CSC 116 Course Syllabus

CSC 116 – Introduction to Programming - Java

Section 005	SPRING 2015	3 Credit Hours

Course Description

An introductory course in computing in Java. Emphasis on algorithm development and problem solving. Careful and methodical development of Java applications and applets from specifications; documentation and style; appropriate use of control structures; classes and methods; data types and data abstraction; object-oriented programming and design; graphical user interface design.

Learning Outcomes

Upon successful completion of this course, a student will be able to...

- apply classic problem-solving techniques to simple computation and information-management problems (without reference to any programming language), specifically
- breaking large problems into smaller ones,
- sequential analysis of solution steps,
- logical analysis of alternative cases,
- evaluate an arithmetic expression using order of operations, promotion from integer to floating-point types, and integer division,
- use a programming language to write code that selects one of several alternatives based on more than one predicate,
- use a programming language to write a loop whose exit depends on more than one predicate,
- correct syntax errors and distinguish between them and runtime errors or errors in logic.
- find and correct logical programming errors using debugging printout, pencil-and-paper tracing, and systematic search (to locate where an incorrect decision or value first appears),
- implement an object-oriented design that has at least two interacting classes,
- write and document programs that adhere to specific coding and documentation standards (e.g., Javadoc for documentation; conventions regarding the naming of classes and methods, definition of constants, indention, etc.),
- use the Java system classes to do text-based input and output,
- construct and use arrays with one and two dimensions

Course Structure

Lectures and Exercises

There will be one or more exercises almost every lecture period. These exercises will be used to check attendance and to see how well you understand the materials that was presented in lecture the day the exercise is assigned. There are only three possible grades for the exercises: 0, 0.5, or 1.0. If you attempt the exercise, you will receive a 0.5 on the exercise. Answers to the exercises will be posted on the website at the beginning of the next lecture period.

The lowest *four* exercise grades will be dropped. If you are absent from class, with a documented excused university absence, you will not be penalized for missing the exercise. Exercises may run over the end of the lecture period and some exercises may be assigned as homework. The deadline for those exercises will be 10 minutes before the next lecture.

Programming Projects

There are six (6) programming projects this semester. These projects will be submitted electronically by the due date. See the "Late Work" section of the syllabus for policies about late electronic submissions.

All programs are to be completed using Java 1.7.0. You may access the Java Development Kit on campus computers (Linux and Solaris) using "add jdk" at the command line. You may download the Java Development Kit 1.7.0 from http://java.sun.com to use on your home computer; however, grading of programs will be done on the Linux operating system. If you work from home, make sure to check that your program will work on a Linux box!

All programs are to be your own work. See the "Academic Integrity" section of the syllabus for further details.

Feedback on all programming projects will be returned to you electronically.

Homeworks

There are four (4) homework assignments this semester. These assignments will be submitted electronically by the due date. See the "Late Work" section of the syllabus for policies about late electronic submissions.

Linux Exercise

The CSC116 classroom contains computers running the Linux operating system. Basic familiarity with navigating the Linux file system and using the operating system from the command line is required for success in this course. A crash course in Linux will be presented during the first lecture. A Linux Exercise will be given January 13, 2015 to review the materials for navigating the Linux operating system through the command line and will count as 1% of your final grade.

Final Review Presentation

The two lectures before the final exam are reserved for review of all CSC116 materials for the final exam. Each student will give an individual five-minute presentation reviewing a topic from earlier in the semester. Students will also provide a sample exam question and solution appropriate for their assigned section.

Students will be evaluated by the instructor, the TAs, and their peers on their presentation skills, exam question and solution, and the presentation content. The final review presentation is mandatory and is 2% of your final grade. The review presentation may be videotaped. Your lecture slides, including your exam question and solution, will be submitted through Moodle by the deadline.

Exams

There will be three exams in this course counting a total of 56% of your final grade. These exams will cover all materials (readings, lectures, exercises, and projects) up to the lecture before the exam. Each exam will contain an electronic portion where you will complete a programming exercise. All exams are cumulative.

Time

You are expected to spend, on **average**, 6 to 12 hours per week outside of class preparing and working on assignments. In some weeks, especially those around project deadlines, you may spend more than 12 hours on course work. Please plan ahead and use your time wisely. Do NOT wait until the last minute to complete programming projects!!!

