

Course: CSC 330B Computer Science III

Last modified: August 11, 2015 – Version 1.0

The online version of this syllabus will be a living document that will be updated on a routine basis to reflect the progress, class notes, assignments and due dates. The syllabus is best read on line so that you can follow the hyperlinks.

The class will use Moodle extensively for assignment posting, assignment submission, announcements and changes.

The Association for Computing Machinery (ACM) Curriculum Guidelines recommends 3 hours of out of class study/preparation for each hour of in class time. CSC 330 was designed with readings and homeworks based on this recommendation.

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Course Description

This course introduces concepts and methodologies to design and implement a distributed, multi-tier web application. Students will cover advanced java features and look at advanced graphical user interface topics, enterprise programming, java database connectivity and HTML/CSS.

Prerequisite: CSC 230. Co-requisite: MTH 241. Offered fall.

Course Goals

1. Understand the web programming paradigm involving a client browser, a web application server for business logic and a data storage tier.
2. Learn advanced user interface topics for structuring, presenting and handling events on a browser based interface.
3. Learn how to persist data into persistent data storage using an underlying SQL relational database.
4. Understand HTTP protocol for network communication between a client and a web application server.

Learning Outcomes/Topics: At the end of the course, you should be able to...

1. Proficiently use NetBeans to develop client server applications deployed locally to a Tomcat web server and remotely to cloud Tomcat web server.
2. Use pairwise programming to productively develop high quality code.
3. Construct and deploy small-to-medium scale web applications by using JavaServer Pages (JSP pages).
4. Write servlets using the Java programming language (Java servlets)
5. Apply Model-View-Controller (MVC) architecture to projects in JEE environments.
6. Understand and manage HTTP sessions in a web application.
7. Create easy-to-maintain JSP pages using Expression Language and the JSP Standard Tag Library (JSTL).
8. Control web page style and layout using client side languages of HTML 5, CSS and responsive web design.
9. Understand the need for lifelong learning to keep up with the rapid pace of software and technology development.
10. Become familiar with JavaScript, JQuery and JSON and understand importance for continued education in these key languages.
11. Integrate an external database (MySQL) using JDBC with SQL for data persistence.
12. Use ANSI SQL to define, query and modify relational database tables.
13. Understand how to design a relational data base in third normal form.
14. Test, debug and deploy a web application.

Instructor

Instructor	Dr. David J. Powell		
Office	Duke 101B		
Office Phone	336-278-6233		
Office Hours	Monday	3:00-4:00PM	And also by appointment
	Tuesday	8:30-11:30AM	And also by appointment
	Wednesday	3:00-4:00PM	And also by appointment
	Thursday	2:30-4:00PM	And also by appointment
	Friday	None	Only by appointment
Email	dpowell2@elon.edu		
Class Time	Monday	10:50 -12:00PM	Duke 303
	Wednesday	10:50 -12:00PM	Duke 303
	Friday	10:50 -12:00PM	Duke 303

Required Course Text

Murach's Java Servlets and JSP, 3rd Edition
Joel Murach and Michael Urban

ISBN: 978-1-890774-78-3



Other Course Online Resources (Follow hyperlinks)

[Tomcat 8.0](#) – Tomcat Web Server

[NetBeans IDE 8.0](#) – Download Java EE version with Tomcat 8 – Book will use NetBeans and Tomcat 8.

[Google HTML/CSS Style Guide](#) – Conventions to be used for all HTML and CSS submitted homework files. Only addition at Elon is to add a Copyright statement as a comment to each document indicating work is originally and completely your own.

[Code School](#) – Sign up for free account. Great free courses on Try JQuery, Try Git and Discover DevTools.

[Udacity.com](#) – Sign up for free account. Take courses on “Intro to HTML and CSS”, “How to Use Git and GitHub”, “JavaScript Basics” and “Responsive Web Design Fundamentals”.

Lynda Video Tutorial - www.elon.edu/lynda - Foundations of Programming Databases with Simon Allardice. Great course for databases design and normalization. Other courses include: “CSS Selectors”, “HTML Essential Training” and “Java Database Integration with JDBC”.

[MySQL DML Querying Data Video Course](#) – Excellent tutorial using MySQL workbench with supplied databases for querying

[Google Java Style Guide](#) – This document is continually updated by Google and the one that we will use as our standard for this class. It is largely based on the Oracle Java Coding Conventions. Note: Google has style guides available for html, css, javascript, etc.

