**MIT 345 010 Application Security Fall 2023**

TR 11-12:15 Library Comp Lab

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# Learning Management System and Textbook: Janca, Tanya; *Alice & Bob Learn Application Security*. Wiley 2021. ISBN: 978-1-119-68735-1 (you may get the ebook, if preferred)

# I. COURSE COVERAGE:  Chapters 1-9

# II. CATALOG DESCRIPTION: In the past, security measures were merely supplemental to software design, but with the increasing threat of hackers who manipulate applications and steal or modify important data, countermeasures are vital to protect applications from vulnerability. This course provides students with an overview of best practices in developing secure software applications and the tools for investigating anomalies and vulnerabilities in application software. Prerequisite: MIT 285.

**III. CONCEPTUAL FRAMEWORK:**

**The Mathematics Department at Reinhardt University believes that all students should have an exposure to the ideas of science and the scientific method**. This includes exposure to laboratory procedures, familiarity with some of the vocabulary of science and ability to read scientific articles in the newspaper or in popular magazines.

**The Mathematics Department at Reinhardt University believes that all students should be familiar with the systematic development of science through history.** This includes an understanding of the effects that science has had on history and that history has had on scientists.

**The Mathematics Department at Reinhardt University wishes to convey to students that science is a continuing endeavor that will not ever be finished.** This includes an introduction to the interaction of theory and observation.

**IV. COURSE RELATIONSHIP TO CONCEPTUAL FRAMEWORK:** The course will be taught using lectures, in-class problem solving activities, and Labs

**V. MATHEMATICS PROGRAM OBJECTIVES:** The Mathematics Program at Reinhardt University offers courses geared to  
**MPO1** Analyze and solve problems by using reasoning, logic and evidence, and by bringing knowledge from a wide range of mathematical areas.

**MPO2** Use effective written and oral expression of mathematical concepts in the creation of a mathematical argument by recognizing a wide range of mathematical terms and vocabulary.

**MPO3** Apply axiomatic systems.

**MPO4** Apply mathematical research methodologies by using libraries, informational technologies, computer programming and numerical methods in order to create solutions to problems.

**MPO5** Apply ethical, legal, and policy issues to Information Technology

**MPO6** Create IT solutions to solve organizational problems.

**VI. MATHEMATICS PROGRAM STUDENT LEARNING OUTCOMES:** Taking this course, students will be able to

**SLO1** Solve a word problem by applying the appropriate mathematical setup, obtaining the mathematical solution, and interpreting this solution in the context.

**SLO2** Solve a theoretical problem by identifying the appropriate mathematical context, interpreting the question and the nature of the solution, and checking that the solution is correct.

**SLO3** Complete a proof or produce a mathematical object that satisfies specific properties.

**SLO4** Solve a problem by consulting various resources, applying appropriate technological tools, and using adequate approximations.

**SLO5** Analyze how information technology affects ethical and legal issues.

**SLO6** Synthesize appropriate solutions to organizations' problems.

**VII. ALIGNMENT TO REINHARDT UNIVERSITY SLO’s:**

|  |  |  |
| --- | --- | --- |
| **Math PO** | **Math SLO** | **RU SLO** |
| 1 | 1 | 1, 2, 4 |
| 2 | 2 | 1-4 |
| 3 | 3 | 1-4 |
| 4 | 4 | 1-4 |
| 5 | 5 | 1-4, 7 |
| 6 | 6 | 1-4 |

# VIII. COURSE OBJECTIVES: As a result of taking this course the student should:

1. Analyze software development practices that embody the principles of software security to minimize attack surfaces;
2. Analyze responses to threat and risk that incorporate application security best practices;
3. Assess code weaknesses and their effect on software security;
4. Evaluate tool-based testing and reporting methodologies;
5. Evaluate software verification and validation activities;
6. Evaluate the use of metrics to assess security defects in software;
7. Develop a baseline management control mechanism.

**IX. POLICES:**

**Cell Phone Policy:** Please turn off or turn all cellular phones on silent. Do not use them in class without prior permission by your instructor.

**Attendance:** Students are expected to attend each session. If you miss a class, you are responsible for finding out what was covered and getting the work done.   
**Late Policy:** Work submitted late will be penalized according to the chart, unless there is a documented extenuating circumstance provided to the instructor.

|  |  |
| --- | --- |
| Days Late | Percent Penalty |
| 1-3 | 10% |
| 4-7 | 20% |
| 8-14 | 30% |
| 15 or more | 50% |

**Academic Dishonesty:** The Reinhardt University academic dishonesty policy will be followed. You will earn a zero for the assignment or exam in which you are found cheating. *Use of AI, including ChatGPT, without proper citation, will be considered cheating.*

**Quality of Student Work**: Use of proper grammar, correct spelling, and writing principles are expected in all work. Full credit will not be granted for work that contains grammar or spelling errors.   
**Expectations**: You are expected to read and study our textbook. Reading a section before it is covered in class is a great habit! For each instructional hour students are expected to spend a minimum of two hours in independent work activities: therefore, for this class each student is expected to “work at home” for at least six hours. Students are expected to pay attention and participate in class. Use of personal laptops is encouraged, but access to the college computer labs is granted.

