

# COURSE SYLLABUS

## COM202: Object-Oriented Programming II

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### Concepts Course Description

Working with data is fundamental to software development. Java Collections are data structures designed to store and process data in memory. Furthermore, every developer needs to know how to write multi-threaded applications. This course builds on Object-Oriented Programming I to further explore intermediate and advanced features of the Java programming language. Some of the advanced topics that the students will cover include; learning how to use the collection framework to help in storing and processing the data efficiently, working with multiple threads to improve performance of software applications, and concurrency techniques to solve resulting synchronization and communication problems.

### General Course Information

Number of Units/Weeks	4/10
#Hours Lecture/#Hours Laboratory/#Hours HW*	30/20/60
Prerequisite(s)	COM152
Co-requisites (s)	N/A
Course Developer(s)	Leticia Rabor, M.S.
Date Approved / Last Review	June 2017 / June 2017

\* Homework

### Learning Outcomes

- Explain the advantages of multi-threaded programming
- Develop multi-threaded Java applications that safely manage concurrent access to application state
- Develop efficient and portable applications using several of the java collection framework classes
- Describe the potential problems of multi-threading and to identify critical sections and bottlenecks
- Explain how concurrency is an issue in operating systems and multithreaded applications

### Instructional Methods Employed in this Course

Lecture and reading assignments

Hands-on exercises

Research

Practical application of theory and skills in authentic projects

Build on prior knowledge and experience of students to enhance richness of class activities

## Information Resources for this Course



### Textbook

Liang, Y. Daniel. (2014). Introduction to Java Programming, Comprehensive Version (10<sup>th</sup> Ed). Boston, MA: Pearson International. ISBN: 978-0133761313



### Other Materials

N/A



### Web Site Readings

Java Platform, Standard Edition 7 API Specification (n.d.). *Oracle* . Retrieved from <http://docs.oracle.com/javase/7/docs/api/>

## Table/Topics & Assignments

### Types of Assignments:

#### Lecture -

Considered Lecture Hours

#### Classroom Discussion -

Considered Lecture Hours

#### In Class Critique -

Considered Lecture Hours

#### In Class (IC) Exercise -

Considered Lecture Hours

#### Reading -

Considered Homework (HW), work done outside of class

#### WebClass lesson (non-online courses) -

Considered Homework (HW), work done outside of class

#### Projects –

Considered Homework (HW), work done outside of class

#### Lab Work –

Considered Lab Hours

#### Quiz, Midterm or Final -

Considered Lecture Hours

## Course Structure

Week 1						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 1A	Introduction to Course / Review	2				
IC EX 1A	In-Class Exercise	1			5	
HW 1A	Read Chapter 1 (32 pages) Evaluated by HW 1B			3.2		
HW 1B	Review Questions: 10 Questions			1.5	10	Week 2

Total Week 1		3	0	4.4	15	
Week 2						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 2A	Recursion	2				
IC EX 2A	In-Class Exercise	1			5	
LAB 2A	Project 1		4			
HW 2A	Project 1			2.1	40	Week 3
HW 2B	Read Chapter 18 (32 pages) Evaluated by HW 2C			3.2		
HW 2C	Review Questions: Ch. 18, 10 Questions			1.5	10	Week 3
Total Week 2		3	4	6.8	55	
Week 3						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 3A	Generics	2				
IC EX 3A	In-Class Exercise	1			5	
HW 3A	Project 2			2	40	Week 4
HW 3B	Read Chapter 19 (22 pages) Evaluated by HW 3C			2.2		
HW 3C	Review Questions: Ch. 19, 10 Questions			1.5	10	Week 4
Total Week 4		3	0	5.7	55	
Week 4						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 4A	Multithreading and Concurrency Programming	2				
IC EX 4A	In-Class Exercise	1			5	
LAB 4A	Project 3		4			
HW 4A	Project 3			2	40	Week 6
HW 4B	Read Chapter 30 (40 pages) Evaluated by HW 4C			4		
HW 4C	Review Questions: Ch. 30, 10 Questions			1.5	10	Week 5
Total Week 4		3	4	7.5	55	
Week 5						

Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
IC EX 5A	Midterm Practical	2			100	Week 5
EXAM 5A	Midterm Exam (Chapters 18, 20, 30)	1			150	Week 5
HW 5A	Introduction to Final Project			15		Week 10
Total Week 5		3	0	15	250	
<b>Week 6</b>						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 6A	Introduction to the Java Collection Framework / Lists, Stacks, Queues, and Priority Queues	2				
IC EX 6A	In-Class Exercise	1			5	
LAB 6A	Project 4		4			
HW 6A	Project 4			2	40	Week 7
HW 6B	Read Chapter 20, (35 pages) Evaluated by HW 6C			3.5		
HW 6C	Review Questions: Sections 20.1-20.8, 10 Questions			1.5	10	Week 7
Total Week 6		3	4	7.0	55	
<b>Week 7</b>						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 7A	Sets and Maps	2				
IC EX 7A	In-Class Exercise	1			5	
HW 7A	Project 5			2	40	Week 8
HW 7B	Read Chapter 21 (24 pages) Evaluated by HW 7C			2.4		
HW 7C	Review Questions: Ch. 24, 10 Questions			1.5	10	Week 8
Total Week 7		3	0	5.9	55	
<b>Week 8</b>						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 8A	Working with the Big O Notation	2				
IC EX 8A	In-Class Exercise	1			5	

