95-807 Object-Oriented Programming for Managers

12 units

Prerequisites: 95-815 Programming Basics is required for students with little or no prior programming coursework or experience. (http://www.andrew.cmu.edu/course/95-815/)

The course provides an overview of computer programming concepts and object-oriented thinking using the Java programming language. Students will be introduced to general programming concepts such as loops and recursions as well as the specific object-oriented themes of methods, classes, and inheritance. The goal is for the student to cultivate an appreciation and understanding of the impact of these concepts and themes on the management of large-scale software development projects.

Instructor
Stacey Sabo
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Teaching Assistants
See Blackboard, Staff Information

Required Textbooks
Java: An Introduction to Problem Solving and Programming, 7th Edition, by Walter Savitch

Software
JDK - You will download and install the JDK as part of your first assignment.

Program Editor – You are free to choose a program editor of your choice. There are many editors available such as Eclipse, NetBeans, jGRASP, DrJava, BlueJ, and TextPad. The advantage of using a java-aware editor is that the editor will catch syntax errors. Eclipse is a popular IDE which is demonstrated in one of the lectures. You can also use this editor for this class. It is a common editor used in the industry, however it is much more complex and feature rich than TextPad. Most of these features are not necessary for this class.

Submitting Assignments
Assignments are submitted in a zip file to Blackboard through the Assignments page. Please note, when submitting your assignment, you must click the “Submit” button. Uploading your files and clicking the “Save As Draft” button will not submit your assignment for grading. Assignments are due by 11pm EST on the due date.

Your CMU Andrew id and the assignment number (ie Assignment1, Assignment2, etc) must be on your submittals (at the top of the first page if it's a Word document, in the program comments if it's a program, etc).

Part of your assignment grade depends on how the assignment is submitted. Submittal requirements include the format and, in some cases, that the software must run "out of the box". In the past some students questioned why point deductions are taken for packaging. First, in this programming course for which you are delivering software, I want you to understand the effort of packaging software. Just as for software delivered to a customer, it must run on the first attempt. Second, attention to packaging often leads to higher qualify software. Third, consistency is needed for TA grading efficiency.
Academic Integrity

Be sure to review and understand the Heinz College and Carnegie Mellon policies on Academic Integrity. You can find the policies in your student handbook and online.

The academic integrity standards outlined in your student handbook will be strictly enforced in this class. Penalties for cheating and plagiarism are determined by the instructor and can range from receiving a zero on the assignment to a failing grade in the course. The instructor can recommend to the Dean that the student receive a more serious penalty based on the severity of the offense.

**Collaboration is not permitted in this class.**

Keep the following guidelines in mind when discussing the programming assignments with others.

**Acceptable**

- You may discuss the requirements of the assignment, but not specifics, such as code
- You may discuss general approaches to solving the assignment including textbook and lecture references, but not specifics, such as code
- You may refer to code samples from the textbook, lectures and class handouts

**Not Acceptable and Considered Cheating**

- You may not discuss specific code
- You may not look at or copy other's assignment code, in whole or in part
- You may not have someone else write code for you
- You may not copy code you find on the web
- You may not submit another's work as your own
- You may not have in your procession other students assignments or exams from the current or past semesters
- You may not share your assignment code with others
- You may not use an alternate, stand-in, or proxy during an exam
- You may not receive help from someone else during an exam

If students are found to be sharing code, both the student who shared their code and the student who used the code will be found in violation of the academic integrity policy. All students involved will be penalized equally.
Blackboard Discussion Forum Assignments

Some weeks we will have a discussion topic about common technologies to share up-to-date information and to tell "real work" stories and examples. Forum postings contribute to the forum participation part of your grade. You get credit for a reply post, or you can begin a new post within the same topic. Your forum grade is based upon the value you add to the discussion. Do not expect a good grade for postings such as, "Good point." or "I agree."

The purpose of the forum discussion assignments is to generate some conversation about topics relevant to OOP and managing development projects. This class has a wide variety of experience and we can all learn from each other by sharing our thoughts and stories. The topics are listed in the syllabus at the start of the semester; however, the actual forum will not be available to submit your postings until the week it appears on the class schedule.

Some of the discussions will require a little research and leg work on your part to participate. However, when posting, I expect you to post your comments, thoughts, summaries and experiences. I want you to think critically about what you are reading during your research and other postings and challenge them if you disagree and add your thoughts if you agree. Do not copy and paste a great article you found or combine several articles and submit it as your thoughts. That is plagiarism and will result in a 0 as your score for that forum. Sometimes you will find a great quote while researching and want to share it. That is fine, but you MUST cite it. And I will expect comments and discussion about the quote, not just "Here’s a great quote I found when Googling OOP."

Assignment Grading

- Late assignments will lose 10% of the grade per 24 hour period. No exceptions will be made.
- Assignments, due dates and the lecture and reading schedule are available so you can plan ahead. If you know a particular week will be extremely busy for you because of other classes or employment, you can work ahead and submit assignments before the actual due date. No adjustments or exceptions will be made for late assignments.