[How to Write Doc Comments for Javadoc Tool](#) – An extremely detailed discussion of Javadoc from Oracle

[Java Coding Conventions](#) - The company that has written Java and the Java class libraries has established a standard for coding style and conventions. It is the basis for the Google Style Guide that we are using as the standard for our class.

Course Software

NetBeans IDE 8.0 (netbeans.org) - This is an open source IDE that contains all of the development tools to create code for Java Enterprise Edition 7. The IDE has been installed in computer labs across campus. It is freely downloadable for Windows and Mac operating systems.

Tomcat 8.0 – Apache Tomcat is an open source web server and servlet container developed by Apache Software. This will be the primary server used in the course. It is installed in labs across campus. Tomcat versions 6 and 7 are available on OpenShift. Tomcat has great “how to” documentation.

MySQL – This is the world’s most popular database. The Community Edition has been installed in computer labs across campus. It is installed on the OpenShift cloud. We will spend time following [video tutorial](#) for querying data to enhance skills requested by Elon alumni.

OpenShift – Provides cloud based Platform as a Service (PAAS) functionality to support many preconfigured architecture stacks such as tomcat7. This semester, you will use your Google account to sign-up for **OpenShift**. You will use the free quota to deploy web application war files with and without a MySQL backend database. You can then access your web applications from anywhere in the world.

Grading

Exams	20% (3)
Quizzes	20% (6)
Flipped Instruction Completion	20% (12)
Homework	20% (4)
Class Participation	5%
Final	15%

Grading Scale	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

Class participation

After graduation, you will be expected to be at your job on time on every work day. I have the same expectations for class. Class attendance is mandatory. You can expect approximately one quiz per chapter that will be primarily based on the reading assignment. **You are expected to have completed the reading or video assignment specified in the syllabus before class.**

You will receive a class participation grade based on a combination of:

1. Your accurate response to questions asked of you by me during class
2. Your active participation in class
3. Your on-time attendance in class
4. Your on-time completion of ungraded, class exercises

Only pre-approved absences and pre-approved tardiness are exempted from mandatory, on time class attendance.

Elon Honor Code

Elon's honor pledge calls for a commitment to Elon's shared values of Honesty, Integrity, Respect and Responsibility. To be clear about what constitutes violations of these values, students should be familiar with the Judicial Affairs policies in the student handbook, including violations outlined at <http://www.elon.edu/e-web/students/handbook/violations/default.xhtml>.

Students with questions about the specific interpretation of these values and violations as they relate to this course should contact this instructor immediately. Violations of the academic-related areas will be documented in an incident report to be maintained in the student's judicial record, and may result in a lowering of the course grade and/or failure of the course with an Honor Code F.

Violations specifically covered by academic honor code policies include: plagiarism, cheating, lying, stealing and the facilitation of another's dishonesty. Multiple violations will normally result in a student's temporary suspension from the University.

Collaboration policy for Pair Wise Programming

Pair wise programming is a practice in which two programmers work collaboratively at one computer, on the same design, algorithm, or code. Prior research indicates that pair programming produces higher quality code in half the time taken by solo programmers. Though this practice is used in industry, recent studies at universities show that pair programming results in higher grades and more student satisfaction. We will frequently use pair programming in this class with the following guidelines:

1. In most cases, we will have teams made up of two students. If we have an odd number of students then in some cases I will assign a team of one or three. On a homework assignment, you may only collaborate with your assigned teammate(s). You may not discuss or collaborate with any other Elon student, Elon tutor or individual. Any violations of this policy will be treated as a violation of the [Elon Academic Honor Code](#). I will report an honor code violation.
2. Everyone on the team will receive the same grade. However, if a teammate does not do her/his portion of the work then see me or send me an email and I will appropriately adjust the grades based on the appropriate effort levels.
3. All code submitted for your team homeworks must be originally and completely done entirely by your assigned team. The concept is that one learns by doing. Any violations of this policy will be treated as a violation of the Academic Honor Code. I will report an honor code violation.

Homework

Homework is a great tool to reinforce the reading assignment and test your understanding of the material. Homework is due on the date and time listed in the syllabus. All homework will be submitted electronically as a Moodle assignment upload and also in hard copy at the beginning of class on the due date. **Each java file, HTML file, CSS file, JavaScript file and SQL file** must include a copyright with your name(s) as the author of the document. The copyright notice is your formal indication that the work was completely and originally your own and not taken from any other source.