LAB 8A	Project 6		4			
HW 8A	Project 6			2	40	Week 9
HW 8B	Read Chapter 22 (40 pages) Evaluated by HW 8C			4		
HW 8C	Review Questions: Ch. 22, 10 Questions			7.5	10	Week 9
Total Week 8		3	4	7.5	55	
<b>Week 9</b>						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LEC 9A	Implementing the Collection Framework	2				
IC EX 9A	In-Class Exercise	1			5	
HW 9A	Project 7			2	40	Week 10
HW 9B	Read Chapter 24 (34 pages) Evaluated by HW 9C			3.4		
HW 9C	Review Questions: Ch. 24, 10 Questions			1.5	10	Week 10
Total Week 9		3	0	6.9	55	
<b>Week 10</b>						
Type	Topic/Description	LEC Hours	LAB Hours	HW Hours	Point Value	Due
LAB 10A	Final Project		4		200	Week 10
EXAM 10A	Final Exam (Chapters 20-22, 24)	1			150	Week 10
Total Week 10		3	4	0	350	

## Course Hours Summary

Week	Topic	LEC Hours	LAB Hours	HW Hours
1	Introduction to Course / Review	3	0	4.4
2	Recursion	3	4	6.8
3	Generics	3	0	5.7
4	Multithreading and Concurrency Programming	3	4	7.5
5	Midterm	3	0	15
6	Introduction to the Java Collection Framework / Lists, Stacks, Queues, and Priority Queues	3	4	7
7	Sets and Maps	3	0	5.9
8	Working with the Big O Notation	3	4	7.5
9	Implementing the Collection Framework	3	0	6.9
10	Final	3	4	0
Total		30	20	66.7

## Table/Point Breakdown

Week	Assignment	Possible Points	Percent of Grade
1	IC EX 1A, In-Class Exercises	5	0.5%
1	HW 1B, Review Questions	10	1%
2	IC EX 2A, In-Class Exercises	5	0.5%
2	HW 2A, Project 1	40	4%
2	HW 2C, Review Questions	10	1%
3	IC EX 3A, In-Class Exercises	5	0.5%
3	HW 3A, Project 2	40	4%
3	HW 3B, Review Questions	10	1%
4	IC EX 4A, In-Class Exercises	5	0.5%
4	HW 4A, Project 3	40	4%
4	HW 4C, Review Questions	10	1%
5	IC EX 5A, Midterm Practical	100	10%
5	EXAM 5A, Midterm Exam	150	15%
6	IC EX 6A, In-Class Exercises	5	0.5%
6	HW 6A, Project 4	40	4%
6	HW 6C, Review Questions	10	1%
7	IC EX 7A, In-Class Exercises	5	0.5%
7	HW 7A, Project 5	40	4%
7	HW 7B, Review Questions	10	1%
8	IC EX 8A, In-Class Exercises	5	0.5%
8	HW 8A, Project 6	40	4%
8	HW 8C, Review Questions	10	1%
9	IC EX 9A, In-Class Exercises	5	0.5%
9	HW 9A, Project 7	40	4%
9	HW 9C, Review Questions	10	1%
10	LAB 10A, Final Project	200	20%
10	EXAM 10A, Final	150	15%
Total		1000	100%

## Grades for this Course

Your final grade for this course will be based on an assessment by the Instructor of your performance on a number of course activities, which may include objective tests, classroom exercises, laboratory demonstrations, project papers, or other types of activities. The chart below indicates in what activities you will engage, how many possible points can be earned for each activity, and the percentage of your final grade that will be accounted for by each activity.

Students in this course should be graded following Coleman University assessment practices  
**Coleman University Grade Assignment Policy:**

Percent	Letter Grade	Grade Points
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94-100	A	4
90-93	A-	3.67
87-89	B+	3.33
84-86	B	3
80-83	B-	2.67
77-79	C+	2.33
74-76	C	2
70-73	C-	1.67
67-69	D+	1.33
64-66	D	1
60-63	D-	0.67
N/A	INC	0
N/A	W	0
60 or above	CR	0
59 or below	NC	0
N/A	I	0
N/A	W	0
N/A	AU	0
N/A	TR	0
N/A	WV	0

Legend	
CR = Credit	NC = No Credit
I = Incomplete	Withdrawal
AU = Audit	TR = Transfer Credit
WV = Waiver	

## **Academic Accommodation / Adjustment Policy:**

In accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA), Coleman University offers accommodations to students with documented physical, psychological, and/or cognitive disabilities. Coleman University will adhere to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations as required to offer equal educational opportunities to qualified disabled individuals.

To qualify for an academic accommodation under ADA, the student must provide adequate documentation of a disability. Students seeking academic accommodations should contact the campus ADA Coordinator at 858-966-3953 or via email at [ada@coleman.edu](mailto:ada@coleman.edu). The ADA Coordinator will review the documentation provided and verify ADA coverage. Students covered under ADA must meet with the ADA Coordinator at the beginning of every term to determine the appropriate academic accommodations. Failing to meet with the ADA Coordinator at the beginning of every term may impact the availability of accommodations.

After the academic accommodations have been determined, the students' instructors will be notified by the ADA Coordinator. If any problems or concerns regarding the provision of accommodations occur, the student must inform the ADA Coordinator. If the student feels accommodation is not being made appropriately, the student may follow the published Student Grievance Procedures.