

# Course: CSC 330A Distributed Computing / Computer Science III

Last modified: August 31, 2008 – Document created and proofed.

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 Blackboard 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.*

## Syllabus Content

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## Course Description

This course introduces concepts and methodologies to design and implement a distributed, multi-tier application. Students will cover advanced java features and look at advanced graphical user interface topics, multithreading, networking, java database connectivity and web applications. Prerequisite: CSC 230. Co-requisite: MTH 206. Offered fall.

## Course Goals

1. Expand the material from CSC 230 to broaden the students' understanding of GUI development design practices and advanced features.
2. Develop a solid foundational understanding of designing a relational database, querying a relational database and interfacing with a relational database with an external java program.
3. Introduce concepts of multi-threading and interprocess communication.
4. Understand java client server programming for a two tiered architecture and a three tiered architecture.


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

1. Proficiently use the latest version of Eclipse Interactive Development Environment (IDE) 3.4 and Java SDK 6.0 to develop standalone and client server applications.
2. Use the Human/Computer Interaction design principles and best practice conventions to design and implement graphical user interfaces.
3. Design and implement advanced graphical user interfaces using basic Swing components and advanced model based components such as JTable.
4. Manage components using advanced layout techniques.
5. Design and implement an internationalized computer application.
6. Use a graphical layout tool to design and develop a graphical user interface.
7. Understand multithreading concepts and build multithreaded application programs.
8. Understand and build client browser displays using HTML with a Tomcat server.
9. Understand basic networking concepts using sockets.
10. Use I/O object serialization for persistency.
11. Use XML files and perform I/O using DOM.
12. Design a relational database in third normal form.
13. Use ANSI SQL to define, query and modify relational database tables.
14. Use the JDBC API to connect an application with a relational database.
15. Use a database in embedded and server mode for a single standalone application, a two tier application and a three tiered application.
16. Use pairwise programming to productively develop high quality code.

**Instructor**

Instructor	Dr. David J. Powell		
Office	Duke 307B		
Office Phone	336-278-6233		
Office Hours	Monday	9:00-11:00AM	And also by appointment
	Tuesday	9:00-11:00AM	And also by appointment
	Wednesday	9:00-11:00AM	And also by appointment
	Thursday	9:00-11:00AM	And also by appointment
	Friday		By appointment
Email	dpowell2@elon.edu		
AOL Instant Messenger	ElonCSProf		
Class Time	Monday	1:40-2:50PM	Mooney 201
	Wednesday	1:40-2:50PM	Mooney 201
	Friday	1:40-2:50PM	Mooney 201

## Required Course Text

<p>Big Java, Third Edition Cay Horstmann, 2008</p> <p>ISBN: 978-0-470-10554-2</p>	
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## Other Course Online Resources (Follow hyperlinks)

<p><a href="#">Sun Swing Tutorial</a> – Superb tutorial on swing components</p>
<p><a href="#">Sun Java Tutorials</a> – Top page with specialized links to various topics that we will cover (e.g. internationalization, 2D Graphics)</p>
<p><a href="#">Deployment Tutorial</a> – Top page with links to jar files, webstart and applet signing</p>
<p><a href="#">Javadoc Tutorial</a> - This is a link to a pdf file for a simple javadoc tutorial.</p>
<p><a href="#">How to Write Doc Comments for Javadoc Tool</a> – An extremely detailed discussion of Javadoc from Sun Microsystems</p>
<p><a href="#">Java Documentation Comments</a> – A short but complete discussion of Javadoc</p>
<p><a href="#">Writing Robust Java Code</a> – Superb, detailed description of coding conventions from a leader in agile programming, Scott Ambler</p>
<p><a href="#">Sun Coding Conventions</a>: The company that has written Java and the Java class libraries has established a standard for coding style and conventions.</p>
<p><a href="#">XHTML and CSS Tutorial</a>: Great beginner tutorial from <a href="http://www.html.net">www.html.net</a> suggested by w3c. After reading, progress to use Macon State tutorial</p>
<p><a href="#">XHTML and CSS Tutorial</a>: Superb Macon State tutorial with hot links to all needed references</p>
<p><a href="#">JUnit</a>: JUnit 4 in 10 minutes tutorial. The software comes installed with Eclipse 3.4 for both version 3.8 and 4.0. We will use JUnit 4.0 this semester.</p>
<p><a href="#">User Interface Design for Programming</a>: Joel is a well noted author on software development.</p>
<p><a href="#">Java Look and Feel Design Guidelines</a>: On line reference from Sun Microsystems with access to source code and graphic toolbar icons</p>

