Syllabus – *CSC 321 – Web Application Development*

Gordon and Jill Bourns College of Engineering Mission Statement and Verse
"Preparing engineering students of excellence and character, with a Christian worldview, who are called to serve, equipped to lead and sent to engage the world with their lives and the appropriate use of technology."

"… For we are God's workmanship, created in Christ Jesus to do good works, which God has prepared in advance for us to do." *Ephesians 2:10*

Course Purpose

Web Application Development will cover the foundations of the web and internet, fundamental browser technologies including HTML, CSS and JavaScript, the development process for large applications, and full-stack web development using Flask, AJAX and SQLite.

Course Description

The Internet is continuing to grow, with a shift from the knowledge provision that typified the Web of the early 2000's, to highly interactive sites and user generated content. This has led not only to some remarkable business opportunities but also to profound changes in the way people relate to each other. This unit explores technologies, programming languages and environments that underpin development for the modern Internet. It builds on students' previous programming experience to develop and demonstrate technologies in action. (3 units)

Textbook and Resources (optional)

There are several excellent online resources and textbooks for the subjects covered in this unit. For the lectures and lab exercises, we may refer to the books (but also refer to additional resources provided throughout the course):

- *Programming the World Wide Web 2013*, 7th Ed., Robert Sebesta, Pearson.
- *Flask Web Development*, Miguel Grinberg, O'Reilly, 2018 ISBN 9781491991732.

Course Learning Outcomes

Upon successful completion of this course, students should understand the following:

- Be able to create and test web applications (1, 5)
- Be able to understand a web application framework and an appropriate architecture (11)
- Be able to be build dynamic web application and deploy it to the "cloud" using web hosting PaaS service (5, 11)
- Be able to understand and RESTful framework and CRUD operations and interact with APIs from external sources (10, 11)
- Be able to practice agile principles in web development (10, 11)

Instructor

Benjamin Knisley, MS
Engineering Email: bknisley@calbaptist.edu

Zoom Instructions for Live Synchronous Instruction:

1) To meet with me during **class and office hours**: M-F, please use the information below; you may be placed into the waiting room, in that event, I will let you have access.

Topic: Benjamin Knisley's Personal Meeting Room

Join Zoom Meeting

https://calbaptist-edu.zoom.us/j/4304101509

Meeting ID: 430 410 1509

One tap mobile

+13052241968,,4304101509# US

+13092053325,,4304101509# US

Join by SIP

• 4304101509@zoomcrc.com

Join instructions

https://calbaptist-edu.zoom.us/meetings/4304101509/invitations?signature=hucTqRw80FeNgrcwlOvMxG6RNpL6bZ6FsqiKjeY9D2U

Technological Support

This course will be supported by Blackboard. Go to http://www.calbaptist.edu and click on the Blackboard link, or browse to calbaptist.blackboard.com . Grades will be posted on the Blackboard website. Check in frequently for announcements, assignments, and discussions. All assignments must be submitted through Blackboard. We cannot accept homework that is emailed to me! Course materials such as PowerPoint slides, assignments, etc. will be posted on Blackboard. You are responsible for all material covered during lectures and assigned reading, not just what appears on the PowerPoint slides! Note: when you communicate with your instructor by email, put "CSC321" in the subject line!

Generative Artificial Intelligence (AI)

Generative AI (ChatGPT, Github Copilot, etc.) is a valuable set of tools within our industry and, as such, is something that students should become comfortable using in an ethical way. The use of generative AI should be treated the same as collaboration with another student and, as such, whenever generative AI is consulted there should be acknowledgement of that input listed in a prominent location at the top of the first page of your assignment or in the comments at the top of your code.

As we, as a society, grapple with the ethical use of Generative AI, it is best to ask if its use is appropriate until more formalized standards are in place. Also, it is important for students to understand several things about generative AI:

1. It is often incorrect, and this may or may not improve over time. The code/answers recommended by a generative AI tool should ALWAYS be checked against authoritative sources (just like anything that comes from an external source).
2. Any code submitted to a generative AI site becomes PUBLIC DOMAIN. Students should NEVER willingly paste anything (code, documents, etc.) that is proprietary and subject to copyright.

In general, students are responsible for the work they submit. All final submissions should be a student's own work with proper credit given to all collaborators (whether the source is humans or a generative AI).

