

CS 114 Fundamentals of Programming I • 4 credits • Spring 2017

CRN: 18929 • MW 9:30-11:10 • Dana 318

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Course Description

This is the first course of a two-semester introductory sequence, with laboratory, that covers the fundamentals of algorithmic problem solving. The course emphasizes general programming methodology and concepts common to object-oriented and procedural programming languages: algorithms, top-down structured program design, modularity, efficiency, testing and debugging, and user-friendliness. The object-oriented paradigm is covered, including classes, objects, access control, abstraction, and encapsulation. Other topics include organization and hardware, input and output, subprogram units (methods), fundamental data types, reference types, control structures including conditions and iteration, and arrays.

Course Objectives

- By the end of the term, you should be able to:
- To be able to select an appropriate algorithmic solution to a given problem.
- To be able to use an integrated development environment to design and write code in the Java programming language for a variety of problems involving the use of basic control structures and data structures.
- To illustrate good programming principles.
- To employ the software engineering principles of abstraction, modularity, and encapsulation in project and program design.
- To be able to employ proper code documentation.
- To learn basic high-level programming constructs including selection control structures, looping structures, fundamental I/O techniques, and simple classes.
- To understand and be able to design objects and create programs to implement them.
- To define and correctly use method arguments and parameters and local variables.
- To have an understanding of some of the basic ethical issues confronting computing professionals.

Course Pre-requisites

- M 110, M 140, or equivalent
- This course assumes that you have a working knowledge of an operating system.
- You do not need prior programming experience. However, an aptitude for problem solving, analytical reasoning, and quantitative reasoning is essential for succeeding in this course.

Expectations

Each student is expected to attend classes and take notes. Read the textbook(s) before attending class. Turn in homework, and other assignments on time. Take quizzes and exams as scheduled. The instructor is available for help during scheduled office hours (check "Instructor Information") and also by appointment. Please do not wait until an exam to get help. Seek help as soon as possible. You will need to allocate about **16 hours of your week** towards this course. This time will be used for the following:

- reading the chapters in the text book assigned
- completing activities assigned
- completing homework assignments
- studying for tests and exams

If you need help with the course, please do not wait until it's too late. Your first course of action is to ask to meet your coach and/or instructor. You may also see CS tutors in the CS Lab. If you need help resolving a programming error, please send only the lines of code necessary (not the entire program) and explain what is happening or not happening carefully.

Textbook



Java Software Solutions: Foundations of Program Design, 8/E

John Lewis, William Loftus

ISBN-10: 0133594955 • ISBN-13: 9780133594959

©2015 • Addison-Wesley • Paper, 832 pp

Published 02/21/2014

- Companion website: http://wps.prenhall.com/ecs_lewis_jss_8/
- Access Code : Found in the insert between the textbook cover and first page. This access code gives you access to VideoNotes, Lab Manual, and Source Code at <http://pearsonhighered.com/lewis/>. This access is not necessary but may be helpful - especially for the VideoNotes.
- Students may purchase a hard-copy or an e-book either way as long as you have access to a copy of the book.

Software

The software we will be using in class to write programs is installed on computers in the classroom and in the Computer Science Laboratory (Dana 230). Students may also install copies of this software for free on their personal computers. If you choose to do so, download and install the programs listed below in order.

1. [Java Standard Edition Development Kit \(JDK\)](#) - This enables you to compile and run Java programs.
 - You'll need to know if your computer is a 32-bit or a 64-bit machine. To do this, right-click on your "computer" and choose "Properties".
 - Be mindful of where (file/folder path) where the JDK is installed.
2. [IntelliJ IDEA Community \(Free\)](#) - Java integrated development environment (IDE) for writing programs. It provides you an editor, debugger, and a way to hook to the compiler.
 - Install the JDK before installing IntelliJ.
 - Install this properly making sure IntelliJ knows where your JDK is located as they do in this tutorial - <https://www.youtube.com/watch?v=3-3mWgWlYcU&nohtml5=False> - about half way through the video.
3. [Scene Builder](#) - This is a visual layout tool for JavaFX which allows you to drop-and-drag user interface (UI) components into your UI design.
 - Tutorials 34, and 35 by thenewboston on JavaFX starting here: <https://www.youtube.com/watch?v=Lakl9Q3gsD4&nohtml5=False>
4. [Dia](#) - A UML diagram drawing tool.
5. [Open Broadcast Software \(OBS\)](#) - For video recording of test runs and code walkthroughs.
6. Video players or browser plug-ins for mp4 files forr your OS (Windows or Mac) and web browsers.