Computers and Electronic Devices

The Daniels 255 classroom has a Linux computer for each student. Students are encouraged to use the computers to look at lecture notes, take notes, and try out small programs. The teaching staff asks that students respect their neighbors and keep their focus on course materials rather than games, FaceBook, etc. Electronic devices are required for submission of exercises.

You may not record the lecture without express written permission from the instructor.

Electronic Communication

The teaching staff looks forward to receiving emails and message board posts about any questions you have about the class, materials, exams, and assignments. Below are several rules for electronic communication.

Higher education provides you with a training ground prior to entry into the work environment for your chosen career. You will use many of the following rules of "netequette" when you are communicating with colleagues, your supervisor, or clients once you are in the work world. Although many of the rules of etiquette for electronic communication will be similar in the work environment, we have some specific to this course.

Please observe the following etiquette when communicating with the teaching staff and your peers. The teaching staff receives many email on a daily basis and the instructor teaches several courses. Please note that a member of the teaching staff will respond to an email or message board post within 24 hours on a business day and within 48 hours on a weekend or holiday. Most of the time, we will respond more quickly, but it is not guaranteed.

Also, before sending an email, try to find the answer to the question by using various references already available to you:

- If the question is related to class administration, check the syllabus
- If the question is related to recent information, check previous emails from the teaching staff or Piazza
- If the question is homework or exam related, check the message board to see if it has already been answered. Also, read your textbook.

For emails, please identify your course, section, and your name in the subject line (first and last name) along with the subject of the message. For example: "CSC116-005 Jenny Smith - Question about Homework 1".

Email should include a salutation to identify the recipients of the email. For example, begin an email to your instructor with a salutation such as "Hi Dr. Heckman," or "Dr. Heckman". For emails to the sup list, consider a salutation like "Greetings Teaching Staff,". You now have the attention of the email recipients.

The tone of the email message should be professional. Re-read your email before you press Send and make a judgment as to how you would respond if you were a recipient of the email you are planning to send.

If you have a question that is beyond the scope of an email, consider coming to office hours or scheduling an appointment with a member of the teaching staff.

If you have several questions or items, please number them for ease of reading. The response will also be easier to understand.

Please spell check and correct mechanical/grammar errors. Avoid emails written only in lowercase and lacking punctuation.

Close your email with your name.

If you have a general question about a homework, post your question to Piazza. If you have a question that is more specific or that involves snippets of code, create a private Piazza post or email it to the sup list for your section: csc116-005-sup@wolfware.ncsu.edu.

Grade Appeals

If at any time you feel an assignment was graded improperly, **write** a request for regrade and explain why you believe the assignment was graded improperly (an email to the sup list or a private post on Piazza is appropriate). First, discuss the grade with the TA who graded the assignment. If you are still unsatisfied with the answer, submit the assignment to the instructor for a regrade. **All regrade requests must be submitted to the teaching staff no later than1 week after the assignment was returned to you. Please talk with the TA who graded the assignment FIRST and have the written regrade explanation.**

Minimum Grade Requirement

In order to receive a final grade of C or higher, you must have an average of 60% or higher on all three exams AND an average of 60% or higher on all six of the projects. Students failing to meet these requirements will receive at most a maximum grade of D in the course.

Instructors

Dr. Sarah Heckman (sesmith5) - *Instructor*
Email: sarah_heckman@ncsu.edu
Web Page: http://www4.ncsu.edu/~sesmith5
Phone: 919-515-2042
Office Location: Engineering Building II 2297
Office Hours:
Mondays 11:30a-12:30p in EBII 2297
Tuesdays 11:00a - noon in Daniels 223

Course Meetings

Lecture

Days: MW
Time: 9:10am - 11:00am
Campus: Main
Location: Daniels 255
This meeting is required.

Course Materials

Textbooks

Building Java Programs - *Reges and Stepp*
Edition: 3rd
ISBN: 978-0133360905
Web Link: http://www.buildingjavaprograms.com
This textbook is required.