## Course Software

Eclipse is the industry's most widely used Java IDE and follows industry best practices. We will use Eclipse version 3.4 with the Java 6 SDK and many plug-ins. These plug-ins have been installed on all lab machines. You can download the Eclipse IDE for Java EE Developers from <http://www.eclipse.org/downloads/> . In addition, you may want to use the Jigloo plug-in 4.2.0 from [www.cloudgarden.com](http://www.cloudgarden.com) and the Checkstyle plug-in 4.4 from <http://checkstyle.sourceforge.net/> .

We will use [tomcat](#) version 6.0.16 as the primary application server for experimenting with web pages.

## Grading

Midterm exam	15% (7.5% each)	
Quizzes	25%	
Homework	40%	
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 one quiz per chapter that will be primarily based on the reading assignment. **You are expected to have read the reading 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 satisfaction of the requirement to individually meet me once a month in September and October.
5. Your on-time completion of ungraded, class exercises

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

Every student will arrange a 10 minute private session with me in my office once a month in September and October. The intent of the interview is to review course progress and to jointly discuss the student's grasp of the material and methodologies for improving the course.

## 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. It is a practice of the software methodology called Extreme Programming. 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 occasionally 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 and me. You may not discuss or collaborate with any other classmate without my permission. 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 his/her portion of the work then send me an email and I will appropriately adjust the grades based on the appropriate effort levels.
3. All code submitted for your team projects must be done entirely by your project 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 in the digital drop box and also in hard copy at the beginning of class on the due date. The top of each java file must include a copyright statement in the Sun coding convention format with your name(s) as the author of the document. The copyright notice is your formal indication that the work was completely your own and not taken from any other source.

Note: Documentation and coding conventions are critical. Failure to comply with exact detail to either will result in an automatic grade reduction.

## Exams

There will be 2 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 2 or fewer unexcused absences.
3. The student has an overall quiz grade of B- or better.
4. The student has an overall homework grade of B or better.
5. The student has an overall exam grade of B or better.
6. The student has satisfied the monthly meeting requirement.

## 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 curve 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.

## Course Schedule

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

### September 3 – September 30, 2008

Session	Date	Topic	Reading Assignment to be completed before class on the date listed	Assessments
1	9/03W		Syllabus	Course survey at end of class
2	9/05F	XHTML/CSS	Read beginners XHTML/CSS html.net reference and scan Macon State reference.	Homework 1 assigned
3	9/08M	CSS	Read beginners CSS html.net reference.	
4	9/10W	Coding and Doc Conventions; Eclipse Preferences and Checkstyle	Java coding conventions, java documentation conventions	<b>Quiz XHTML/CSS</b>
5	9/12F	Java2D	Ch 2 Big Java 2.11-2.13 Ch 3 Big Java 3.9 2D Graphics Tutorial – online <ul style="list-style-type: none"> <li>• Overview of 2D</li> <li>• Getting started</li> <li>• Working with geometry</li> <li>• Working with Text</li> <li>• Working with Images</li> </ul>	<b>Homework 1 Due at start of class 9/12</b> <b>Quiz Conventions</b> Homework 2 assigned
6	9/15M	Gui Best Practices	Gui Best Practices – Blackboard articles	
7	9/17W	Simple Gui Components	Ch 9 Big Java 9.6-9.10 Ch 10 Big Java 10.9-10.10	
8	9/19F	Basic Gui	Ch 18 Big Java 18.1-18.4	<b>Homework 2 Due at</b>