CS Account

All CS students have been given a "CS Account". This computer account works in Dana 230 (CS lab) and Dana 318 (CS classroom). The software required for this course are available in these rooms.

- Account credentials:
 - Usernames = First name initial + first 8 characters of last name (ex. John Doe is "jdoe")
 - Passwords = 123456
- If you cannot login, contact the CS system administrators (admins@cs.hartford.edu) with your:
 - First name, Last name, your CS instructor name, and CS course
- There is also a temporary account which is only functional for a couple of weeks into the semester. Please do not store any files in this account and should not be used past the first week of school.
 - Username = 318guest
 - Password = 318guest

The Department Computer Science, as custodian of all information stored on the network, may inspect and/or close an account without prior notice upon any indication of abuse. Account owners must adhere to the computer use policies established by the University of Hartford. These policies can be found in the conduct section of The Source student handbook. Each account owner is responsible for his or her own account. If any abuse originates from your account you will be held liable.

Hardware Notes

Data is erased from lab computers in D318 and D230 every time you log out. You must remember to manage the various files you use/create accordingly.

Students may choose to use a USB flash drive (jump drive) to store their work. If so, you will need a 1GB or larger drive and you should bring it to every class. Alternatively, you may store your data on the CS department file server (accessible as the G: drive) or you may upload your files to the cloud.

Remember that computer storage devices do fail. You are advised to make regular backups of your work using multiple devices. Loss of data due to disk failure is not an acceptable excuse for missing a homework deadline.

Accessing Your G-drive Folder Via CS Terminal Server

To access your G drive folder, you should run a remote desktop client and connect to **ts.cs.hartford.edu**. Your CS login credentials will be required.

- On Windows, find "Remote Desktop" on the start button.
- On Macs, download CoRD (<http://cord.sourceforge.net/>) which is a Mac OS X remote desktop client for logging into a Windows machine.

Schedule

<i>Subject to Change</i>					
Week #	Week Day	Date	Topics - Read before class	Quiz Due 11:59pm	Class Activity – Come to class knowing the agenda for the day
1	Wed	Jan-25			Syllabus JDK and IntelliJ Workshop 1A: Hello World program
	Mon	Jan-30	Chapter 1 Introduction Ch1-Part1 1.1 Computer Processing 1.2 Hardware Components 1.3 Networks Ch1-Part2 1.4 The Java Programming Language 1.5 Program Development 1.6 Object-Oriented Programming	1	Workshop 1B: More Hello World
2	Wed	Feb-1	Chapter 2 Data and Expressions Ch2-Part1 2.1 Character Strings 2.2 Variables and Assignment 2.3 Primitive Data Types	2	Workshop 2: Type Conversions
	Mon	Feb-6	Ch2-Part2 2.4 Expressions 2.5 Data Conversion 2.6 Interactive Programs	3	Lab submission procedure Lab 2: Monetary Conversion (No Lab 1 to keep numbering consistent)
3	Wed	Feb-8	Chapter 3 Using Classes and Objects Ch3-Part1 3.1 Creating Objects 3.2 The String Class	4	Workshop 3A: Name Manipulation, Lottery Numbers
	Mon	Feb-13	Ch3-Part2 3.3 Packages 3.4 The Random Class 3.5 The Math Class 3.6 Formatting Output	5	Assignment 1 Assignment submission procedure Lab 3: Time Interval
4	Wed	Feb-15	Ch3-Part3 3.7 Enumerated Types 3.8 Wrapper Class	6	Workshop 3B: (1) Card Suit, (2) Quadratic Equation
	Mon	Feb-20			Workshop 3C: TBD
5	Wed	Feb-22			Test 1
	Mon	Feb-27	Chapter 4 Writing Classes Ch4-Part1 4.1 Classes and Objects Revisited 4.2 Anatomy of a Class	7	Workshop 4: Class TimeInterval Javadoc