Requisites and Restrictions

Co-requisites

(E115 or PMS 100) and (MA 121 or MA 131 or MA 141)

Grading

Grade Components

Component	Weight	Details
Projects	30	There are six projects.
Linux Exercise	1	The Linux Exercise will be held on 1/13 at the beginning of class.
Final Review Presentation	2	Held on 4/21 and 4/23.
Exercises	7	Most exercises will be assigned and completed during class. Exercises assigned during class, but not completed in class, will be due by 9am the next lecture period.
Homeworks	4	There are four homeworks.
Exam 1	18	Exam 1 will cover material related to Chapters 1-4 from the textbook.
Exam 2	18	Exam 2 will cover material related to Chapters 1-6 from the textbook and the testing packet.
Exam 3	20	Exam 3 will cover all materials for the course.

Letter Grades

Final grades will be assigned to students *who meet the minimum grade requirement (see above)* using the following scale where X is your overall weighted average of the grade components described above.

This Course uses the Following (Non-Standard) Letter Grading Scale:

$98 \leq$ **A+** ≤ 100
$92 \leq$ **A** < 98
$90 \leq$ **A-** < 92
$88 \leq$ **B+** < 90
$82 \leq$ **B** < 88
$80 \leq$ **B-** < 82
$78 \leq$ **C+** < 80
$72 \leq$ **C** < 78
$70 \leq$ **C-** < 72
$68 \leq$ **D+** < 70
$62 \leq$ **D** < 68
$60 \leq$ **D-** < 62
$0 \ \leq$ **F** < 60

Requirements for Credit-Only (S/U) Grading

In order to receive a grade of S, students are required to take all exams and quizzes, complete all assignments, and earn a grade of C- or better. Conversion from letter grading to credit only (S/U) grading is subject to university deadlines. Refer to the Registration and Records calendar for deadlines related to grading. For more details refer to http://policies.ncsu.edu/regulation/reg-02-20-15.

Requirements for Auditors (AU)

Information about and requirements for auditing a course can be found at http://policies.ncsu.edu/regulation/reg-02-20-04.

The grade of "AU" will be awarded to students who take all exams and earn a 50% or higher in the course and have attempted all programs and exams. Auditors are required to meet with the instructor during the first two weeks of the course.

Policies on Incomplete Grades

If an extended deadline is not authorized by the instructor or department, an unfinished incomplete grade will automatically change to an F after either (a) the end of the next regular semester in which the student is enrolled (not including summer sessions), or (b) the end of 12 months if the student is not enrolled, whichever is shorter. Incompletes that change to F will count as an attempted course on transcripts. The burden of fulfilling an incomplete grade is the responsibility of the student. The university policy on incomplete grades is located at http://policies.ncsu.edu/regulation/reg-02-50-3.

Late Assignments

All work for the course MUST be submitted electronically through Moodle. No work will be accepted after the submission locker closes, unless you have a documented excused absence that must be provided to the instructor within a week of the deadline. No work will be accepted through email. To ensure correct submission, log out and then back into Moodle. Make sure after you submit that your work is displayed in the submit locker for your login id.

All homeworks and programming projects are due on the specified due date(s). An additional locker for late projects will also be provided that will close **48 hours** after the original submission deadline. Work turned into the late locker will automatically lose **10 points**. Exercises will not be accepted late.

Attendance Policy

For complete attendance and excused absence policies, please see http://policies.ncsu.edu/regulation/reg-02-20-03

Attendance Policy

Attendance to lecture is mandatory!

Absences Policy

Excused absences are defined in the NC State Academic Policy on Attendance Regulations (http://policies.ncsu.edu/regulation/reg-02-20-03). **Documentation of the absence is required to excuse an absence.**

- Exam makeups will only be given with a documented excused absence.
- Homework and project extensions will only be given with a documented excused absence. If appropriate for the assignment and other course constraints, an alternative assignment may be assigned.
- Exercise waivers will only be given with a documented excused absence.

All anticipated absences must be presented to the instructor no later than one week before the absence. All emergency absences must be turned in no later than one week after the student's return date. All other absences will be unexcused.

A maximum of 4 class periods per semester may be missed due to excused absences. Any number of excused absences beyond four will only be allowed with special permission of the instructor.

Makeup Work Policy

All homeworks, projects, and exams must be made up within one to two weeks of the absence and the timeframe will be determined through discussion between the instructor and student. If needed, the instructor may request the student to complete an alternative assignment. No exercises will be made up.

