



CS 121 Computer Science I
Spring Semester 2016
Syllabus

Instructor: Dr. Leap
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Office Hours:
Mon - Fri: 2:30-3:30 pm

Course Description

The fundamental concepts of computer organization, machine-level representation of data, algorithmic development and structured programming are presented with an emphasis on the syntactic and execution characteristics of an object-oriented programming language, including data types; arithmetic operators and assignment; input/output, selection and iteration constructs; elementary data structures; and procedural abstraction. Programming applications in Java will be emphasized.

Prerequisites High school algebra

Textbook Tony Gaddis, *Starting Out with Java: From Control Structures Through Data Structures*, 2nd edition, Addison Wesley/Pearson Education Inc., ISBN-13: 978-0-321-54586-2, ©2012.
-or-
Start Concurrent, by Barry Wittman, Aditya Mathur and Tim Korb, 2014 edition, Purdue University Press, ISBN-13: 978-1557536723. Available in the College Bookstore or through Amazon.

Software *Eclipse Classic 3.5.2*, Java Integrated Development Environment, available as a free download at: <http://www.eclipse.org/downloads/>
Java Runtime Environment, available as a free download at: <http://www.java.com/en/download/manual.jsp>
Eclipse Java is available on the computers in the Esbenshade 281 and Hoover 108 computer laboratories and in the Computer Science commons area (E284).

Student Learning Outcomes

By the end of the course, students will be able to:

1. Apply knowledge of computing and mathematics, including common data structures and basic algorithms, to solve problems
2. Design, implement, and evaluate a computer-based system, process, component or program to meet desired needs
3. Describe fundamental principles of the cycle of designing, implementing, compiling, and testing code
4. Learn to adhere to standards of style and documentation
5. Develop an understanding of data types and basic operations in an object-oriented programming language
6. Give examples of contributions of mathematics and computer science to the modern world
7. Use inductive or deductive reasoning to formulate solutions to problems
8. Model real-world phenomena mathematically and computationally
9. Manipulate strings
10. Use basic I/O constructs

11. Apply Boolean algebra and selection statements to problem solving
12. Apply loop statements to problem solving
13. Apply static methods to improve code design
14. Apply arrays to store aggregate data for problem solving
15. Use procedural and object oriented programming paradigms

Grading

80% exams; three equally weighted

20% quizzes, homework & programming assignments;

All assigned programs are to be handed in with:

- a clean program listing that includes documenting **comments** (not hand-written) for each logic segment, as well as screen shots of executions demonstrating the logic necessary to solve the problem completely that have been pasted into a Word document for printing.
- your name(s), class time and assignment number in the upper-left hand corner **in comments** (not hand-written)

You may work in two person teams. One copy of the solution is to be turned in with both names on it. Due dates will be specified when the assignments are made. Late assignments will be accepted for grading; however, there will be a 10% reduction in the grade, and a 20% reduction after 1 week.

Grading Scale

	B ⁺ 87-89	C ⁺ 77-79	D ⁺ 67-69
A 93-100	B 83-86	C 73-76	D 63-66
A ⁻ 90-92	B ⁻ 80-82	C ⁻ 70-72	D ⁻ 60-62

Statement on Disability

Elizabethtown College welcomes otherwise qualified students with disabilities to participate in all of its courses, programs, and activities. If you have a documented disability and need reasonable accommodations to fully participate in course activities or meet course requirements, you must:

- (1) Contact the Director of Disability Service, Lynne Davies, in the Center of Student Success, BSC 288, (717) 361-1227, and
- (2) Meet with the instructor within two weeks of receiving a copy of the accommodation letter from Disability Services to discuss your accommodation needs and their implementation.

Statement on School Closure

When classes are cancelled, delayed, or the college closes you are excused from class if it is dangerous or difficult to come to class. Otherwise, you should check to see if the professor is still able to come in to hold the course.

Statement on Religious Observances

The College is willing to accommodate individual religious beliefs and practices. It is your responsibility to meet with the class instructor in advance to request accommodation related to your religious observances that may conflict with this class, and to make appropriate plans to make up any missed work.

Tentative Course Schedule

Week	Dates	Topics	Chapter
1	1/11 – 1/15	Introduction to Computers, Programming and Java The Eclipse IDE Compiling and Running Programs	Ch. 1
2	1/20 – 1/22	Primitive Data Types Console Input & Output Math operations	Ch. 2
3	1/25 – 1/29	Number Systems Computer Arithmetic	
4	2/1 – 2/5	Computer Logic Boolean Algebra & Conditional Expressions	
5	2/8 – 2/12	Exam #1 If Statements	Ch. 3
6	2/15 – 2/19	Switch Statements Loops	Ch. 3 Ch. 4
7	2/22 – 2/26 (Spring Break)	Loops continued	
8	3/7 – 3/11	Methods	Ch. 5
9	3/14 – 3/18	Classes and Objects	Ch. 6
10	3/21 – 3/23 Easter Break	Exam #2 Arrays	Ch. 8
11	3/30 – 4/1	Searching and Sorting	Ch. 16
12	4/4 – 4/8	Multi Dimensional Arrays	
13	4/11 – 4/15	Text Processing	
14	4/18 – 4/22	Sequential Text Files	
15	4/25 – 4/29	Simple Line Drawing Graphics	Ch. 14.5
16	5/3 @ 11:00am	Final Exam	

This syllabus is subject to change upon notice as need dictates.

All Cell Phones, Blackberries, iPods etc. are to be turned OFF during class.