6	Wed	Mar-1	Ch4-Part2 4.3 Encapsulation 4.4 Anatomy of a Method 4.5 Constructors Revisited	8	Lab 4: Rolling Dice, Playing Card
	Mon	Mar-6	Chapter 5 Conditionals and Loops Ch5-Part 1 5.1 Boolean Expressions 5.2 The if Statement	9	Assignment 2 Workshop 5A: TBD
7	Wed	Mar-8	Ch5-Part 2 5.3 Comparing Data 5.4 The while Statement	10	Lab 5: Leap Year
	Mon	Mar-13			Workshop 5B: TBD
8	Wed	Mar-15			Test 2
	Mon	Mar-20	Spring Break - No Classes		
9	Wed	Mar-22			
	Mon	Mar-27	Chapter 6 More Conditionals and Loops Ch6-Part1 6.1 The switch Statement 6.2 The Conditional Operator	11	Workshop 6: Coin Flipper
10	Wed	Mar-29	Ch6-Part2 6.3 The do Statement 6.4 The for Statement	12	Lab 6: Star Generator
	Mon	Apr-3	Ch5-Part3 (Note: intentionally out of sequence) 5.5 Iterators 5.6 The ArrayList Class	13	Assignment 3 Workshop 5C: Deck and Card Classes
11	Wed	Apr-5	Chapter 7 Object-Oriented Design Ch7-Part1 7.1 Software Development Activities 7.2 Identifying Classes and Objects 7.3 Static Class Members	14	Workshop 7: TBD
	Mon	Apr-10	Ch7-Part2 7.4 Class Relationships 7.5 Interfaces	15	Lab 7: Die with Comparable Interface
12	Wed	Apr-12	Ch7-Part3 7.6 Enumerated Types Revisited 7.7 Method Design 7.8 Method Overloading 7.9 Testing	16	Workshop 7B: Predators
	Mon	Apr-17			Workshop 7C: TBD
13	Wed	Apr-19			Test 3
	Mon	Apr-24	Chapter 8 Arrays Ch8-Part1 8.1 Array Elements 8.2 Declaring and Using Arrays 8.3 Arrays of Objects	17	Workshop 8: Array of ints, Array of Strings

14	Wed	Apr-26	Ch8-Part2 8.4 Command-Line Arguments 8.5 Variable Length Parameter Lists 8.6 Two-Dimensional Arrays	18	Assignment 4 Workshop 8B: TBD
	Mon	May-1			Lab 8: Deck Class with Arrays
15	Wed	May-3			Workshop 8C: TBD
	Mon	May-8			Review
Final Exam - Wednesday, May 10, 2017, 2pm-4pm					

Grading

Quality Work All oral and written work submitted must be of the highest quality. You will be graded on your performance and quality of the work required and not on the amount of time spent nor amount of effort. Any piece of work turned in for a grade is subject to an oral examination and the grade for the work hinges on the result of the student's knowledge, not what is submitted.

Final Grade

18 Quizzes	10%
8 Labs	20%
4 Assignments	25%
3 Tests	30%
Final Exam	15%

	86.67 to 89.99 = B+	76.67 to 79.99 = C+	66.67 to 69.99 = D+	
>= 94 = A	83.34 to 86.66 = B	73.33 to 76.66 = C	63.33 to 66.66 = D	<= 59.99 = F
90.00 to 93.99 = A-	80.00 to 83.33 = B-	70.00 to 73.33 = C-	60.00 to 63.33 = D-	

"My Grades"

Up-to-date grade information is available 24/7 under "My Grades". It also shows your "Weighted Total". This is your up-to-date, cumulative, weighted grade.

Class Participation

Even though class participation is not figured into your final grade, your attendance and participation is crucial to your success in this class. The following should give you a guideline on how to actively and positively participate.

Level of participation	Rubric
A	Actively supports, engages and listens to peers (ongoing) Arrives fully prepared at every class Plays an active role in discussions (ongoing) Comments advance the level and depth of the dialogue (consistently) Group dynamic and level of discussion are consistently better because of student's presence
B	Makes a sincere effort to interact with peers (ongoing) Arrives mostly, if not fully, prepared (ongoing) Participates constructively in discussions Makes relevant comments based on the assigned reading material (ongoing) Group dynamic and level of discussion are occasionally better (never worse) because of the student's presence
C	Limited interaction with peers Preparation, and therefore level of participation, are both inconsistent When prepared, participates constructively in discussions and makes relevant comments based on the assigned material Group dynamic and level of discussion are not affected by the student's presence

D	<p>Virtually no interaction with peers Rarely prepared Rarely participates Comments are generally vague or drawn from outside of the assigned material Demonstrates a noticeable lack of interest (on occasion) Group dynamic and level of discussion are harmed by the student's presence</p>
F	<p>No interaction with peers Never prepared Never participates Demonstrates a noticeable lack of interest in the material (ongoing) Group dynamic and level of discussion are significantly harmed by the student's presence</p>

Workshop Guidelines

Workshops will be a combination of lecture and hands-on practice. Be prepared to take notes. Be prepared to complete tasks given and apply what you have read. Workshop code are not submitted for grading but are designed to give you extra practice.

