



South Portland, Maine 04106

Department of Computer and Information Sciences

**Title: Object Oriented Design and Programming**

**Catalog Number: CSCI 160**

**Credit Hours: 4**

**Total Contact Hours: 60**

**Lecture (or Lab): Lecture**

**Instructor: Anne G Applin, PhD**

**Office Hours – Location: CSEC 25**

**Contact Information:** Office phone: 207-741-5778

MTWR: 1:00 – 2:00 pm

aapplin@smccme.edu

207-200-5853 (text or voice)

Other hours available by appointment

### Course Syllabus

#### Course Description

This course is an in depth treatment of the concepts of object-oriented design and programming using Java. The Java language will be taught along with the concepts of object orienting programming. Design of programming solutions using UML is emphasized along with programming using designs provided by the instructor. Topics will include: classes and methods, branching and method design, loops and external files, arrays, collections, recursion and object oriented software engineering. Most of these topics are designed to enhance your problem-solving and logical reasoning abilities. Prerequisite: Successful completion of CSCI 110 Introduction to Computer Science.

#### Course Objectives

Students completing this course will be able to solve computable problems using the Java programming language.

**After successfully completing the course, the student will be able to:**

1. Demonstrate the ability to design object-oriented solutions to computable problems using classes, objects and UML
2. Demonstrate the ability to code well designed UML problem solutions using the Java programming language.
3. Select appropriate algorithms to solve well-formed problems
4. Implement non-recursive algorithms in Java
5. Implement recursive algorithms in Java

**Google Voice Contact:** When texting or leaving voice mail on the Google contact number, please identify yourself first. I will see your number but no name so I need to know who I'm talking to.

**Communication is key:** Communication with the instructor when you are running late or are unable to attend makes the difference between being allowed to hand in work late or not.

*“A lack of planning on your part does not constitute an emergency on my part.”*

### Topical Outline of Instruction

Day	Dates	topic	Assmt for next class	Start	Due **
	1/15 1/16	Martin Luther King Day / open help session	Video: UML basics		
1	1/17 1/18	UML – Designing Classes	§13.10.1-13.10.6		
2	1/22 1/23	Lab: file input/output & run configurations in Netbeans – Exception handling	Chapter 9 Coding Conventions		
3	1/24 1/25	Objects and Classes (AgilityComp review)	Chapter 8		
4	1/29 1/30	Two-D Arrays – Image Lab	Chapter 10	Proj1	
5	1/31 2/1	Image Lab	Java API ArrayList	Proj2	Proj1
6	2/5 2/6	ArrayLists - how to build an ADT			
7	2/7 2/8	Objects within objects	Chapter 11	Proj3	Proj2 HW1
8	2/12 2/13	Inheritance, Multiple Inheritance	§13.1-13.2		
9	2/14 2/15	Abstract Classes			
	2/19 2/20	President’s Day / Open Help Session			
	2/21 2/22	Exam 1	§13.5-13.6 + 13.8	Proj4	Proj3
10	2/26 2/27	Java Collections Framework and Java Interfaces	§20.1 - 2 & 21.1 & 21.5		
11	2/28 3/1	Java Collections : Maps	21.2		HW2
12	3/5 3/6	Java Collections : Sets	20.4		
13	3/7 3/8	Java Collections : List		Proj5	Proj4
	3/12 3/13	Spring Break			
	3/14 3/15	Spring Break	§12.1 – 12.9		
14	3/19 3/20	Caught and Uncaught Exceptions	§19.1 – 19.9		
15	3/21 3/22	Generics			Proj5 HW3
16	3/26 3/27	Generic ArrayList		Proj6	
17	3/28 3/29	List: Array and Linked implementations	Chapter 18		HW4
18	4/2 4/3	Recursive algorithms			
19	4/4 4/5	Exam 2			P6–Pt 1
20	4/9 4/10	Recursive algorithms	§ 20.8		
21	4/11 4/12	Stacks: array implementations			P6–Pt 2
22	4/16 4/17	Stacks: linked implementations	§20.9 – 20.9.1		
23	4/18 4/19	Queues: array implementations			P6–Pt 3
24	4/23 4/24	Queues: linked implementation	§22.1 – 22.9		
25	4/25 4/26	Algorithm Efficiency and Big-O	§23.1 – 23.2		P6-Pt4
26	4/30 5/1	Algorithm Comparison: Sorting			
27	5/2 5/3	Algorithm Comparison: Searching			Proj6 HW5
	5/7 5/8	Final Exam part 1			
	5/9 5/10	Final Exam part 2			

Possibly incomplete subject to change. Coverage order will not change.