**Communications:** All written communications will be through Reinhardt email. The subject line of all emails should use the convention:

CourseNo\_Subject\_LastName

MIT225\_Homework 1\_Roberts

**Covid 19**: Reinhardt University’s COVID-19 Policy applies to all students, faculty, staff, administration and guests.  The policy is subject to changes based on conditions and guidance from CDC, state and local health experts.  Current policies and procedures can be found at: <https://www.reinhardt.edu/back-to-campus>. If you have any questions, please refer to the website or contact Reinhardt University at the numbers below.

Campus Nurse within the Student Health Center

[studenthealthcenter@reinhardt.edu](mailto:studenthealthcenter@reinhardt.edu), 770-720-5542 or [www.reinhardt.edu/nurse](http://www.reinhardt.edu/nurse).

Public Safety

**Non-Emergency Phone:** 770.720.5789  
**Emergency Phone:** 770.720.5911  
[publicsafety@reinhardt.edu](mailto:public_safety@reinhardt.edu)

Dean of Students

[deanofstudents@reinhardt.edu](mailto:deanofstudents@reinhardt.edu), 770-720-5540

Office of the Vice President for Academic Affairs

[VPAA@reinhardt.edu](mailto:VPAA@reinhardt.edu), 770-720-9102.

*The instructor reserves the right to modify the course requirements and other related policies as circumstances may dictate, and with sufficient notification to all students. Even the professor can have an unanticipated emergency, and the university, or the community at large, may experience an emergency that requires changing the class schedule or requirements. I don't expect to invoke this clause, but if I do, you will be notified as soon as possible. Any change will also be posted to Canvas.*

**X. GRADE DETERMINATION:** Your grade will be the one reported on Canvas, then uploaded to Eagleweb. Your grade will be based on chapter homework, weekly OWASP reports, and the OWASP final project, with the following weights:

Chapter Homework 45%

OWASP Weekly 40%

OWASP Final Product 15%

Total 100%

**Exams:** No make-up exams will be given*. For University related absences on a test day, it is possible to schedule an earlier date for the test:* it is the student’s responsibility to make arrangements at least a week before the scheduled absence.

**Project/Labs:** By the end of the term, you will have completed a 25-30 page document examining the principal software vulnerabilities reported by OWASP, including a lab summary for each vulnerability.

**Homework:** Homework consists of assignments from the textbook. Homework is submitted on Canvas and should use the following filename convention:

CourseNo\_AssignmentName\_LastName

MIT225\_Chapter2\_Roberts

**XI. GRADING SCALE:**

A=[90, ∞), B=[80, 90), C=[70, 80), D=[60,70), F=[0, 60)

**XII. CSS:** The Center for Student Success (CSS) is located on the top floor of the Library, room 313. **CSS offers free peer and faculty tutoring for all subjects**. For appointments, go to Reinhardt webpage and click Center for Student Success.

**XIII. ADA and ASO:** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a documented disability requiring an accommodation, please contact the Academic Support Office (ASO).

Reinhardt University is committed to providing reasonable accommodations for all persons with disabilities. Therefore, if you are seeking classroom accommodations under the Americans with Disabilities Act, you are required to register with the Academic Support Office (ASO). ASO is located in the basement of Lawson Building. Phone is 7707205567. To receive academic accommodations for this class, please obtain the proper ASO letters/forms. Students with disabilities needing accommodations must contact the **A**cademic **S**upport **O**ffice prior to contacting me. The ASO will then inform me about your (free of charge) arrangements.

**XIV. OFFICE HOURS AND SCHEDULE:**

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| --- | --- | --- |
| **Day** | **Teach** | **Office** |
| **MW** |  | **By appointment** |
| **TR** | **MIT 335/336 9:30-10:45**  **MIT 345/355 11:00-12:15** | **1:00-4:00pm** |

**XV. PROJECTED COURSE OUTLINE** (subject to change at instructor’s discretion)

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| --- | --- | --- | --- |
| **Week**/date | **Class Coverage** | **OWASP** | **Special events** |
| **01**: Aug 14 – 20 | Chapter 1-2 | A01 |  |
| Aug 21 |  |  | Final date to drop/add |
| **02**: Aug 21 – 27 | Chapter 3-4 | A02-A03 |  |
| **03**: Aug 28 – Sept 3 | Chapter 5 | A04-A05 |  |
| Sept 4 |  |  | Labor Day |
| **04**: Sept 4 – Sept 10 | Chapter 6 | A06-A07 |  |
| **05**: Sept 11 – 17 | Chapter 7 | A08-A09 |  |
| **06**: Sept 18 – 24 | Chapter 8 | A10 |  |
| **07**: Sept 25– Oct 1 | Chapter 9 | OWASP introduction |  |
| **08**: Oct 2 – Oct 8 | Final Project |  |  |
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