		Components		<i>start of class 9/19</i> Homework 3 Assigned
9	9/22M	More Gui Components and Layout Managers	Sun Swing Tutorial – Sliders, Spinners, Mnemonics, Control Accelerators, Toolbars, Tooltips, File Dialogs	<b>Quiz Chapter 18</b>
10	9/19W	Layout Managers	Sun Swing Tutorial – Box Layout, GridBagLayout, GroupLayout	Homework 4 Assigned
11	9/26F	Advanced Gui Components (JList, JTable, JTabbed Pane)	Sun Swing Tutorial	<i>Homework 3 Due at start of class 9/26</i> Homework 5 Assigned
12	9/29M	JTable	Sun Tutorial	<i>Homework 4 Due at start of class Monday 9/29</i>

**October 1 – October 31, 2008**

Session	Date	Topic	Reading Assignment to be completed before class on the date listed	Assessments
13	10/01W		Project workshop	
14	10/03F	Internationalization	Sun Swing Tutorial	Homework 6 Assigned
15	10/06M	Files and Streams	Ch 19 Big Java	<i>Homework 5 Due at start of class 10/06</i>
16	10/08W		Project workshop	<b>Quiz Chapter 19</b>
17	10/10F		GUI Certification Exam	
18	10/13M		GUI Certification Exam part II	
19	10/15W	Multiple Threads	Ch 20 Big Java 20.1-20.6 Sun Tutorial	<i>Homework 6 Due at start of class 10/15</i>
20	10/17F	Multiple Threads	Class will be held	Fall break after class
21	10/22W	Sockets	Ch 21 Big Java 21.1-21.5 Sun Tutorial	<b>Quiz Chapter 20</b> Homework 7 Assigned
22	10/24F	Sockets	Sockets continued	

23	10/27M	Applets	Sun Applet Tutorial	<i>Quiz Chapter 21</i> Homework 8 Assigned
24	10/29W	Deployment / Jar files	Deployment Tutorial	<i>Homework 7 Due 10/29 at Midnight</i>
25	10/31F	Web Start	Applet security  <u>Web Start</u> test certificate	

**November 1 – December 12, 2008**

Session	Date	Topic	Reading Assignment to be completed before class on the date listed	Assessments
26	11/03M		Project time	
27	11/05W	Derby Intro	Database articles: 0, 1, 2 and 3  Getting Started with Derby Activity 1 and 2	
28	11/07F	SQL - DML	Database articles: 4, 5, 6, 7	<i>Homework 8 Due at start of class 11/07</i>
29	11/10M	SQL Advanced	Dr. Megan Conklin will present. She is a expert on large databases	Dr. Powell out of town
30	11/12W	Normalization	Ch 22 Big Java 22.1-22.3  Normalization articles	Homework 9 Assigned
31	11/14F	JDBC	Ch 22 Big Java JDBC 22.4-22.5  Database articles; 8, 9, 10	
32	11/17M	JDBC	Database articles: 11, 12, 13	
33	11/19W		Database Certification Exam Part 1	
34	11/21F		Database Certification Exam Part II	<i>Homework 9 Due at start of class 11/21</i>
35	11/24M	ORM	IBATIS Tutorial	
36	12/01M	XML	Ch 23 Big Java 23.1 – 23.2 pp. 961-981	
37	12/03W	XML	Ch 23 Big Java 23.3 – 23.4 pp 981-1000	
38	12/05F	Regex	Sun Java Tutorial –	<i>Quiz Chapter 23</i>

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			Essential Classes – Regular Expressions	
39	12/08M		Review	
40	12/12F		Final Exam 1-4PM	