Quiz Guidelines

Quizzes are completed outside of class. They open immediately after class and are due at 11:59pm. There is no time limit on quizzes but you MUST SUBMIT before its due date/time. There are no make-up quizzes.

Lab Guidelines

There will be several lab activities distributed throughout this semester. The intent is for labs to be completed in class to help enhance your understanding of the concepts being presented. All labwork will be completed in pairs or small groups as announced in class and will be submitted for grading.

If you are absent for a lab, you receive a 0.

If you do not complete the lab in class, you and your partner must submit the work by the end of the day. Late labs are not accepted.

Assignment Guidelines

Expect one homework assignment per chapter in the textbook.

Work independently All homework assignments are to be worked on independently by each student. Discussions as to what the problem is and very general, top-level solutions are allowed between students. Work may not be copied from another source and will constitute cheating if done so. Any work, or part of your work, that is borrowed from another source must be stated so in the assignment and must be pre-approved by the instructor or preceptor. Failure to do so will constitute plagiarism. All assignment submitted is subject to an oral examination. Upon the request of the instructor, the student will explain (in person) the work submitted. The grade of the assignment hinges on how well the student knows and understands what was submitted.

Submission Each assignment must be submitted by following instructions posted on Blackboard. Electronic submissions are due at the end of the day (11:59 pm) on the date due. All assignments must be submitted through Blackboard (View/Complete... link). Do not email your assignment to the instructor; no homework is accepted via email. Similarly, no assignment will be submitted through the Digital Dropbox unless it is pre-approved by the instructor.

Late Penalty Any assignment that is late will receive a deduction of 10% every 24 hours (a day). Work that is more than **3 days late will not be accepted**. Assignments of which answers have been given will also not be accepted. For example, if an assignment is due Friday evening and if you turn it in anytime on Sunday, the grade is deducted 20%; any work turned in after the following Monday will receive a grade of 0.

Tests and Examination Guidelines

All tests and exams are closed book exams and typically take the entire class period. Make up exams will not be given except in cases of extremely extenuating circumstances and are pre-arranged.

UH Academic Honesty Policy: Strictly Enforced

University of Hartford Academic Honesty Policy

The purpose of the academic honesty policy is to provide a clear statement to students and faculty of the University's expectations regarding academic honesty and to set forth procedures for the enforcement of that policy. The procedures in this academic honesty policy are administrative functions and are not subject to the same rules as in criminal or civil proceedings. Throughout the following policy, the term college refers to any one of the schools or colleges of the University. The term University-wide program refers to programs such as multimedia Web design and development or the Bachelor of University Studies, which do not reside in a college. The term department chair refers to a department chair or, in the case of colleges that do not have departments, the equivalent of a department chair.

- All students are expected to observe generally accepted principles of scholarly writing in all examinations, compositions, papers, essays, tests, quizzes, reports, and dissertations whether written in the class room or outside. Sources of information used by a student in the preparation of work submitted as a basis for credit, or for a grade, or to satisfy graduate or undergraduate thesis requirements shall be clearly indicated in some conventional manner, such as by the use of quotation marks, footnotes, and bibliography.
- Students are forbidden to submit as their own any project, paper, or creative work that is in whole or part the work of another.
- The use of a term-paper writing service is prohibited. Also prohibited is the use of term papers obtained from the Internet, in whole or in part.
- All examinations and quizzes are to be completed without reference to books or notes except when the instructor of a course shall have given explicit authorization for an "open-book examination" or some other specified sort of assistance. Except as authorized by the instructor, no student is to give or receive assistance in the completion of an examination or a quiz.
- Other examples of academic dishonesty include, but are not limited to, the falsification of academic documents, such as transcripts, registration materials, withdrawal forms, or grade reports, as well as the unauthorized reading, removing, or copying of any academic document or record maintained by any member of the faculty or administration.

Your work for this course (assignments, labs, quizzes, tests, exams) must be completed by you - the student - without the help of external sources such as the Internet or a friend. **Googling answers online is NOT ACCEPTABLE and constitutes academic dishonesty.**

At the first violation of academic dishonesty, the student receives a 0 for the work. On second offense, the student receives an F for the course.

Email & Blackboard

Course materials (announcements, homework assignments, etc.) will be made available through Blackboard at <http://blackboard.hartford.edu>. Blackboard is to be used as a supplement to class lectures. All important announcements will be made in class. Routine announcements will be made available on Blackboard. However, you are responsible for all announcements and expectations explained in both Blackboard and during class. You are not to rely solely on Blackboard.

