CS 2334: Programming Structures and Abstractions
(Fall 2016)

General Information

- Lecture: M/W 1:30-2:45 at 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 012: Thursday 12:30 - 2:20 (M-207 Sarkeys Energy Ctr)
  - Section 013: Thursday 3:00 - 4:50 (M-207 Sarkeys Energy Ctr)
  - Section 014: Thursday 4:30 - 6:20 (P-201 Sarkeys Energy Ctr)
- Final exam: Tuesday, December 13 8:00-10:00am, Dale Hall 206
- 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.
- Required Resources:
    - Book code: OUCS2334FaggFall2016
    - When you create your Zyante account, please use your OU email address (the one with your full name). We will otherwise be unable to match your Zyante grades with your Canvas 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; $36 for 12 months of access or $72 for your academic career). Those enrolled in the class will receive an email invitation to join our Top Hat class (please wait for this email).
  - Java Development Kit (JDK) Version 8 (or 7). The current version can be found at: http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html
    - Note that just having the Java Runtime Environment (JRE) is not sufficient (which you may have installed for previous classes).
  - We will use Eclipse as our integrated development environment (IDE) this semester. If you install the Java SDK before Eclipse, the installation process usually goes smoothly. https://www.eclipse.org
We will use a Web-Cat for all program submission and assessment. Instructions for installing the Web-Cat plugin for Eclipse and how to use the service can be found on our Web-Cat page.

- Course web page: [http://www.cs.ou.edu/~fagg/classes/cs2334](http://www.cs.ou.edu/~fagg/classes/cs2334)
- Canvas will be used for discussions, announcements and the grade book.
- Teaching Staff
  - Instructor: Prof. Andrew H. Fagg
    
    Office: DEH 243  
    Phone: 325-8606  
    Homepage: [http://www.cs.ou.edu/~fagg](http://www.cs.ou.edu/~fagg)  
    Email: andrewhfagg--gmail.com  
    Office hours: see the [office hours page](http://www.cs.ou.edu/~fagg/office.html)

  - Teaching Assistants:
    - Daniel Brigance; Email: brigance -- ou.edu  
    - Taner Davis; Email: taner -- ou.edu  
    - Prathyusha Kondapalli; Email: prathyusha_kondapalli -- ou.edu  
    - Nicholas Sidwell; Email: nicholas.sidwell -- ou.edu  

  All TAs will be holding their office hours in DEH 115.

  Office Hours: see [http://www.cs.ou.edu/~fagg/office.html](http://www.cs.ou.edu/~fagg/office.html)

  - The instructor and all of the TAs can be contacted using the following email address: cs2334 -- cs.ou.edu

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**Course Goals and Topics**

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

Course Policies

• **Attendance:** You are expected to attend all of the lectures and the labs in which you are enrolled.
• **Readings:** You are responsible for the assigned material found in your textbooks **before** the class session for which the reading is assigned. The Zyante exercises contained in the assigned sections are due before class on assigned day (see the schedule)
• **Class Web Page:** Most of the material that you will need can be found on the class web page located at: [http://www.cs.ou.edu/~fagg/classes/cs2334](http://www.cs.ou.edu/~fagg/classes/cs2334)
• **Canvas:** This class will also use Canvas, located at: [http://canvas.ou.edu](http://canvas.ou.edu)

Login with your 4+4 (typically the first four letters of your last name followed by the last four digits of your student number), using your standard OU password. If you have difficulty logging in, call 325-HELP. This web site provides a number of useful features, including a list of assignments and announcements, an electronic mailing list, newsgroups, and a grade book.

I may update the main web site and the Canvas page several times a week. When I update the site in any significant way, I will post an announcement on Canvas telling you what has been added and where it is located. You are responsible for things posted on the site within 48 hours of the post.

• **Class Email Alias:** Urgent announcements will be sent through email. It is your responsibility to:
  o Make sure that your email address in Canvas is correct, and forwards email to the place where you read it. I'll send out a test message during the first week of class. If you do not receive this message, it is your responsibility to get the problem resolved immediately.
Have your email program set up properly so that replying to your email will work correctly the first time. You can send email to yourself and reply to yourself to test this. I will not make any attempt to get bounced email messages delivered.

If you need assistance in accomplishing any of these tasks, contact 325-HELP.

- **Laptop Computers:** It is the responsibility of each student in this class to have a working laptop computer with ample battery (at least 2 hours of life under moderate usage) and wireless Internet connectivity. You must bring the laptop computer to the first week of class and to **all labs** (you will find the laptop useful for many of the remaining classes, too). If your computer requires repair during the semester, it is your responsibility to make arrangements to have another computer available and to get the necessary software installed.

- **Computer Accounts and Software:** All students in this course will be given a Computer Science Network (CSN) account. This may be used for writing programs and sending and receiving materials electronically.

- **Examinations:** There will be two midterm and one final examination. The dates are given in the class schedule. During examinations, students are expected to sit in assigned seats. Missing an examination without a previously approved excuse will result in a grade of zero for that examination.

- **Final Examination:** The final examination is Tuesday, Dec 13th from 8:00am to 10:00. The final is comprehensive, as required by College of Engineering policy. No final examinations can be given early, except as required by University policy.

- **Newsgroups and Email:** The newsgroup on Canvas should be the primary method of communication (outside of class). This allows everyone in the class to benefit from the answer to your question, and provides students with more timely answers since the TAs and I check Canvas at least once a day. Matters of personal interest should be directed to email instead of to the newsgroup, e.g. informing me of an extended personal illness.

- **Lab Assignments:** Weekly lab assignments will be distributed during each Thursday lab session. These assignments are short, individual exercises.

- **Projects:** Five 2-week long projects will be given over the course of the semester. These projects will be done in groups of two. These groups will be assigned before the first project. Group members are expected to contribute approximately equally to each project solution.