Questions?

We will also use the Blackboard Discussion forums for class and assignment related questions and comments. You are encouraged to post questions, comments and respond to other posts and questions on the Blackboard Discussion Forums.

To get help on an assignment that will require you to share specific code or details, you can send email to the instructor or teaching assistants.

Final Grade

Final grades will be weighted as follows:

- Assignments: 30%
- Discussion Forums: 20%
- Midterm Exam: 20%
- Final Exam: 30%

Your final grade will be calculated based upon the Grading Standards outlined in the Heinz College Student Handbook. The Heinz College faculty has endorsed guidelines for grades. The mean grade in a core class should be 3.33 - 3.42 and in advanced core, concentration and elective courses it should be 3.5.
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Tentative Course Outline and Schedule

**Week 1: January 11, 2016**
Topics: Basics of OOP, first Java program, programming environment  
Readings: Ch 1 Intro to Computers and Java  
          Ch 2 Basic Computation  
Lecture: Lecture 1 (17:00-end) and 2  
Discussion Forum: Your Background  
Forum Due: January 17, 2016, 11pm EST

**Week 2: January 18, 2016**
Topics: Program Control  
Readings: Ch 3 Flow of Control: Branching  
          Ch 4 Flow of Control Loops  
Lecture: Lecture 3 and 4  
Assignment: Assignment 1  
Assignment Due: February 7, 2016, 11pm EST

**Week 3: January 25, 2016**
Topics: Classes and Methods  
Readings: Ch 5 Defining Classes and Methods  
Lecture: Lecture 5 and 6

**Week 4: February 1, 2016**
Topics: Packages, access specifiers, composition, inheritance, constructors,  
          finals, class loading, accessor/mutator (getter/setter) methods  
Readings: Ch 6 More About Objects and Methods  
Lecture: Lecture 7 and 8

**Week 5: February 8, 2016**
Topics: Polymorphism, abstract classes  
Readings: ch 8 Inheritance, Polymorphism, and Interfaces  
Lecture: Lecture 9 and 10  
Assignment: Assignment 2  
Assignment Due: March 6, 2016, 11pm EST
Week 6: February 15, 2016
Topics: Interfaces and inner classes
Lecture: Lecture 11 and 12
Discussion Forum: Benefits of Object Oriented Programming Methodologies
Forum Due: March 13, 2016, 11pm EST

Week 7: February 22, 2016
Topics: Exception Handling
Readings: Ch 9 Exception Handling
Lecture: Lecture 17

Week 8: February 29, 2016
Topics: Streams, File I/O, and Networking
Readings: Ch 10 Streams, File I/O, and Networking
Assignment: Midterm Exam
Midterm Due: March 6, 2016, 11pm EST

Week 9: March 7, 2016
Spring Break

Week 10: March 14, 2016
Topics: Arrays, Collections and Iterators
Readings: Ch 7 Arrays
Lecture: Lecture 13 and 14
Assignment: Assignment 3
Assignment Due: March 27, 2016, 11pm EST

Week 11: March 21, 2016
Topics: Arrays, Collections and Iterators
Readings: Ch 12 Dynamic Data Structures and Generics
Lecture: Lecture 15 and 16
Discussion Forum: Design Patterns
Forum Due: April 3, 2016, 11pm EST

Week 12: March 28, 2016
Topics: Applets, Applications, Swing
Readings: Ch 13 Window Interfaces using Swing (online chapter)
Lecture: Lecture 18
Assignment: Assignment 4
Assignment Due: April 17, 2016, 11pm EST

Week 13: April 4, 2016
Topics: Applets, Applications, Swing
Readings: Ch 15 More Swing (Online chapter)
Discussion Forum: A Personal Experience with a Project
Forum Due: April 24, 2016, 11pm EST

Week 14: April 11, 2016
Topics: Recursion
Readings: Ch 11 Recursion

Week 15: April 18, 2016
Topics: Threads
Lecture: Lecture 19

Week 16: April 25, 2016
Topics: JDBC
Lecture: Lecture 20

Final Exam: April 30, 2016 – May 6, 2016
Final Exam Available: April 30, 2016 8am EST
Final Exam Due: May 6, 2016 11pm EST

Assignment Due Dates
Your Background Discussion Forum January 17, 2016, 11pm EST
Assignment 1 February 7, 2016, 11pm EST
Assignment 2 March 6, 2016, 11pm EST
Midterm Exam March 6, 2016, 11pm EST
OOP Discussion Forum March 13, 2016, 11pm EST
Assignment 3 March 27, 2016, 11pm EST
Design Pattern Discussion Forum April 3, 2016, 11pm EST
Assignment 4 April 17, 2016, 11pm EST
Project Discussion Forum April 24, 2016, 11pm EST
Final Exam May 6, 2016 11pm EST