



BAKER COLLEGE

STUDENT LEARNING OUTCOMES

CS 3310 Application Security Practices
3 Semester Credit Hours

Student Learning Outcomes and Enabling Objectives

1. Explore the importance of security in a network connected application.
 - a. Explain what application security is.
 - b. Discuss the reasons we have application security.
 - c. Discuss the impact of little or no security.
2. Incorporate security in a network connected application
 - a. Use a security development lifecycle during the software development process.
 - b. Discuss how hackers might think and act.
 - c. Construct and use safe coding practices.
3. Assess security threats.
 - a. Explore common threat modeling techniques.
 - b. Describe common security threats.
 - c. Explore methods to test applications for vulnerabilities.
 - d. Develop test cases for each threat.
4. Apply a structured approach to mitigate threats that could affect a system.
 - a. Discuss how legislation impacts application security.
 - b. Explore ways to secure the application codebase.
 - c. Implement methods for achieving user privacy.
 - d. Examine ways to secure the infrastructure – database, server, and communication session.
 - e. Apply encryption algorithms to secure authentication.
5. Identify countermeasures and how they can be used
 - a. Investigate social and economic implications
 - b. Implement auditing and logging
 - c. Analyze reasons to alter configurations
 - d. Explore the importance of quick fixes and patches

Big Ideas and Essential Questions

Big Ideas

- Application Security
- Threat Modeling
- Security Practices
- Countermeasures

Essential Questions

1. What is application security?
2. Why is security important in network connected software?
3. How are common threat modeling techniques used?
4. How can network connected software be attacked?
5. How can software be designed to prevent vulnerabilities?
6. How are countermeasures used during or after an attack?
7. What are the consequences to businesses operations and personal privacy when application security is not emphasized?
8. How does legislation affect application security? (examples may include: COPA Child Online Protection Act, Communications Decency Act, Child Pornography Prevention Act, HIPPA Privacy Guidelines)

These SLOs are approved for experiential credit.

Effective: Fall 2021