Finally, while the instructor may permit and/or encourage Generative AI tools for some assignments, the instructor also holds the right to ban Generative AI tools for other assignments (and will do so, especially for exams, for example). Thus, it is imperative that, while Generative AI tools can be an amazing tool for learning, the student is still expected to be able to demonstrate proficiency in all course material WITHOUT the use of Generative AI.

Homework assignments and projects

Students are allowed to have group discussions on requirements and algorithms of the problems in your assignments. **However, copying your classmate's (or anyone else's) work will be considered as academic dishonesty and a violation of the University's Honor Code. Any material that you use from another source must be clearly cited (indicate what material you are using and tell where it's from).** Homework assignments will be submitted via Blackboard. Specific requirements for each assignment will be stated at that time. Please pay attention to the submission requirements:

- unless specifically allowed, NO homework will be accepted in person or by email
- submit your assignment only in the format requested (do not submit zip files, multiple files or JPEG images, for example)
- be sure and submit your work on time.

No late work will be accepted!

Like all graduate courses, this will be a challenging course. Experience shows that students who fall behind are rarely successful in catching up and achieving the course objectives. Please turn your work in on time, as no late homework submissions will be accepted. The submission process in Blackboard enforces deadlines; do not submit your assignments by email! **If you send me a late homework by email, requesting consideration, not only will you receive no credit for that assignment, but I may deduct five points from your overall grade for the course!**

Grading

Graded Item	# of Items	Percentage
Projects	3	30%
Exercises / HW	8	20%
Exam	2	30%
Final Exam	1	20%
		100%

Grades will be assigned on the following basis:
A 93-100% A- 90-92% B+ 87-89% B 83-86% B- 80-82%
C+ 77-79% C 73-76% C- 70-72% D+ 67-69% D 63-66% D- 60-62%
F below 60%

Some Key Points to Remember:

- On homework assignments and projects, you must submit your own work! To do otherwise is an Honor Code violation! Be very careful when sharing ideas; do not use anyone else's work!

- When communicating with me by email, you must put "**EGR327**" in the subject line.
- To keep up with the material, read the relevant section of the textbook before each lecture.

CSDS Rules of conduct:

As college students and soon-to-be professionals, your conduct around your peers and your professor are expected to be polite, respectful and non-distracting. In particular, this means the following:

- No use of cell phones in class (for calls, texting, browsing, gaming, playing music or any other function) unless required for a classroom activity. Check with your instructor if you have any questions.
- No use of any computer for a non-class related purpose (taking notes is OK, working on homework, gaming or browsing is not)
- Earphones are not allowed during any class sessions.
- Do not record the lecture without permission.
- No talking or other behavior that might distract another student
- No treating another class member or the instructor with disrespect
- No submitting late work via email (or any other method) pleading for consideration

For each violation of any of the above guidelines, five points will be deducted from your overall grade for the course

Late assignments

- Late assignments **WILL NOT BE ACCEPTED**.
- Assignments are submitted via Blackboard through any terminal that is connected to the Internet.
- Students are encouraged to submit assignments early; do not wait until the last possible moment to submit assignments.
- There are no acceptable excuses for the assignments being late.

Attendance

- Students are required to attend all class sessions.
- If a student decides to drop the course, it is their responsibility to do so by submitting a Drop Form to the registrar's office.
    - The instructor cannot drop a student from a class.
    - If the course is not properly dropped, the student will receive an "F" as the final grade.

Points will be allocated for class participation for each class meeting.

- A student cannot participate in any class discussion if they are not present; therefore, zero participation points are issued for the session(s) missed.
- Participation is not limited to classroom discussions, but includes inquiries about assignments, techniques, best practices deploying solutions, and participation with respect to **in-class and external-class assignments submitted**.

Class Preparation

- Students are expected to prepare for each assignment prior to the class which presents the topic.
- There will be in class discussions and demonstrations.
  - Demonstrations are not the sole responsibility of the instructor, but from time to time individuals and teams will be required to demonstrate a technique.
- Plan to spend approximately six hours each week working on reading, reviewing, homework, and laboratory assignments to obtain a grade of "C" in this course.

