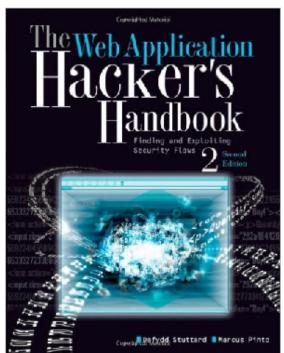# CNIT 129S: Securing Web Applications

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38397 501 W 06:00-08:50PM MUB 388
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Spring 2018 -- Sam Bowne

Course Justification

Industry advisors have repeatedly asked us to teach this class, because every modern business needs a web presence and there are far too few workers qualified to protect them from hackers. There are many jobs available for students who learn how to protect our healthcare, financial, and other confidential data from criminals, spies, and pranksters.

Catalog Description

Techniques used by attackers to breach Web applications, and how to protect them. How to secure authentication, access, databases, and back-end components. How to protect users from each other. How to find common vulnerabilities in compiled code and source code.

Advisory: CNIT 131 and CNIT 120, or comparable familiarity with websites and security concepts

Major Learning Outcomes

Upon successful completion of this course, the student will be able to:

A. **Explain the current state of Web application security**
B. **Analyze basic application functionality**
C. **Secure data stores and back-end components**
D. **Protect users from other users**
E. **Demonstrate common exploits and patch their root causes**
F. **Implement servers and firewalls effectively**

Textbook

"The Web Application Hacker's Handbook: Finding and Exploiting Security Flaws 2nd Edition", by Dafydd Stuttard , Marcus Pinto; ISBN-10: 1118026470

Schedule (subject to revision)

Date	Quiz	Topic
Wed 1-17		**Ch 1: Web Application (In)security** **Ch 2: Core Defense Mechanisms**
Wed 1-24	**Quiz Ch 1 & 2 ***	**Ch 3: Web Application Technologies**
Wed 1-31	**Quiz Ch 3 *** **Proj 1 due**	**Ch 3: Web Application Technologies (continued)**
Fri 2-2	*Last Day to Add Classes*	
Wed 2-7	**Quiz: Ch 4 *** **Proj 2 & 3 due**	**Ch 4: Mapping the Application**
Wed 2-14	**Quiz Ch 5 *** **Proj 4 due**	**Ch 5: Bypassing Client-Side Controls**
Wed 2-21	**Quiz: Ch 6 *** **Proj 5-6 due**	**Ch 6: Attacking Authentication**
Wed 2-28	**Quiz: Ch 7 *** **Proj 7 due**	**Ch 7: Attacking Session Management**
Wed 3-7	**Quiz: Ch 8 *** **Proj 8 due**	**Ch 8: Attacking Access Controls** **Ch 9: Attacking Data Stores (Part 1)**
Wed 3-14	**No Quiz** **No Proj Due**	**Guest Speaker (may be rescheduled)**
Wed 3-21	**Quiz Ch 9 *** **Proj 9 & 10 due**	**Ch 9: Attacking Data Stores**
Wed 3-28	*Holiday - No Class*	
Wed 4-4	**Quiz: Ch 10 *** **Proj 11-12 due**	**Ch 10: Attacking Back-End Components**
Wed 4-11	**Quiz: Ch 11 *** **Proj 13 due**	**Ch 11: Attacking Application Logic** **Ch 12: Attacking Users: Cross-Site Scripting (Part 1)**
Wed 4-18	**Quiz Ch 12 *** **Proj 14 due**	**Ch 12: Attacking Users: Cross-Site Scripting (Part 2)**
Wed 4-25	**Quiz Ch 13 *** **Proj 15 due**	**Ch 13: Attacking Users: Other Techniques (Part 1)**
Wed 5-2	**No Quiz** **Proj 16 due**	**Ch 13: Attacking Users: Other Techniques (Part 2)**
Wed 5-9	**Quiz Ch 14 *** **Proj 17 Due**	**Ch 14: Automating Customized Attacks**
Wed 5-16	**No Quiz** **All Extra Credit Projects Due**	**Last Class: Open Lab**
Thu 5-17 through Wed 5-23		*Final exam available online: 1 hour, only one attempt*

* Quizzes due 30 min. before class