; 1st edition (August 7, 2014). ISBN-13: 978-0124199675

**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**
None

**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 **identify**, **defend**, and **manage** threats against digital information. | 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:** [**http://www.marshall.edu/academic-affairs/policies/**](http://www.marshall.edu/academic-affairs/policies/)

**Important Dates:** <http://www.marshall.edu/academic-calendar/academic/spring2018/>

 **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 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%22%20%5Ct%20%22_blank)