CS 2334: Programming Structures and Abstractions
(Fall 2015)

This is your second course in programming. We will focus on abstraction and programming methodologies including inheritance, abstract data types, programming tools including integrated development environments, unit tests and test driven development, and ethics.

By the end of this course, you should be able to:

- Analyze simple computing problems and define the requirements that are appropriate to their solution.
- Apply design and development principles to the implementation of a solution to the computing problems. Specifically, implement a program in Java using abstract data types and objects.
- Demonstrate sophisticated use of objects, inheritance, polymorphism, and generics in Java programming.
- Evaluate and analyze the correctness of your implementations, and use this information to make further implementation changes.
- Use an integrated development and debugging environment, including unit tests.
- Evaluate and analyze the professional, ethical, legal, security and social issues that are faced by computer scientists, specifically in the areas of intellectual property rights and privacy.

ABET Student Outcomes to be addressed:

- B: An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- C: An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- E: An understanding of professional, ethical, legal, security, and social issues and responsibilities.
- K: An ability to apply design and development principles in the construction of software systems of varying complexity

Prerequisites: CS 1323 and Mathematics 1823. You are expected to have a working knowledge of Java, including a familiarity with its basic data types and control structures, and an understanding of basic program abstraction and organization.
Instructor: Prof. Andrew H. Fagg  
Office: DEH 243 (Computer Science Department)  
Email: andrewhfagg--gmail.com  
Phone: 325-8606  
Office Hours: see http://www.cs.ou.edu/~fagg/office.html  

Teaching Assistants:

- Daniel Brigance; Email: brigance -- ou.edu  
- Richa Saraswat; Email: richas -- ou.edu  
- Megan Pinkston; Email: Megan.L.Pinkston-1 -- ou.edu  
- Olufemi Fashanu; Email: femifash -- ou.edu  

All will be holding their office hours in DEH 115.  
Office Hours: see http://www.cs.ou.edu/~fagg/office.html

Lecture Time: M/W 1:30-2:45  
Lecture Location: Dale Hall 206  

Lab Times (you must be registered for one and you must attend the one in which you are registered):

- Section 011: Thursday 8:30 - 10:20 (M-207 Sarkeys Energy Ctr)  
- Section 014: Thursday 10:30 - 12:20 (TBA)  
- Section 012: Thursday 12:30 - 2:20 (M-207 Sarkeys Energy Ctr)  
- Section 013: Thursday 3:00 - 4:50 (M-207 Sarkeys Energy Ctr)  

Required Textbooks and Resources:

  - Book code: OUCS2334Fall2015  
  - When you create your Zyante account, please use your OU email address. We will otherwise be unable to match your Zyante grades with your D2L identity.  
  - Account creation instructions  
- A Gift of Fire: Social, Legal, and Ethical Issues for Computing and the Internet, Sara Baase, Fourth Edition  
- We are using Top Hat as an interactive classroom tool during the semester. This tool interfaces to your laptop and your cell phone (smart or not). All students are required to sign up for the Top Hat service ($24 for the semester for all classes; or $72 for your academic career). Those enrolled in the class have received an email invitation to join our Top Hat class.
Students should read the book chapters ahead of the class period (see the class schedule). Students should always make sure to have access to the textbooks and Top Hat during class periods, including both lectures and labs.

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**Important Pages**

Note: we will add to this list during the course of the semester.

- Course Syllabus
- Semester Schedule
- Lecture Notes
- Desire to Learn
- Top Hat
  - Quick Start Guide
  - Full Student Manual
  - Top Hat technical help: support@tophat.com
- Exams
  - Exam I (there are 3 different versions of the exam):
    - Exam A and solutions
    - Exam B and solutions
    - Exam C and solutions
- Labs
- Projects
- Java References
  - Java JDK 8 Documentation
  - Java JDK 8 Classes
  - Eclipse tutorial
- Ethics References
  - ACM Code of Ethics
  - Free Software (as conceived by Richard Stallman)
  - Open Source Software
- Placing out of this course
- Other References/Tools
  - Umlet: a tool for constructing UML diagrams
  - UML for Java Programmers: a text on UML diagram standards (the first 3 chapters are most interesting for us)