Lectures will be recorded and posted for snow days.

## Course Requirements

Students will create up to 5 individual programming projects, take 2 tests during scheduled class times and complete a comprehensive final examination. Projects will involve computation, manipulation of data as well as using built-in Java data structures. Students should expect to spend 8-10 hours per week outside of class working on projects, homework and course preparation.

## Student Evaluation and Grading

Homework, Labs & Quizzes	15%
Two in-class tests	30%
Programming Projects	35%
Final Exam (Comprehensive)	20%

## Grading Scale:

93 – 100	A	80 - 82.99	B-	67 - 69.99	D+
90 - 92.99	A-	77 - 79.99	C+	63 - 66.99	D
87 - 89.99	B+	73 - 76.99	C	0 - 69.99	F
83 - 86.99	B	70 - 72.99	C-		

**Homework & Quizzes** – There is a homework packet with written homework due every few weeks. They may not be handed in for credit after they are graded and returned to the class. Course videos include quiz questions that count toward your homework grade, but only if the video and quiz are completed on or before the end of that week.

**Exams** – *All exams are cumulative.* You are responsible for knowing all of the material in the prerequisite course in addition to the material covered in this course. You will be allowed to create and use a one page assistance sheet during exams including the final. The single 8.5” X 11” piece of paper can have anything on front and back that you wish to have handy during the exam. You may not give your assistance sheet to anyone else. Each student who wishes to use one must create her own. You must hand in your assistance sheet with your exam. Online student exams will be available in the testing center during the week of the exam.

**Programming Projects** - You should start on a programming project as soon as it is assigned. Do not expect to do these in one sitting. You should write projects in small testable pieces. Unit testing of all classes is required. Complete JavaDoc for all classes and methods is required. Projects are due by 11:59 pm Friday of the indicated week. Extra Credit will only be credited to programs that work and are handed in on time.

**Late Assignments:** **Programming projects lose 5% per day and will not be accepted after 7 days (The Drop Dead Date). Late projects are NOT eligible for extra credit.**

## Text, Tools and / or Supplies

*Introduction to Java Programming 10e* by Daniel Liang available as a pdf. You should have a notebook for taking notes and a writing instrument. It is strongly recommended that the student have a USB drive to store backup copies of all programming assignments. **Backing up your projects is your responsibility.**

**Attendance Policy:** Students will be dropped from the course with a grade of AF if they miss 3 consecutive meetings without contacting the instructor or a total cumulative number of classes equal to 3 weeks of class (6 class meetings). Attendance on time for each class is expected. If you come in late, make sure I mark you “Tardy” before you leave.

**Cell Phones:** Cell phones, text-messaging devices, and other social-networking connections may not be used in this class. If you bring such equipment to the classroom, it must be turned to vibrate before the class starts and stay that way throughout the class period. Use of such equipment is distracting to those nearby and will not be tolerated.

### **End-of-Course Evaluation**

Students complete evaluations for each course attended at SMCC. Evaluations are submitted online and can be accessed through the student portal. Students can access the course evaluations beginning one week before the end of classes. The deadline for submission of evaluations occurs Monday at 5 p.m. following the last day of the class. You will receive an e-mail to your student e-mail account when course evaluations are available.

### **ADA Syllabus Statement**

Southern Maine Community College is an equal opportunity/affirmative action institution and employer. For more information, please call (207) 741-5798. If you have a disabling condition and wish to request accommodations in order to have reasonable access to the programs and services offered by SMCC, you must register with the Disability Services Coordinator, Sandra Lynham, who can be reached at 741-5923. Further information about services for students with disabilities and the accommodation process is available upon request at this number. Course policies about online testing are modified to suit each individual's accommodations.

### **The Learning Commons:**

The library, tutoring and writing centers, and open study space are located on the second floor of South Portland's Campus Center and in the Midcoast's LL Bean Learning Commons and Health Science Center. Here you can find free academic support through individual and online tutoring, information literacy/research librarians, and professional academic strategy/planning mentoring. There are many desktop and laptop computers as well as printers, reserve textbooks, and other academic tools available for use within the Learning Commons. Services are offered by appointment or as drop-in assistance. To access services, visit My Learning in My Maine Guide. Students consistently report that the Learning Commons is an inviting and friendly place to seek academic support or study. Those who make use of the Learning Commons regularly have been shown to be more likely to succeed—take advantage of this exceptional resource for this, or any of your classes.

