<u>Syllabus</u>

CSC 2610: Cloud Fundamentals and Web Programming

***Catalog description*:** (3 cr. hrs.) Characteristics, theory and fundamentals of cloud computing and related technologies; cloud types, services and architectures; principles of application protocols and collaborative web platforms; Java programming, web programming; socket programming.

***Prerequisite*:** CSC 1254 or 1351 or ISDS 3107

Course coordinator*:* Dr. Qingyang Wang; qywang@csc.lsu.edu; 325 Electrical Engineering Building

Learning Objectives:

1. Define concepts and terminology related to cloud computing
2. Determine applications suited for a cloud environment
3. Classify cloud architectures/platforms
4. Explain concepts of elasticity and scalability
5. Evaluate cloud architecture development lifecycles and select from alternatives
6. Describe communication protocols in the application layer
7. Design and implement a solution utilizing socket programming
8. Design and implement a solution utilizing lightweight web programming models
9. Apply syntax and semantics of a web-based programming language (e.g, Java and Servlet)
10. Design a cloud application and implement by applying collaborative web platform technologies (ex. Web 2.0)

Text books:

Cloud Computing: Concepts, Technology, and Architecture, 0133387526: Thomas Erl; Ricardo Puttini, Zaignam Mahmood.

Programming: Introduction to Programming Using JAVA, David Eck, 1st edition.

Professional Java for Web Applications, Nicholas S. Williams, 1st edition

Grading:

Total Points:		Final Grading Scale:
Attendance:	5%	A+ (97% and above)
Homeworks/Lab reports:	20%	
Midterm:	25 %	A (93%<= x <97%)
Final*:	25%	A- (90%<= x <93%)
Projects:	25%	B+ (87%<= x <90%)
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	100%	B- (80%<= x <83%)
*Each student should finish projects independently		C+ (77%<= x <80%)
		C (73% <= x <77%)
		C- (70%<= x <73%)
		D+ (67%<= x <70%)
		D (63% <= x <67%)
		D- (60%<= x <63%)
		F (< 60%)

Class Policy:
- All submitted work for grading is the work of only the individual student except for the projects.
- Programming exercises are submitted to the **classes.csc.lsu.edu** server.
- Due dates are as indicated on the homeworks/programs/final_project.
- Missed deadlines or tests are handled on an individual basis with the approval of the Dean's Office.
- All problems with grading must be resolved within 3 class days of returning the work.
- If class is missed, detailed notes and class content must be acquired from a classmate.

Student Class Participation:
The class meets for a total of 3 hours per week which constitutes a 3 hour credit course. While notes and reference materials may be posted via Moodle, the class is not designed as online-based; students are expected to attend class. Absences should be rare and exceptional. Students are expected to have read the assigned chapters or pages prior to class for the background necessary to properly participate in the discussion and think critically about the concepts addressed. As a general policy, for each hour you are in class, you (the student) should plan to spend at least two hours preparing for the next class. Since this course is for three credit hours, you should expect to spend around six hours outside of class each week in activities such as reading, writing homework assignments, and/or completing programming-based exercises for the class.

Weekly Topic Outline

1	Cloud concepts and terminology What is a Cloud, what makes an application well suited to a Cloud?
2	Cloud types and services (Chapter 3)
3	Public, private, hybrid: AWS, AZURE, RACK SPACE, soft layer, salesforce.com (Chapter 3)
4	Cloud architectures and technologies: IaaS, PaaS, SaaS Cloud elasticity (Chapter 4)
5	Cloud architecture development lifecycle, architectural decisions (Chapter 4)
6	Introduction to JavaScript programming
7	JavaScript programming and Web
8	**Midterm**
9	Rich user experience: jQuery, Ajax
10	Java programming: Integrated development environment platforms – Eclipse
11	Java I/O
12	Introduction to Socket programming: Python, Java, etc.
13	(*cont'd socket programming*) Basic client-server communication model
14	Java Servlet Web Programming
15	Cloud application design and implementation Scalability and APIs leveraging web 2.0 technologies

Lab/Assignments

Assignments on Cloud identification, service catalogue, architecture, language syntax
Creating a solution to a problem requiring knowledge and application of socket programming
Design and implement a web application and deploy it in a cloud environment to be leveraged as a SaaS solution