Academic Integrity

Academic Integrity

Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct found at http://policies.ncsu.edu/policy/pol-11-35-01

All work that you turn in for grading must be your own! This means that all work must be an independent and individual creation by you or in the case of paired/team assignments; all work must be an independent and individual creation by you. Any attempt to gain an unfair advantage in grading, whether for yourself or another, is a violation of academic integrity. The only exception is when the instructor states that you may work with a neighbor on an *exercise* or other activity as part of your classwork. In that case, the work is an independent creation of the pair or team.

Students who cheat on a homework, exercise, or exam will receive a -100 for the assignment!!!

Cheating is worse than not turning in the assignment. All cases of academic misconduct will be reported to the Office of Student Conduct. A first offense will place the student on *Academic Probation* for the remainder of their academic career. A student's status on *Academic Probation* **may** affect financial aid and be reported to groups that request the information from the Office of Student Conduct, like Park Scholars, ROTC, graduate schools, employers, etc.

The Computer Science department uses software that detects cheating violations for programming projects. Do not use other student's code, do not share your code, do not copy or use code from someone who took the class X semesters ago, do not use code from online.

The only people that you MAY receive help from are your instructor, the TA(s) and/or STARS Tutors for CSC116. For exercises, you may work with any of your neighbors that are physically present in class. You may use any of the resources provided by the teaching staff on the course website.

You MAY also reference your textbook, the textbook website, the Java API, and other third party APIs as appropriate for an assignment (for example, you may use the JUnit API to help you with writing JUnit tests).

You MAY NOT receive help from anyone or anything else.

Examples of Cheating (this list is NOT exhaustive):

- It is cheating to give any student access to any of your work which you have completed for individual class assignments.
- It is cheating AND plagiarism to use another person's work and claim it as your own. You are expected to complete all assignments on your own, unless otherwise specified in the assignment.
- It is cheating to interfere with another student's use of computing resources or to circumvent system security.
- It is cheating to email, ftp, post on the Internet, bulletin boards, message boards, etc. your work for others to obtain. Do NOT use sites that allow you to "anonymously" post code. Those sites are searchable, and others may find your code (like the teaching staff).
- It is cheating to ask or pay another person or persons to complete an assignment for you.
- It is cheating AND plagiarism to decompile any compiled code and use the decompiled source code as your own. You may also break the law by decompiling code.
- It is cheating AND plagiarism to use code that you find online.
- It is cheating to give another student access to your account (NC State account or others that you use for university work) or to give them your account password.
- It is cheating for you and another student to work collaboratively on an assignment, unless otherwise specified by the assignment.
- to circumvent the intention of the assignment and/or the automated grading system (e.g., by hardcoding test case solutions).

Examples of NOT Cheating (this list is NOT exhaustive):

- Using the code from the class website (with citations in the comments).
- Using code from other programs YOU wrote.
- Using code from other programs that YOU and a partner wrote as part of assigned exercises.
- Help from TAs or instructor (with citations in the comments).
- Using code from the textbook or textbook website (with citations in the comments).

Example Citations

```
/* (In method or class level comments)
* I received help from Dr. Heckman on date during her office hours.  We discussed X.
*/


/*
* The code for this method is based on Exercise Y that I completed with Z on date.
*/
```

Protecting Yourself

- Do not leave papers lying around your workstation.
- Do not dispose of important papers in the lab recycling bins and trash cans until after the assignment is graded.
- Do not give out your password.
- Do not leave your workstation unattended or forget to log yourself out.
- Do not leave your laptop unattended.

- Do not give other students access to any of your workspace or email them any code.
- Do not give other students access to your course materials or your personal computer.
- Do not email, ftp, or post your code on the Internet, message boards, etc.
- Keep all copies of final an intermediate work until after the assignment is graded.
- Keep all graded assignments until after you receive the final grade for the course.
- Do not discuss implementation details of the assignment with your peers.

Forum Use

The forum is available to ask questions about assignments and tests. **Do NOT post any code to the forum unless it is in a private post!** The teaching staff reserves the right to edit any student's forum post for inappropriate content.

Academic Honesty

See http://policies.ncsu.edu/policy/pol-11-35-01 for a detailed explanation of academic honesty.

Honor Pledge

Your name on any test or assignment or the electronic submission of an assignment through Moodle or other class courseware system indicates "I have neither given nor received unauthorized aid on this test or assignment."