Your Blackboard account allows you to personalize your information, including your preferred email account. In your "Blackboard Home Page" on the left frame, there is a "Personal Information" link which allows you to edit your information. It is your responsibility to make sure that the email account set here is the one you check regularly and that the Inbox for that email is not rejecting incoming mail.

Collaboration

Collaboration with fellow students in CS114 can be a valuable activity. In fact, some of the labs and assignments will require you to work in pairs, which has been shown to have many educational benefits. However, sometimes it is difficult to understand what is and is not acceptable. Here are guidelines to help you understand the line between allowable collaboration and plagiarism.

- Acceptable forms of collaboration involve talking through assigned problems, discussing possible solution strategies, explaining course concepts, and assisting with debugging techniques.
- At **no point** should you exchange code or written materials with other students, nor should you write code for other people.
- Students may **only** collaborate with other students currently enrolled in CS114, the class lab assistant, the instructor, or the CS department tutors.
- On individual assignments, each student is expected to submit a unique solution.
- On assignments that are clearly marked as pair assignments, you and your partner should submit identical solutions. However, both of you are expected to fully understand the work submitted and may be asked to explain your solution during a demo that affects your grade on that assignment.
- Following the allowed collaboration methods will still result in unique, acceptable solutions. Practices that cross the line (e.g., swapping code) can lead to issues of plagiarism and will be treated as academic misconduct.
- The top of all submitted work must include the following materials:

Your name (and your partner's name on pair assignments)

Your collaboration statement, which will resemble one of the following:

- "I (or we in pair work) completed this assignment alone, using only materials provided by Dr. Rosiene this semester."
- "I/We completed this assignment collaborating with [names of the people you worked with] and/or referring to [cite textbooks, websites, or other materials you used that were not provided by the instructor]."

In the event that your collaboration statement includes citations to external resources, you must also explicitly indicate which portions of your code were completed with this assistance through comments in the code. Note that even in solutions which cite external sources, the vast majority of the code must be your own---it is never acceptable to turn in a solution copied entirely from the web, even if you cite the source.

Any and all actions deemed outside of these policies will be treated as violations of the academic honesty policy and will be handled according to the procedures outlined in the following section. See the "What is Allowed" document on Blackboard for more specific examples.

Note: If you find that you have spent a substantial amount of time on a programming assignment and are still having difficulties, by all means stop and ask for help from me or a CS department tutor. Spinning your wheels in frustration is often not educationally effective, and these collaboration policies are here to help you succeed.

Student Illness

The instructor recognizes that students may occasionally become incapacitated by a brief illness or injury and will be unable to attend class or complete a graded assignment or test on time. In the latter case, you are expected to notify your instructor (in advance if at all possible) that you cannot complete the work due to illness or injury. Following the [University of Hartford's Policy of Student Illness](#) as listed on [The Source](#), the student must:

1. visit the University Health Center, a doctor, or hospital for treatment on the day that you are sick and get documentation of the visit,
2. email the instructor in advance (or if not possible, within 24 hours of missed class, test, or assignment) to tell her that you cannot attend (and/or complete work) and that you are seeking or have sought treatment, and
3. as soon as you are able to come to class, bring your documentation of your doctor's visit to your instructor and arrange to make up missed work.

Allowing you to make up missed tests and assignments is at the instructor's discretion. For extended illness (a week or more), email the academic services office of YOUR college or school. Documentation of treatment is required. Do not visit the University Health Center after the day you are sick. They will not issue documentation that you were sick on the previous day.

Participation & Attendance

Students are expected to attend ALL classes and are responsible for missed classes and lecture materials. Again, you are expected to attend every single class during the semester. Additional material will be provided and covered in class as the instructor deems appropriate. Any material and information you miss is your responsibility. No excuses will be accepted for poor grades. If you must be absent from a class, you must let me know either by phone or e-mail and you are responsible for any material covered or homework assigned. Informing me of your absence does NOT excuse you from any work due that day nor permit you to makeup an exam.

Computer and Other Electronic Equipment-use Policy

When classes meet in a room equipped with computers, students are expected to use the computers for the purposes of completing assigned work only. At no circumstances will a student be allowed to surf the Internet, check email during a class, or use the computers for any other purpose. In violation, a student will face serious consequences.

Use of any electronic equipment (or otherwise) that is annoying or disrupting is not allowed in class. Such devices include mobile phones, beepers, PDAs, laptops, among others.

Students with Special Needs

Student athletes and students registered with Learning Plus must inform the instructor of their special needs as soon as possible. This also applies to other students with any other concerns. The instructor will accommodate the student based on their special needs.