Exams

There will be 3 exams and a final in this course. No makeup will be given for any exam unless you and I have spoken and reached an arrangement before the time of the exam.

As a means to both motivate and reward, the final exam is optional under the following conditions:

1. All homework assignments were submitted on time.
2. The student has 0 unexcused absences.
3. The student has fewer than 6 total absences (excused or unexcused).
4. The student has an overall quiz grade of B- or better.
5. The student has an overall homework grade of B or better.
6. The student has an overall exam grade of B or better.
7. The student has an overall grade of B or better.
8. All classroom exercises were successfully completed on-time.
9. All flipped instruction assignments were fully completed on-time.

Late Penalties

Homework will not be accepted after the due date and due time. It will receive a grade of zero. This policy has been implemented to allow us to review a solution immediately after it is submitted. This aids the learning process by getting immediate reinforcement.

Disabilities

If you are a student with a documented disability who will require accommodations in this course, please register with Disabilities Services in the Duke Building, Room 108 (278-6500) for assistance in developing a plan to address your academic needs. For more information about Disabilities Services, please visit the website: http://www.elon.edu/e-web/academics/support/disabilities_services.shtml

Religious Holidays Policies

In supporting religious diversity, Elon has a policy and procedures for students who wish to observe religious holidays that are in conflict with the academic calendar, allowing students an excused absence. Students who wish to observe a holiday during the semester must complete the online Religious Observance Notification Form (RONF), available at the following website within the first two weeks of the semester. http://www.elon.edu/e-web/students/religious_life/ReligiousHolidays.shtml This policy does not apply during the final examination period. Students are required to make prior arrangements with the instructor for completion of any work missed during the absence. Once the completed RONF is received, the Truitt Center will confirm the excused absence with notification to the instructor and the appropriate academic dean, along with a copy to the student. Students may contact the Truitt Center staff with any questions (336-278-7729).

Course Schedule

Note: This schedule may be modified during the semester to reflect class progress.

August 26 – September 30, 2015

Session	Date	Topic	Assignment to be completed before class on the date listed	Assessments
1	8/26W	Course Intro	Syllabus in Moodle ACM Code of Ethics Software Copyright Substantial Similarity	
2	8/28F	Git and GitHub	Complete Lesson 1 of Free Udacity Course, How to Use Git and GitHub. Complete Module 1 and Module 2 of linux commands .	Hand in hard copy screenshot of Lesson 1 completion at start of class.
3	8/31M	Resume Development	Complete Lesson 2 and Lesson 3 up to "Making a Pull Request" of Udacity course, How to Use Git and GitHub.	Hand in hard copy screenshot of completion of Lesson 2 and up to topic

			Class in Student Professional Development Services	<p>"Making a Pull Request" of Lesson 3 at start of class.</p> <p>HW1 Assigned</p>
4	9/02W	NetBeans, Tomcat 8, HTML5, CSS	<p>Murach Chapters 1 and 3 and Appendix A for Windows or B for Mac</p> <p>In class cover:</p> <ul style="list-style-type: none"> • Creating project in NetBeans • Deployment to local tomcat • Google HTML/CSS Style guide • HTML 5 validation and CSS3 validation. <p>Assign in class exercise</p>	
5	9/04F	HTML 5 Day 1	<p>Lynda HTML Essential Training by James Williamson Day 1</p> <p>In class bring headphones to continue course</p>	
6	9/07M	HTML 5 Day 2	<p>Lynda HTML Essential Training Completed Prior to Class.</p> <p>Assign in class exercises 1</p>	Hand in hard copy course completion certificate at start of class
7	9/09W	HTML and CSS (Web Dev Tools Intro)	<p>Udacity Course – Intro to HTML and CSS (Lessons 1 and 2) – 90m</p> <p>Lynda – CSS Fundamentals (Chapter 3 only) – 81m</p> <p>Assign in class exercises 2, 3 and 4.</p>	<p>Hand in hard copy screenshot of Lesson 1 and 2 of Udacity Course Completion at start of class.</p> <p>Hand in hard copy screenshot of Chapter 3 CSS Fundamentals Completion at start of class</p>
8	9/11F		Working time to complete class exercises 2, 3 and 4.	
9	9/14M	CSS Selectors Day 1	<p>Lynda – CSS Selectors Complete Chapters 1, 2 and 3.</p> <p>In class continue video course</p>	Last day to be checked off on class exercises 2, 3 and 4.
10	9/16W	CSS Selectors Day 2	<p>Complete Course on CSS Selectors.</p> <p>Assign in class exercises 5, 6 and 7.</p>	Hand in hard copy of Lynda certificate of completion at start of