Electronically-Hosted Course Components

Students may be required to disclose personally identifiable information to other students in the course, via electronic tools like email or web-postings, where relevant to the course. Examples include online discussions of class topics, and posting of student coursework. All students are expected to respect the privacy of each other by not sharing or using such information outside the course.

Electronically-hosted Components: All course materials are electronically hosted on Wolfware and Piazza.

Accommodations for Disabilities

Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, student must register with the Disability Services Office (http://www.ncsu.edu/dso), 919-515-7653. For more information on NC State's policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation at http://policies.ncsu.edu/regulation/reg-02-20-01.

Non-Discrimination Policy

NC State University provides equality of opportunity in education and employment for all students and employees. Accordingly, NC State affirms its commitment to maintain a work environment for all employees and an academic environment for all students that is free from all forms of discrimination. Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of state and federal law and/or NC State University policy and will not be tolerated. Harassment of any person (either in the form of quid pro quo or creation of a hostile environment) based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation also is a violation of state and federal law and/or NC State University policy and will not be tolerated. Retaliation against any person who complains about discrimination is also prohibited. NC State's policies and regulations covering discrimination, harassment, and retaliation may be accessed at http://policies.ncsu.edu/policy/pol-04-25-05 or

Course Schedule

NOTE: The course schedule is subject to change.

Syllabus and Linux Intro — 1/8

Syllabus and Linux Intro

Intro to Java and Problem Solving — 1/13

Linux Exercise

Intro to Java, Program Errors, and Procedural Decomposition

Data and Variables — 1/15

Data and Variables

for Loops and Complexity — 1/20

for Loops and Complexity

Methods and Javadoc — 1/22

Methods and Javadoc

Using Objects — 1/27

Using Objects

Looping Paradigms — 1/29

Looping Paradigms

Conditionals — 2/3

Conditionals

Text Processing — 2/5

Text Processing

Exam 1 — 2/10

Exam 1 will cover materials related to Chapters 1-4 in the textbook.

Testing — 2/12

Testing

While Loops, Random Numbers, and Error Handling — 2/17

While Loops, Random Numbers, and Error Handling

Loops and Assertions — 2/19

Loops and Assertions

Pair Programming — 2/24

Pair Programming

File Input — 2/26

File Input

File Processing — 3/3

File Processing

File Output — 3/5

File Output

Arrays — 3/17

Arrays

Advanced Arrays — 3/19

Advanced Arrays

Multidimensional Arrays — 3/24

Multidimensional Arrays

Objects and Classes — 3/26

Objects and Classes

Exam 2 — 3/31

Exam 2 will cover material related to Chapters 1-7 of the textbook (up through the Multidimensional Arrays lecture).

Construction and Encapsulation — 4/7

Construction and Encapsulation

Interacting Classes — 4/9

Interacting Classes

GUIs — 4/14

GUIs

Code Inspection — 4/16

Code Inspection

Review Presentation — 4/21

Searching

Review Presentation — 4/23

Binary Search Trees

Final Exam — 5/7

The final exam will cover all material from the course and is from 8am to 11am on 5/7.

Homework 1 — 2/4

Due by 11:45pm. Late deadline is 48 hours later.

Project 1 — 2/6

Due by 11:45pm. Late deadline is 48 hours later.

Homework 2 — 2/16

Due by 11:45pm. Late deadline is 48 hours later.

Project 2 — 2/20

Due by 11:45pm. Late deadline is 48 hours later.

Project 3 — 3/6

Due by 11:45pm. Late deadline is 48 hours later.

Homework 3 — 3/18

Due by 11:45pm. Late deadline is 48 hours later.

Project 4 — 3/27

Due by 11:45pm. Late deadline is 48 hours later.

Project 5 — 4/10

Due by 11:45pm. Late deadline is 48 hours later for the Black Box Test Plan ONLY. The Design Document may NOT be submitted late due to release of the teaching staff design the morning following the deadline.

Homework 4 — 4/15

Due by 11:45pm. Late deadline is 48 hours later.

Review Presentation Slides — 4/17

Due by 11:45pm. Late deadline is 48 hours later.

Project 6 — 4/24

Due by 11:45pm. Late deadline is 48 hours later.