SY306 Course Policy

Instructors

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Course Description

The course covers basic web-based application development with a database back-end, with a focus on security. Topics include client side and server side web applications development, the SQL language for relational databases, web authentication, secure web protocols, attack and defense of web-based applications with a database back-end.

Learning Outcomes

Upon completing this course, students should be able to:

1. Develop static and interactive client-side web applications.
2. Query relational databases to satisfy user requirements.
3. Develop database-backed web applications, for a given database. (Supports student outcome b)
4. Implement data access control mechanisms for database security.
5. Implement application-level security measures to prevent unauthorized access to data. (Supports student outcome b)
6. Understand the principles of common web-based attacks such as cross-site scripting, cross site request forgery, SQL injections

Course Topics

- Introduction to HTML, CSS, JavaScript jQuery and AJAX
- Server-side programming with Python
- Web protocols - http, https
- Authentication: HTT Basic authentication, digest, form-based authentication
- Cookies, sessions
- Relational database model and SQL

- Web applications wih a database back-end
- Database security
- CSRF, XSS attacks, SQL injections

Textbooks

The course is self-contained, all necessary notes and assignments will be available on the course website. If you wish to purchase a textbook as an additional reference, ***MySQL for Python by Lukaszewski*** is highly recommended and would be a good additional resource for this class.

Online Resources

Throughout this course, you can and ought to use online resources to assist your learning. These often contain code examples. You must identify in your final code every instance of code you adapted from an outside source. Using external code without citing it is an honor offense! Write a comment block with the citation above the portion of your code that you adapted from an online resource. Sample code citation below:

```
/***** Below code adapted from: https://www.w3schools.com/js/js_validation.a

function validateForm() {
  var x = document.forms["myForm"]["fname"].value;
  if (!isNaN(x)) {
      alert("Entry not valid!");
      return false;
    }
}
```

Extra Instruction (EI)

EI is strongly encouraged and should be scheduled by email with the instructor. EI is not a substitute lecture; students should come prepared with specific questions or problems.

Classroom Conduct

The section leader will record attendance and bring the class to attention at the beginning and end of each class. Drinks are permitted, but they must be in sealed containers. Food, alcohol, smoking, smokeless tobacco products, and electronic cigarettes are all prohibited. No use of computer equipment for any purpose other than as outlined in the class activity

is permitted, this is a distraction and will not be tolerated, i.e. reading e-mail, playing games, or messaging classmates. Cell phones must remain silent during class. Their use is **prohibited** unless explicitly allowed by your instructor for a specific activity.

Grading

Homework:

Homework assignments will occasionally be given to reinforce concepts from class. They will be included on the course calendar and are expected to be completed even if your instructor does not mention them in class, so check the website. You may collaborate on homework.

Labs:

Labs are assigned every week and usually due one week later. You may collaborate on labs.

Presentation:

Students will complete a presentation as a small group. A supplemental lab on the topic will be provided. The presentation will include working examples and a discussion of the cybersecurity implications of the topic. Student should submit the completed lab and presentation by assigned date on the course calendar.

Projects:

There is one project which will be made up of several parts, due towards the end of the semester. This project will be completed with a small group. **No collaboration is allowed outside of your group.**

Quizzes:

There will occasionally be quizzes on Mondays covering material from the previous week. Each lecture may have candidate problems, exercises and questions from which the quiz may be derived, it is your responsibility to review them to make sure you understand and can successfully solve them. Quizzes missed due to excused absence will be ignored in grade calculations.

Exams:

All exams will be closed book, closed notes. Students however ***will*** be allowed to bring individually prepared hand-written "study sheets" with anything written on them (1 single-sided, letter size sheet for the 6-week exam, 2 single-sided, letter size sheets for the 12-week exam, and 3 single-sided, letter size sheets for final). Study sheets will be collected at the end of exam and will not be returned. Use of any electronic devices is not permitted during the exams. All work on exams must be your own.

	6wk	**12wk**	**16wk**	**Final**
HW & Quizzes	20%	15%	10%	5%
Labs	40%	35%	30%	20%
Exam (6wk)	40%	25%	20%	15%
Presentation				5%
Exam (12wk)		25%	20%	15%
Projects			20%	20%
Exam (Final)				20%

Late Policy:

All lab assignments are due at 23:59 the evening before the following lab via the online system `submit.cs.usna.edu` Printed and completed homework assignments are due at the beginning of the following class. Homework assignments will not be accepted late unless prior arrangement with your instructor has been made (due to illness, MO, etc.) Labs and Projects may be submitted late with a **20% grade penalty per day.**

Collaboration:

Collaboration should take the form of conversations with regard to syntax, strategies and methods for accomplishing the goal of the assignment; however design and implementation must be the work of the individual student handing in the final product. All students should contribute to this collaboration, or else it is not collaboration it is someone else doing your assignment for you.

While you may not collaborate outside of your group on projects, you are allowed to collaborate with other students for homework and labs, subject to the following conditions:

1. You can only collaborate with students currently enrolled in SY306.
2. All collaboration must be cited on your assignment when you submit it. Do not forget to do this as uncited collaboration is the same as plagiarizing another student's work.

3. Solutions are to be written on your own, in your own words/code. It is never appropriate to even look at another student's code, let alone share code or copy it as your assignment.

Violation of any of these conditions will be considered a violation of the Brigade Honor Concept and will be forwarded to the Brigade Honor Staff.

PDF Version of course policy

Give credit where it is due! The calendar uses CSS from the skeleton CSS library at getskeleton.com (MIT License), and the bootstrap libraries at getbootstrap.com. **Make sure you always cite your materials as well!**