Course Syllabus
CS2010 – 03
Fall 2017
Computer Programming Fundamentals

Instructor
Dr. J. Thomas
Email: jthoma35@calstatela.edu
Office hours: Fri 1:30PM - 2:30PM

Course name
Computer Programming Fundamentals

Credits
3 units

Text book
Introduction to JAVA Programming and Data Structures, 11/e
Java How to program, by Deitel and Deitel, 10/e

Course Information
a) This course will provide an accelerated version of CSULA’s three-quarter introductory Java programming sequence.

b) The major topics of the course include an introduction to programming using Java, introduction to Object-Oriented Programming, designing and coding programs.

c) Laboratory activities on problem analysis and software development.

d) Prerequisites: Math 103

Recommended Prerequisite: Math 206: Calculus I

Course Goals
The Student Learning Outcomes that are addressed by the course are:

SLO #2: Students will be able to demonstrate fluency in at least one programming language and acquaintance with at least three more.

SLO #3: Students will have a strong foundation in the design, analysis, and application of many types of algorithms.

SLO #5. Students will have the training to analyze problems and identify and define the computing requirements appropriate to their solutions.

SLO #6. Students will have the training to design, implement, and evaluate large software systems working both individually and collaboratively.

c) SLO #7. Students will be able to communicate effectively orally and in writing.
Other outcomes of instruction: At the end of the course students will be able to:

- Divide a problem into its logical set of components
- Have a good understanding of the object oriented programming concepts
- Create multiple classes to represent objects in the program definition.
- Have a good understanding of inheritance and polymorphism.
- Design and code high-level GUI programs.

Brief list of topics to be covered

- Mathematical functions, Characters, and Strings
- Selections, Loops, and Methods
- Single-Dimensional and Multi-Dimensional Arrays
- Objects and Classes
- Defining Classes for Objects
- Constructing Objects Using Constructors
- Using classes from Java Library
- Visibility Modifiers
- Passing Objects to Methods
- Array of Objects

Laboratory Assignments

Each week students will complete a 2-hour lab assignments on selected topics, except the exam weeks.

Quizzes

Students will have in-class quizzes in every class

Grading Policy

Class Participation: 5%
Projects: 10%
Quizzes: 10%
Laboratory assignments: 20%
Midterm Examination: 25%
Final Examination: 30%

A-, A 90 – 100
B-, B, B+ 80 – 89
C-,C,C+ 65 – 79
D-, D, D+ 60 - 64

Academic Integrity

Cheating will not be tolerated. Cheating on any assignment or exam will be taken seriously. All parties involved will receive a grade of F for the course and are reported to the proper authorities.

ADA Statement

Reasonable accommodation will be provided to any student who is registered with the Office of Students with Disabilities and requests needed accommodation.
# CS2010 Course Tentative Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture topics</th>
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| 1    | Introduction to Computers, Programs, and Java (Ch 1)  
• Programming languages  
• A simple Java program  
• Programming Style and documentation  
• Programming errors |
| 2    | Elementary Programming (Ch 2)  
• Reading input from Console  
• Identifiers, variables  
• Assignment statements |
| 3    | Elementary Programming (Ch 2) – Continued  
• Naming convention  
• Evaluating expressions and operator precedence  
• Software development process |
| 4    | Selection (Ch 3)  
• Boolean data type  
• If statements  
• Common errors and pitfalls  
• Logical operators |
| 5    | Selection (Ch 3) – Continued  
• Switch statements  
• Conditional expression  
• Operator precedence and associativity  
• Debugging |
| 6    | Mathematical Functions, Characters, and Strings (Ch 4)  
• Common mathematical functions  
• Character data type and operations |
| 7    | Mathematical Functions, Characters, and Strings (Ch 4) – Continued  
• The String data type and operations  
• Formatting console output |
| 8    | Loops (Ch 5)  
• The while loop |
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<table>
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<tbody>
<tr>
<td><strong>• The do-while loop</strong></td>
<td><strong>• The for loop</strong></td>
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<td><strong>9</strong></td>
<td><strong>Loops (Ch 5) – Continued</strong></td>
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<td></td>
<td><strong>• Which loop to use?</strong></td>
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<td><strong>• Nested loops</strong></td>
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<td><strong>• Break and Continue</strong></td>
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<td><strong>10</strong></td>
<td><strong>Method (Ch 6)</strong></td>
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<tr>
<td></td>
<td><strong>• Defining method</strong></td>
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<td><strong>• Calling a method</strong></td>
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<td><strong>• void Method</strong></td>
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<td><strong>• Passing arguments by values</strong></td>
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<td><strong>11</strong></td>
<td><strong>Method (Ch 6) – Continued</strong></td>
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<td><strong>• Modularizing code</strong></td>
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<td><strong>• Overloading methods</strong></td>
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<td><strong>• The scope of variables</strong></td>
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<td><strong>12</strong></td>
<td><strong>Arrays (Ch 7)</strong></td>
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<td><strong>• Single-Dimensional Array</strong></td>
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<td><strong>13</strong></td>
<td><strong>Arrays (Ch 8)</strong></td>
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<td><strong>• Multi-Dimensional Array</strong></td>
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<td><strong>14</strong></td>
<td><strong>Objects and Classes (Ch 9)</strong></td>
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<td><strong>☐ Defining Classes for Objects</strong></td>
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<td><strong>☐ Constructing Objects Using Constructors</strong></td>
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<td><strong>☐ Passing Objects to Methods</strong></td>
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<td><strong>15</strong></td>
<td><strong>Review for final exam</strong></td>
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<tr>
<td><strong>16</strong></td>
<td><strong>Final Exam</strong></td>
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