

**CS 114 Fundamentals of Computing I**  
Summer Session II 2016, Distance Learning  
CRN: 28292, 4 credits  
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### Course Description

CS114 Computer Programming I [4] 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. Prerequisite: M 110, M 140, or equivalent. Laboratory fee

### Course Objectives

- 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

Like all distance learning classes, this will require more self-discipline than usual. You work at your own time & pace to some degree. There are deadlines that must be observed to allow us to move on. But overall, you need to be self-disciplined to allocate your own time and complete the work required. You will need to allocate about **24 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 lab work assigned
- completing homework assignments
- practicing extra problems on your own
- studying for tests

## Textbook



Java Software Solutions, 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/](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.

## MyProgrammingLab Account

The lab work required for this course is administered online using a tool called MyProgrammingLab. It is also called Turing's Craft or CodeLab. To get a MyProgrammingLab (MPL) account, you will need the following:

- Purchase instant access online from the MyProgrammingLab home page
- Course ID: UOFH-24445-PFUL-28 Be sure to enter this properly so that your account is connected to my roster.
- A valid email address
- Your school's ZIP code: 06117
- Need help? <http://myprogramminglab.com/support/student-support.html>

## Hardware

- A laptop or desktop computer with an Internet connection. Cable, DSL, or connection from a workplace (T1 or T3) is necessary. Speed and power is not crucial as long as you are satisfied with your current connection speed.
- Audio/Video equipment - speaker, microphone and corresponding audio/video peripherals. These are needed to listen to lectures and for connecting with the instructor via Skype.

## Software

Install the following, starting with the Java JDK.

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".
2. Bluej - This is the Java integrated development environment (IDE) we will use to write programs.
3. Dia - UML diagram drawing tool.
4. Video player for wmv and mp4 files such as Windows Media Player.
5. Web browser running Flash plugin.
6. Skype - E-office hours and screen sharing.

## Grading Policy

**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:

Labs	25%
Assignments	35%
Tests	40%

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

**Pass/No Pass Option:** Students who are registered with a PASS/NO PASS option must receive a final grade of 65 or better to receive a P.

**Due Dates:** Due dates are to be watched carefully! If you miss a homework, test, or participate in discussion for the given week, the link for that item automatically disappears or submissions are no longer accepted and you are not able to submit the work anymore. This means that you receive a 0 for any missed work.

## Labs

Labs are due on a weekly basis and may be submitted as early as you wish. No late labs are accepted.

## Assignments

Assignments are due on a weekly basis and may be submitted as early as you wish. A rubric is attached to each assignment and is used for grading your work. To view the rubric, click on the Assignment number. All 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.

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 (using the Assignment link). **Do not email** your assignment to the instructor or preceptor. **No homework is accepted via email.** Similarly, no assignment will be submitted through the Digital Dropbox unless it is pre-approved by the instructor.

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.

## Tests

Tests are taken on a weekly basis. Tests are based on the readings assigned for the week.

**Time Limit on tests - PLEASE READ:** Each test has a **time limit**. Please make sure you adhere to the time limit. If you go over the allotted time, the number of minutes over will be deducted from your test grade. For example, if the test is a one hour test and you take 1 hour and 5 minutes to complete the test and received a 98, your grade is marked at 93.

## Weekly Routine

The class will operate on a routine/regular basis. All times given are in Eastern Daylight Time (GMT-04:00). There are six weeks to this summer session with each week beginning on a Tuesday and ending on a Monday. You should plan your week accordingly; be sure to even out your workload for the week and not wait until the end of the week to complete everything. I strongly urge you to put entries for the six weeks for the following in your calendar or agenda; no reminders will be sent.

- Tuesday am - Week starts - Student starts reading required material for the week (under "Weekly Schedule"). A Blackboard announcement will appear every Wednesday morning pointing to the agenda for the week.
- By Friday night (midnight) - Code Lab (MPL) - Student must have completed the lab work assigned. This should be in progress when the week started. You may attempt to answer each question multiple times. All assigned problems must be completed by this due date.
- By Sunday night (midnight) - Homework - Student submits all assignments due for the week. Note that late assignments are not accepted. You should also not wait until the last minute to turn in an assignment as many unforeseeable circumstances can happen (e.g., network goes out at 11:58pm, power outage, your friend calls for a chat and you forget your homework, etc.). It is your responsibility to turn in your assignment on time. Assignments may be submitted as early as it is posted.
- Monday evening (5:00pm to 10:00pm) - Test - Student takes the test for the week. This is administered over Blackboard. Be sure to have computer and network access every test night! Be sure to start the test early enough so that you complete the test before the test closes. There are no retakes! Make sure you are available for the test on test night.
- Your daily routine should also include the following.
- Check your email daily - at least 3 times a day.

- Check Blackboard for announcements. Any modification or changes to the work for the week will be posted as an announcement - usually with a link (when appropriate) to the item.
- Instructor's routine - I will check email and your discussion board postings on a daily basis as well. I am a morning person and will be on-line usually between 6:30am and 10:00 am, at the minimum. If you send me an email, say on a Tuesday evening, it is likely that I will get to read your email Wednesday early morning. I expect you to check your email at least 3 times a day. As noted elsewhere, I will use email only if a personal issue arises. All routine announcements will be done through Blackboard's Announcement feature.

### **"Office Hours"**

I will monitor my email daily for any questions you may have. I will try to resolve questions over email as much as possible; when that becomes difficult, we can meet over Skype. In general, I am available around 8am-9am and 7pm-8pm but do send an email notification ahead of time if planning on Skype. My Skype name is found under "Instructor Information."

Please do not hesitate to ask if you have any questions on your readings or any of your work assigned.