### **SMCC Pay-for-Print Policy**

Each semester students receive a \$20 printing credit. The balance resets at the end of the semester and any remaining credits are removed. The College's pay-for-print system monitors printing on all printers (including those in general access labs, library printers, Tutoring Services, Campus Center Lounge and technology labs). Be sure to log OUT of the system when you've finished your printing, to prevent unauthorized access to your account. Students can check the number of pages they have printed by using the Printing Balance tool available on SMCC computers (located in the lower right corner of the screen, near the clock). Departments with work study students who need to print documents for the department should contact the Help Desk at 741-5696 to have a special account set up. To find ways to reduce your printing charges, please go to the IT Help tab on My SMCC. If you have questions about the pay-for-printing policy or your printing charges, please contact the Help Desk at 741-5696 or send an e-mail to [helpdesk@smccme.edu](mailto:helpdesk@smccme.edu).

**Refunds**

Print jobs are eligible for a refund in the event of mechanical or electronic error on the part of the printer, print server, or software used to submit the job. Jobs are not eligible for a refund in cases where the job was not set up correctly, was submitted multiple times, or the student is not satisfied with the result. To request a refund, please bring the offending print to the IT Department in the basement of the Ross Technology Center. Refunds will be granted in the form of a credit to the student's account.

**Add-Drop Policy**

Students who drop a course during the one-week "add/drop" period in the fall and spring semesters and the first three days of summer sessions receive a 100% refund of the tuition and associated fees for that course. Please note any course that meets for less than the traditional semester length, i.e., 15 weeks, has a pro-rated add/drop period. There is no refund for non-attendance.

**Withdrawal Policy**

A student may withdraw from a course only during the semester in which s/he is registered for that course. The withdrawal period is the second through twelfth week of the Fall and Spring semesters and the second through ninth week of twelve-week Summer courses. This period is pro-rated for shorter-length courses, usually 75 percent of course meeting times; please check with the Registration Office. To withdraw from a course, a student must complete and submit the appropriate course withdrawal form, available at the Registration Office. This process must be completed either in person or by using SMCC e-mail accounts.

**Plagiarism Statement**

If an instructor suspects that a student has knowingly committed a violation defined in the Maine Community College System Policy on Student Grade Appeals and Academic Misconduct, the instructor has the authority to review the alleged misconduct and determine the grade that the student should receive for the assignment and the course. The instructor may assign a failing grade for the assignment or course and may require the student to complete additional work for the course. The instructor may consult with the department chair and/or the College's chief academic officer prior to making such decisions. If a student seeks to challenge an instructor's determination, the student should submit a grade appeal. Grade appeal forms are available in the Advising Office on the South Portland Campus or in the administrative offices in the Learning Commons on the Midcoast Campus. An instructor may also refer the matter to the College's disciplinary officer for review under the procedures of the MCCS Student Code of Conduct

## **CSCI 160 – Collaboration Policy**

### **CLASSWORK / HOMEWORK / LABS**

You may collaborate on CLASS WORK ASSIGNMENTS in and out of class. However, you must understand how to do the work independently. This means that you MAY work together to solve the problems, then hand in ONE copy of the work with both names on it. Two identical homework papers with two different names will be treated as cheating.

### **TESTS**

No discussion of any kind with anyone but the instructor is allowed during a test. You are allowed one (1) standard page (8.5" X 11") of notes as an assistance sheet for each exam.

### **PROJECTS**

Discussion of techniques in a natural language (such as English) is allowed. Discussion of an assignment in a computer or algorithmic language (such as Java) is NOT allowed. Strictly avoid sharing or exchanging literal statements of computer code or program files. Computer language questions are to be limited to the language and should not concern the assignment. WHEN IN DOUBT, SEE THE INSTRUCTOR! Stealing, giving or receiving passwords, code, designs, drawings, diagrams and/or text from ANY other person (whether from on-campus or off-campus) is NOT allowed. Every line of code that you turn in must be your own!

#### **Any of the following also constitutes cheating:**

1. Having a copy of a program that is not your own.
2. Accessing or viewing anyone else's work.
3. Giving anyone else access to your work including not picking up your printouts.
4. Any attempt to collaborate on projects.
5. Any attempt to deceive the instructor.

#### **Student responsibilities include:**

1. Secure disposal of code and report of missing printouts.
2. Avoidance of other students who act unethically.
3. Keeping your program solutions to yourself.

#### **The Penalty**

Violations of the collaboration policy will result in a zero on the assignment in questions and will be referred to the Disciplinary Committee for further action.

**I have read, and understand the syllabus and collaboration policy for CSCI160.**

**You will be asked to sign a copy of this policy for the instructor's files.**