

Syllabus

Course: CSC103C: Programming Languages

Instructor: Prof. Janet Brown-Sederberg

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Office Hours: Tuesday/Thursday 3:15 – 4:00 pm and By Appointment

Class Location: Stanger 308

Day/Time: Tuesday/Thursday @ 4:00 pm - 5:50 pm

Duration: 09.01.16 - 12.21.16

Credits: 3

Prerequisite(s): None

Text: Java Programming, Bravaco/ Simonson, McGraw-Hill, ISBN: 9780073523354

Course Description: An introduction to programming and problem solving using Java. Topics include: Input and Output; Selection; Repetition; Methods; Recursion; Arrays; Classes and Objects

Course Purpose: To learn the basics of problem solving, program design and to gain fluency in the Java programming language.

Course Content (tentative):

1. An Introduction to Computers and Java
 - 1.1 What Is a Computer?
 - 1.2 The Hardware
 - 1.3 The Software
 - 1.4 Programming and Algorithms
2. Expressions and Data Type
 - 2.1 In the Beginning... (Programs that Print)
 - 2.2 Data Types and Expressions
3. Variables and Assignment
 - 3.1 Variables
 - 3.2 Variable Declarations: How a Program Obtains Storage for Data
 - 3.3 How a Program Stores Data: Initialization and Assignment
 - 3.4 How a Program Uses Stored Data
 - 3.5 Obtaining Data From Outside a Program
 - 3.6 Using a Scanner Object for Interactive Input
 - 3.7 Final variables
 - 3.8 Type Compatibility and Casting
 - 3.9 A Few Shortcut Operators
 - 3.10 Increment and Decrement Operators
4. Selection and Decision: if Statements
 - 4.1 The if Statement
 - 4.2 The if-else Statement
 - 4.3 The switch Statement
5. Repetition
 - 5.1 The while statement
 - 5.2 Loops: a Source of Power; a Source of Bugs
 - 5.3 The do-while Statement
 - 5.4 The for Statement
 - 5.5 Nested Loops
 - 5.6 The break Statement, revisited
6. Methods
 - 6.1 Java's Pre-defined Methods
 - 6.2 Writing Your Own Methods
 - 6.3 Method Overloading

7. Arrays and Lists
 - 7.1 Array Fundamentals: Declaration and Instantiation
 - 7.2 Using an Array
 - 7.3 Array Initialization
 - 7.4 Using the = and the == Operators
 - 7.5 Arrays and Methods
 - 7.6 Sorting an Array with Insertion Sort
 - 7.7 Searching an Array
 - 7.8 Two Dimensional Arrays
8. Recursion
 - 8.1 Recursive Thinking
 - 8.2 The Runtime Stack: Tail Recursion vs. Classic Recursion
 - 8.3 Quicksort - A Classic Recursive Algorithm
 - 8.4 Designing an Anagram Generator
9. Objects and Classes I: Encapsulation
 - 9.1 Classes and Objects
 - 9.2 Java Libraries and Packages
 - 9.3 Strings are Objects
 - 9.4 The StringBuilder Class
 - 9.5 Classes for handling Files
 - 9.6 The DecimalFormat class
10. Objects and Classes II: Writing Your Own Classes
 - 10.1 A Dice Class
 - 10.2 Using the Dice Class
 - 10.3 A TriviaTest Class
 - 10.4 Encapsulation and Information Hiding
 - 10.5 The Keyword static
 - 10.6 The Keyword this
 - 10.7 Garbage Collection
 - 10.8 A Case Study: Classy Sounds

Student Learning Objectives: At the end of this course students will have an understanding of formal language concepts.

Instructional Procedures: Lecture, hands-on laboratory assignments (in and outside of class time), projects, and examinations.

Attendance: Students are expected to attend and participate in all class meetings.