				class.
11	9/18F	HTML Web Forms	Lynda – Complete course HTML 5: Web Forms in Depth by Joe Marini. In class, assign class exercise 8	Hand in hard copy completion of Lynda certificate at start of class
12	9/21M	Responsive Web Design eIntern visit	Complete Lesson 1, 2, 3 and 4 of Udacity Free Course on Responsive Web Design Fundamentals Assign in class exercise 9 Career Fair 2-5PM on Tuesday 9/22	Hand in hard copy screenshot of completion of Lesson 1, 2, 3 and 4.
13	9/23W	JavaScript	Complete Lesson 0, Problem Set 0 and Lesson 1 of Udacity Course “JavaScript Basics” In class, work on problem set 1 and if complete continue on Lesson 2	
14	9/25F	JavaScript	Complete Lesson 2 of JavaScript Basics. In class, complete Udacity 3 Challenge Problems.	Hand in hard copy screenshot of completion of Lesson 0, Lesson 1 and Lesson 2. Homework 1 Due
15	9/28M	JQuery	Complete Codeschool.com Try JQuery Course	Hand in hard copy of Course Completion Badge.
16	9/30	Exam	Comprehensive multiple choice exam of HTML, CSS, JavaScript and JQuery.	Exam 1

October 1 – October 31, 2015

Session	Date	Topic	Reading Assignment to be completed before class on the date listed	Assessments
17	10/2F	MVC	Chapter 2 Murach pages 30-50	
18	10/5M	NetBeans and Tomcat	Chapter 3 Murach pages 50-82	Quiz Chapter 2
19	10/7W	Servlets	Chapter 5 Murach pages 128-168	Homework 2 assigned (Chapters 4, 5 and 6) Quiz Chapter 3
20	10/9F	Servlets	Fall Break after class	
21	10/14W	JSP	Chapter 6 Murach pages 174-199	Quiz Chapter 5
22	10/16F	JSP	Credit Suisse Visit (Summer Internship Program)	

		Credit Suisse Visit		
23	10/19M	Sessions and Cookies	Chapter 7 Murach pages 202-234	
24	10/21W	Sessions and Cookies	Chapter 7 Murach pages 202-234	Homework 2 due at start of class Homework 3 Assigned (Chapters 7, 8, 9 and 10) Quiz Chapter 6
25	10/23F	EL	Chapter 8 Murach pages 244 - 264	Quiz Chapter 7
26	10/26M	JSTL	Chapter 9 Murach pages 270-304	
27	10/28W	JSP Custom Tags	Chapter 10 Murach pages 308-340	Quiz Chapters 8 and 9
28	10/30F	JSP Custom Tags		

November 1 – December 10, 2015

Session	Date	Topic	Reading Assignment to be completed before class on the date listed	Assessments
29	11/02MW	Exam	<u>Servlets and JSP exam</u>	Exam
30	11/04W	SQL and MySQL	Using MySQL Workbench, SQL DML (Lessons 1 and 3) Assign exercises from workbook on pages 9 - 14	Homework 3 Due at start of class Homework 4 assigned (Chapters 3-12)
31	11/06F	DML Joins	Video Lessons 5, 6 and 7 Assign exercises on pages 16-30	
32	11/09M	DB Design	Watch Lynda video, "Foundations of Programming: Databases" with Simon Allardice. Sections 1-5 minimally should be watched.	Hand in hard copy screenshot of completion of sections 1-5.

33	11/11W	DDL	Watch Lynda video: Foundations of Programming: Databases” Section 6. Assign exercise set 1	
34	11/13F	Finish DDL	DML for Insert into, update, delete. Exercise set 1 due in hard copy at start of class Assign exercise set 2	
35	11/16M	JDBC	Chapter 12 Murach pages 377-418 Lynda Video: Java Database Integration with JDBC” by David Glasser (2 hours 51 minutes)	
36	11/18W	JDBC		Hand in hard copy completion of Lynda certificate at start of class
37	11/20F	Database Exam	Database Exam	Exam 3
38	12/01M	Development	HW4 Development Time	
39	12/03W	Http Request and Response	Chapter 18 Murach pages 543 - 568	Homework 4 due
40	12/05	Review		
	12/09W 12/10Th	Final Exam	08:30-11:30 Section A 08:30-11:30 Section B	