CSE 389 Web System Architecture and Programming, Fall 2017
Syllabus

Instructor: Edmund Yu, PhD
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Class meetings: Mondays/Wednesdays 2:15 - 3:35pm, Link Hall 103

Office hours: Tuesdays/Thursdays 10:00am – 12:00noon

TA Office hours: Jakob Zeitler (jkzeitle@syr.edu), Thursdays 11am-1pm, Room: ???

Textbooks:

Required

- **TCP/IP Sockets in Java**, Kenneth L. Calvert & Michael J. Donahoo, 2008, Morgan Kaufman, ISBN: 0-123-74255-2

Recommended

- **Java Network Programming**, Elliotte Rusty Harold, 2013, O'Reilly, 4th Edition, ISBN: 1449357679
- **Fundamentals of Web Development**, Randy Connolly & Ricardo Hoar, 2nd Edition, 2017, ISBN: 0134481267

Official documentation:

- Java: http://docs.oracle.com/javase/8/
- Java Tutorial: http://docs.oracle.com/javase/tutorial/tutorialLearningPaths.html
- XAMPP: https://www.apachefriends.org/index.html

Additional materials will be made available via Blackboard.

Course description:
Wide spread use of Web servers for hosting web sites and other popular applications, such as games and data storage, has spurred an unprecedented demand for software developers that fully understand the technical issues involved in architecting, implementing and programming Web servers/clients, and are able to program existing Web server software, such as the popular Apache HTTP Server. This unprecedented demand has created a great career opportunity for the students in the EECS Department, and this course is designed to help students meet this demand. More specifically, this course covers the follow topics: How the Web Works; TCP/IP; Java Network/Socket Programming; Java Thread Programming; HTTP; Apache HTTP/Web Server; PHP Scripting; Java Servlets; Java Server Pages (JSP).

Class Schedule:

Week 1: How the Web Works (Aug 28)

Basic Network Concepts (Aug 30)

*Homework #1: Basic Network Concepts (5 points), due **September 10***

Week 2: Labor Day (Sep 4): No class

Programming in Java: The Basics (Sep 6)

Week 3: Programming in Java: The Basics, continued (Sep 11)

Introduction to UML (Sep 13)

*Homework 2: Java programming + Class Diagrams (15 points), due **October 1***

Week 4: Network Programming in Java (Sep 18, 20)

Week 5: Sockets for Clients and Servers (Sep 25, 27)

*Homework 3: Client-server computing (10 points), due **Oct 15***

Week 6: Sending and Receiving Data(Oct 2)

Exam #1: (Oct 4)

Week 7: Thread Programming in Java (Oct 9, 11)

Week 8: Beyond the Basic Client-Server Model (Oct 16, 18)

Week 9: HTTP (Oct 25, 27)

Week 10: Using URLs and URLConnections in Java (Oct 30)

Putting It All Together – Creating Web Servers in Java (Nov 1)

*Term Project Proposal, due **Nov 12***

Week 11: Apache HTTP/Web Server (Nov 6, 8)

Week 12: PHP Scripting (Nov 13)

Exam #2: (Nov 15)

Week 13: *Thanksgiving Break: Nov 19-26*

Week 14: PHP Scripting, continued (Nov 27)

Java Servlets and Java Server Pages (JSP) (Nov 29)

Week 15: ***Term Project Presentations/Demonstrations (Dec 4, 6)***

Term Project Deliverables: due December 13, 2017

A zipped folder that contains the following:

- The PowerPoint presentation
- A report that describes your system architecture, features, components, data, experimental results and analysis, plus anything else that you think worth mentioning. Minimum 5 pages (for solo projects), 3 pages per team member (for multi-person projects). Single-spaced, with fonts no larger than 12 points.
- Source code (with comments), data files, URL links, etc.
- A README file that describes how to install, run and use your system. If your code is available online, please mention the URL in the README file.

Course Objectives:

Students should fully understand the technical issues involved in architecting, implementing and programming Web servers, and be able to program the publicly available Web server software, such as the popular Apache HTTP Server.

Prerequisites: CIS 351 Data Structures, or CSE 382 Algorithms and Data Structures

Course Outcomes:

After completion of the course, students should be able to:

- Fully understand the technical issues involved in architecting, implementing and programming Web servers.
- Program the publicly available Web server software, such as the popular Apache HTTP Server.

Grading:

Class Participation: 10% (Attendance is mandatory. Please email/notify me if you can't come.)
Homework: 30%
Exam 1: 15%
Exam 2: 15%
Term Project Deliverables (as described at the beginning of this page): 30%

Note: A grade of incomplete will not be given, except under very extenuating circumstances and at the discretion of the Instructor.

Attendance:

Attendance in class is very important. During each lecture period, information regarding assignments, due dates, explanation and clarification of assignments, and material that is not covered in the textbooks will be presented. If you miss a class for any reason, it is your responsibility to become familiar with the missed material. Obtaining a copy of the class notes of a fellow student is recommended in such cases. (My own slides will be uploaded to Blackboard.) Be prepared to spend extra time each week on this class, outside of the classroom.

ABET:

As part of the regular ABET accreditation process for the undergraduate program in computer science, we will be collecting samples of students' work in each of our undergraduate classes. As a result, some of your labs/homeworks/exams may be photocopied and saved to present to the ABET evaluators who visit next fall.

Academic Integrity:

"Syracuse University's academic integrity policy reflects the high value that we, as a university community, place on honesty in academic work. The policy defines our expectations for academic honesty and holds students accountable for the integrity of all work they submit. Students should understand that it is their responsibility to learn about course-specific expectations, as well as about university-wide academic integrity expectations. The university policy governs appropriate citation and use of sources, the integrity of work submitted in exams and assignments, and the veracity of signatures on attendance sheets and other verification of participation in class activities. The policy also prohibits students from submitting the same written work in more than one class without receiving written authorization in advance from both instructors. The presumptive penalty for a first instance of academic dishonesty by an undergraduate student is course failure, accompanied by a transcript notation indicating that the failure resulted from a violation of academic integrity policy. The presumptive penalty for a first instance of academic dishonesty by a graduate student is suspension or expulsion. SU students are required to read an online summary of the university's academic integrity expectations and provide an electronic signature agreeing to abide by them twice a year during pre-term check-in on MySlice. For more information and the complete policy, see http://academicintegrity.syr.edu."

Faith Tradition Observances:

Syracuse University recognizes the diverse faith traditions represented among its campus community and supports the rights of faculty, staff, and students to observe according to these traditions.

Faculty are asked to make appropriate accommodation for students' observance needs by providing an opportunity to make up any examination, study, or work requirement that is missed because of an absence due to a religious observance, provided the instructor has been notified no later than the end of the second week of classes. No fees will be charged to the student for the costs incurred by the University for such make-up work. If a faculty member is unwilling or unable to make an appropriate accommodation, the student should consult his or her academic dean. SU's religious observances policy can be found at: http://supolicies.syr.edu/emp_ben/religious_observance.htm.

Disability Services:

If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), http://disabilityservices.syr.edu, located in Room 309 of 804 University Avenue, or call (315) 443-4498 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

Syracuse University and I are committed to your success and to supporting Section 504 of the Rehabilitation Act of 1973. This means that in general no individual who is otherwise qualified shall be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity, solely by reason of having a disability. You are also welcome to contact me privately to discuss your academic needs although I cannot arrange for disability-related accommodations.