Grading Policies: Assignments/Project/Final Exam will be assigned points, the total points earned will be divided by the total points possible. Tentative points paradigm:

Grading:

Weight:	<ul style="list-style-type: none"> • Mid-term: 30% • Final-exam: 40% • Assignments/quizzes: 30%
<p>Grading policy for programming assignments: Programming grades will be assigned as follows: All Programming assignments will be graded on a 3 point scale. Basically, if the program is perfect you get two points, if it runs correctly some of the time and has some merit but is flawed in some way, one point. Otherwise, no points. Documentation is important. A program without good documentation/comments will</p>	<ul style="list-style-type: none"> • Two points: the program works correctly on all test cases • One point: the program works on some test cases • No points: a program does not run correctly on any test case.

lose 1/2 point.	
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Course Grades (Found in the HillBook): The quality of work in a course is indicated by the following grades:

Grade	Definition	Quality Points per Credit Hour
A	Excellent , work that is of the highest standard, showing distinction	4.00
A-		3.70
B+	Good , work that is of high quality	3.30
B		3.00
B-	Satisfactory , work that fulfills requirements in quality and quantity and meets acceptable standard for graduation	2.70
C+		2.30
C		2.00
C-	Passing , work that falls below graduation standard, yet is deserving of credit.	1.70
D+		1.30
D		1.00
F	Failure , work undeserving of credit	0.00

Students with Disabilities: Stonehill College is committed to providing a welcoming, supportive and inclusive environment for students with disabilities. The Office of Accessibility Resources (OAR) provides a point of coordination, resources and support for students with disabilities and the campus community. If you anticipate or experience physical or academic barriers based on disability, please let me know so that we can discuss options. You are also welcome to contact OAR to begin this conversation or to establish reasonable accommodations for this or other courses. OAR is located within the Academic Services & Advising Suite in Duffy 104. For additional information please call (508) 565-1306 or email accessibility-resources@stonehill.edu.

Exceptions to Class Rules, Restrictions or Requirements: Food and drink are not allowed in computer laboratories. Any exceptions must be approved by the professor.

Diversity and Inclusion: Stonehill College embraces the diversity of students, faculty, and staff, honors the inherent dignity of each individual, and welcomes their unique cultural and religious experiences, beliefs, and perspectives. We all benefit from a diverse living and learning environment, and the sharing of differences in ideas, experiences, and beliefs help us shape our own perspectives. Course content and campus discussions will heighten your awareness to these differences.

The Office of Intercultural Affairs (Duffy 149) serves as an accessible resource to anyone seeking support or with questions about diversity and inclusion at Stonehill. If you are a witness to or experience acts of bias at Stonehill or would like to learn more about how we address bias incidents, please email diversity@stonehill.edu.

Academic Honor Code and Integrity Policy: You are to adhere to the Stonehill Academic Honor Code and

Academic Integrity Policy found in the 2015-2016 HillBook under Academic Policies and Procedures and to the Computer Science Department Statement on Academic Integrity:
<http://web.stonehill.edu/compsci/StatementOnAcademicIntegrity.html>

In this course you are to do and to submit your own work, you may work in teams only as specifically directed by me. When in doubt, always verify with me if something is being done properly or is allowable in this class rather than simply make an assumption based on the fact that it was or is currently allowable in another class.

A violation of Stonehill's Academic Integrity Policy will be dealt with appropriately.

Resources for Academic Support: The Center for Writing and Academic Achievement (CWAA) provides academic support services in a welcoming, professional environment that emphasizes collaborative learning and peer tutoring, supplemented with professional-level support. The CWAA offers a variety of academic support services, including peer tutoring in writing, math, and foreign languages.

The CWAA is located in MacPháidín Library, Room 314. Drop-in hours are offered Sunday – Thursday. Students can visit the [CWAA website](#) to view schedules, make appointments, or request a tutor.

Cell Phone Policy: Each cell phone is to be turned to silent mode during class time and remain out of sight throughout the entire duration of the class.

During exam periods each cell phone must be in silent mode and remain visible with the screen side down on the desk. Absolutely no use of the cell phone (*i.e.*, checking its screen) is permitted from the time an exam is handed out until the exam has been turned in to be graded.

Submission of Assignments and Feedback by E-Mail Policy: As part of this course, you may be required or permitted to submit work to me via email. By submitting work in this manner, you are consenting to receiving grades or feedback from me via email.