Academic Dishonesty

- Academic dishonesty, as explained in the student handbook HONOR CODE policy, **WILL NOT BE TOLERATED**.
- Each student should become familiar with those offenses identified in the student handbook.
- A failing grade in the course will result from offenses identified as "cheating," especially the misrepresentation of assignments.
- ***All course work is the sole responsibility of the student***. Work performed by a student other than the name appearing on the assignment turned in, will be considered misrepresentation for **both** students for the assignment. At a minimum, a failing grade for the assignment and potentially the course will result from any incident of academic dishonesty.
- Students are expected to uphold the school's standard of conduct relating to academic honesty.
- Students assume full responsibility for the content and integrity of the academic work they submit. The guiding principle of academic integrity shall be that a student's submitted work, examinations, reports, and projects must be that of the student's own work.
- Students shall be guilty of violating the honor code if they:
  1. Represent the work of others as their own.
  2. Use or obtain unauthorized assistance in any academic work.
  3. Give unauthorized assistance to other students.
  4. Modify, without instructor approval, an examination, paper, record, or report for the purpose of obtaining additional credit.

5. Misrepresent the content of submitted work.

- The penalty for violating the honor code is severe. Any student violating the honor code is subject to receive a failing grade for the course and will be reported to the Office of Student Affairs and Provost. If a student is unclear about whether a particular situation may constitute an honor code violation, the student should meet with the instructor to discuss the situation.

It is permissible to assist classmates in general discussions of computing techniques. General advice and interaction is encouraged. Each person, however, must develop his or her own solutions to the assigned projects, assignments, and tasks. In other words, students may not "share solutions" on graded assignments. Such collaboration constitutes cheating. A student may not use or copy (by any means) another's work (or portions of it) and represent it as his / her own. If help on an assignment is needed, contact the instructor; do not seek solutions from other classmates.

Classroom Behavior

Any acts of classroom disruption that go beyond the normal rights of students to:

- question and discuss the instructor's educational process or outside relative subject content,
- ingress and egress the classroom on time, or
- conduct normal communication

will not be tolerated. (see Student Life Policy described in the Student Handbook).

Children in class

The University does not provide childcare for the dependents of students, faculty, or staff. Students are not permitted to be accompanied by children / dependents during class sessions. (NOTE THE CHILDCARE (BABY-SITTING) POLICY IN YOUR STUDENT HANDBOOK.)

APPEALS POLICY

To appeal a grade on an individual assignment, send e-mail to your instructor's e-mail address within two weeks of the grade having been received. Overdue appeals will not be considered. To appeal a final course grade, use the normal CBU appeals process.

INCOMPLETE POLICY

Students will not be given an incomplete grade in the course without sound reason and documented evidence as described in the Student Handbook. In any case, for a student to receive an incomplete, he or she must be passing and must have completed a significant portion of the course.

DISABILITIES POLICY

In compliance with the Americans with Disabilities Act (ADA), all qualified students enrolled in this course are entitled to "reasonable accommodations." Please notify the instructor during the first week of class of any accommodations needed for the course.

TUTOR ASSISTANCE

Tutors are available in the Office of Student Success in Lancer Arms #54.

SEXUAL HARASSMENT & TITLE IX POLICY

Review the Sex Discrimination, Sexual Violence & Sexual Harassment section of the Student Handbook. All offences will be reported.

Student Handbook: http://www.calbaptist.edu/explore-cbu/offices/office-registrar/academic-catalogs/undergraduate/
Academic Catalog: http://www.calbaptist.edu/explore-cbu/offices/office-registrar/academic-catalogs/undergraduate/
Calendar: https://insidecbu.calbaptist.edu/ICS/Academics/Academic_Calendars.jnz

Course Schedule (each row corresponds ~1 week)

Introduction	HTML	No lab, but set up your Dev Environment	Visual Studio Code.
CSS	Bootstrap	Getting Started, and HTML5	CSS & Bootstrap
Javascript	Javascript	CSS and Bootstrap	Javascript
Document Object Model	Document Object Model	Javascript	Document Object Model
JQuery	AJAX	Document Object Model	Midsemester Test
Agile Development	GIT	AJAX	
Flask Web Development	Server Side Rendering	Git Basics	Setting up Flask
MVC Architecture	Sockets	First Flask App	Adding a DB
Authentication	Testing	Adding a Database	Adding Chat
REST APIs	REST APIs	Testing	Testing
Client Side Rendering	Client Side Rendering	Deploying to Heroku	REST APIs
Going to Production	Future of the web	Project demos	Revision