### **Student Illness Policy**

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 and quoting from 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, and
2. email the instructor in advance (or if not possible, within 24 hours of missed class, test, or assignment) to tell his or her that you cannot attend (or complete work) and that you are seeking or have sought treatment.

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."

### **Academic Honesty**

Even though this is a distance learning class, the expectations and results are similar to a face-to-face class. You have the same course objectives and are expected to learn the same material and you are still expected to complete your work on your own. Tests have to be taken by the student and homework completed by the student alone. You will be withdrawn from the class if you violate any of these rules. Academic integrity is the pursuit of scholarly activity free from fraud and deception and is an educational objective of this institution. Academic dishonesty includes, but is not limited to: cheating, plagiarizing, fabricating of information or citations, facilitating acts of academic dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students.

Academic Honesty Policy as described in The Source - Student Handbook for the University of Hartford is strictly enforced. An electronic copy is available at: <http://www.hartford.edu/TheSource/>

**YOU ARE EXPECTED TO DO YOUR OWN WORK!** Any student who submit another person's work as their own, or who permit their work to be misrepresented for this purpose will receive a grade of 0. On the second offense, the student gets an F for the course and faces possible expulsion from the university. Protect yourself! Do not share your work with others.



## 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.

### Plagiarism Detection Tool in Use On Campus

The issue of digital plagiarism has raised concerns about ethics, student writing experiences, and academic integrity. Although most students may never have engaged in intentional plagiarism, many students do incorporate sources without citations, which is a form of plagiarism. The University of Hartford subscribes to a digital plagiarism detection program called SafeAssign, which instructors and students may use to check papers and other assignments to see whether the paper contains material that requires a citation. Papers or other assignments submitted to SafeAssign are cross-checked against public Internet documents, ProQuest, and the database collection of all papers previously submitted to SafeAssign by instructors and students from other institutions. These assignments will not be read by anyone other than the student and the instructor. They will be stored on servers not managed by the University of Hartford for comparison with other University of Hartford assignments. Since it is also possible to submit and check a paper in draft mode and not have it automatically added to the SafeAssign database collection, students should check with their instructors for specific instructions and information on using SafeAssign.

All 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.**

**A&S Academic Misconduct:** In the event that it is determined that you violated the Academic Honesty Policy, found in "the Source," the dean of your college will be notified and a note will be placed in your permanent file. If previous violations have been filed, any penalty that may be assigned for the offense may be more severe than for a first time offense. If this is the first recorded offense, subsequent violations of the honesty policy may then incur a steeper penalty.

### Course Schedule:

CS 114	Reading	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday
Week #		Week Starts			Lab Due		Assign. Due	Take Test
1	Chapter 1 - 1.1 to 1.6 Chapter 2 - 2.1 to 2.6	5-Jul	6-Jul	7-Jul	8-Jul	9-Jul	10-Jul	11-Jul
2	Chapter 3 - 3.1 to 3.8 Chapter 4 - 4.1 to 4.5	12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	18-Jul
3	Chapter 5 - 5.1 to 5.6	19-Jul	20-Jul	21-Jul	22-Jul	23-Jul	24-Jul	25-Jul
4	Chapter 6 - 6.1 to 6.4	26-Jul	27-Jul	28-Jul	29-Jul	30-Jul	31-Jul	1-Aug
5	Chapter 7 - 7.1 to 7.9	2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	8-Aug
6	Chapter 8 - 8.1 to 8.6	9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug

### Chapter 1 - Introduction, all sections

- 1.1 Computer Processing 2
- 1.2 Hardware Components 10
- 1.3 Networks 20
- 1.4 The Java Programming Language 26
- 1.5 Program Development 36
- 1.6 Object-Oriented Programming 44

### Chapter 2 - Data and Expressions, 2.1-2.6

- 2.1 Character Strings 58
- 2.2 Variables and Assignment 65

2.3 Primitive Data Types 71

2.4 Expressions 75

2.5 Data Conversion 83

2.6 Interactive Programs 87

### **Chapter 3 - Using Classes and Objects, 3.1-3.8**

3.1 Creating Objects 114

3.2 The String Class 118

3.3 Packages 122

3.4 The Random Class 126

3.5 The Math Class 129

3.6 Formatting Output 132

3.7 Enumerated Types 138

3.8 Wrapper Classes 141

### **Chapter 4 - Writing Classes, 4.1-4.5**

4.1 Classes and Objects Revisited 160

4.2 Anatomy of a Class 162

4.3 Encapsulation 169

4.4 Anatomy of a Method 172

4.5 Constructors Revisited 181

### **Chapter 5 - Conditionals and Loops, 5.1-5.6**

5.1 Boolean Expressions 208

5.2 The if Statement 213

5.3 Comparing Data 226

5.4 The while Statement 230

5.5 Iterators 241

5.6 The ArrayList Class 245

### **Chapter 6 - More Conditionals and Loops, 6.1-6.4**

6.1 The switch Statement 270

6.2 The Conditional Operator 274

6.3 The do Statement 275

6.4 The for Statement 279

### **Chapter 7 - Object-Oriented Design, 7.1-7.9**

7.1 Software Development Activities 302

7.2 Identifying Classes and Objects 303

7.3 Static Class Members 305

7.4 Class Relationships 310

7.5 Interfaces 322

7.6 Enumerated Types Revisited 329

7.7 Method Design 332

7.8 Method Overloading 343

7.9 Testing 345

### **Chapter 8 - Arrays, 8.1-8.6**

8.1 Array Elements 380

8.2 Declaring and Using Arrays 381

8.3 Arrays of Objects 392

8.4 Command-Line Arguments 402

8.5 Variable Length Parameter Lists 404

8.6 Two-Dimensional Arrays 408