- **Academic Conduct:** Feel free to discuss all assignments with the instructor or the TAs. However, **do not discuss, look at, or copy another student's solution to a Zyante, Top Hat or lab assignment. Doing so is considered cheating.**

For projects, communication is expected between group members. However, **communication about the solution to a project between groups is disallowed. Doing so is considered cheating.**

You may make use of the net as a reference as you are working on assignments. For projects, these references must be explicitly documented in your code. However, **downloading or deriving specific solutions from the net is considered cheating.**
Make sure that your computer account is properly protected. Use an appropriate password, and do not give your friends access to your account or your computer system. Do not leave printouts or thumb drives around a laboratory where others might access them.

Programming projects will be checked by software designed to detect collaboration. This software is extremely effective and has withstood repeated reviews by the campus judicial processes.

Upon the first documented occurrence of inappropriate collaborative work or of taking a solution from a network resource, I will report the academic misconduct to the Campus Judicial Coordinator. The procedure to be followed is documented in the University of Oklahoma Academic Misconduct Code (http://integrity.ou.edu). Both the provider of a solution and the receiver of a solution will be treated equally in the misconduct process.

- **Tutors:** Tutors can be an excellent source of support for students who are having difficulty in the class, but only if the tutor is aware of the distinction between teaching students the material so that they can do their own work, and doing work for students. Tutors who do work for students are not only failing to help the students learn, they are abetting academic misconduct. Examples of misconduct include:
  - If your tutor is sitting behind you while you are typing and methodically telling you what to enter, he or she is abetting academic misconduct.
  - If you tutor is emailing files containing partial or complete programming projects to you, you will commit academic misconduct if you use those lines in your program.

A more effective use of tutoring services is to do problems that are similar to the assigned work, instead of doing assigned work. For example, it would be fine to work unassigned problems from the textbook with a tutor. This requires significant discipline, both on the part of the tutor and the part of the student. Copying from a tutor is as unacceptable as copying from another student. If your tutor doesn't know how to teach properly, please ask them to call or visit me and I will provide training and guidance. If you are tutoring someone else in the class, you can be accused of academic misconduct if this person copies your work.

- **Incompletes:** The grade of "I" is intended for the rare circumstance when a student who has been successful in a class has an unexpected event occur shortly before the end of the class. I will not consider giving a student a grade of "I" unless the following three conditions have been met:
  - It is within two weeks of the end of the semester.
  - The student has a grade of C or better in the class.
  - The reason that the student cannot complete the class is properly documented and compelling.

- **Religious Holidays:** It is the policy of the University to excuse the absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required classwork that may fall on religious holidays.
• **Accommodation of Disabilities:** The University of Oklahoma is committed to providing reasonable accommodation for all students with disabilities. Students with disabilities who require accommodations in this course are requested to speak with the professor as early in the semester as possible. Students with disabilities must be registered with the Office of Disability Services prior to receiving accommodations in this course. The Office of Disability Services is located in Goddard Health Center, Suite 166, phone 405/325-3852 or TDD only 405/325-4173.

• **Classroom Conduct:** Because cell phones and laptops can distract substantially from the classroom experience, students are asked not to use either during class, except in cases in which they are required as part of a classroom exercise.

Disruptions of class will also not be permitted. Examples of disruptive behavior include:

- Allowing a cell phone or pager to repeatedly beep audibly.
- Playing music or computer games during class in such a way that they are visible or audible to other class members.
- Exhibiting erratic or irrational behavior.
- Behavior that distracts the class from the subject matter or discussion.
- Making physical or verbal threats to a faculty member, teaching assistant, or class member.
- Refusal to comply with faculty or teaching assistant direction.

In the case of disruptive behavior, I may ask that you leave the classroom and may charge you with a violation of the Student Code of Responsibilities and Conduct.

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### Grading

Final grade will be computed according to the following distribution:

<table>
<thead>
<tr>
<th>Category</th>
<th>Percent of Final Grade</th>
<th>Total Number</th>
<th>Tools</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-Class Exercises</td>
<td>10%</td>
<td>TBD</td>
<td>Top Hat</td>
<td>Grade for this category is: Max(In-Class Exercises (keep N-1), Exam Average)</td>
</tr>
<tr>
<td>Homework</td>
<td>10%</td>
<td>TBD</td>
<td>Zyante</td>
<td>Keep N-1</td>
</tr>
<tr>
<td>Laboratory Exercises</td>
<td>15%</td>
<td>15</td>
<td>Eclipse; turn in with Web-Cat</td>
<td>Keep lab 14 and 15, and the highest 12 of labs 1-13</td>
</tr>
<tr>
<td>Projects</td>
<td>25%</td>
<td>5</td>
<td>Eclipse; turn in with Web-Cat</td>
<td></td>
</tr>
<tr>
<td>Exams</td>
<td>20%</td>
<td>2</td>
<td>Paper</td>
<td></td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
<td>1</td>
<td>Paper</td>
<td></td>
</tr>
</tbody>
</table>
Note: category grade is distributed evenly across all items of the category (e.g., a single laboratory assignment will count for (15/14)% of the final grade).

Grading notes:

- **Web-Cat:** Lab and project assignments will be submitted for grading to a system called *Web-Cat*. Once you have submitted your assignment, you will automatically receive a partial assessment of your submission. A limited number of re-submissions is allowed until the lab/project deadline. After the deadline, you will receive further feedback on your submission. See the [Web-Cat installation/use details.](#)
- **Final grades:** The final grade cut-offs will be determined at the end of the semester. These cut-offs will be at or below the traditional 90, 80, 70, etc. cut-offs. However, I do not expect them to be much different than these traditional cut-offs.
- **Grade questions:**
  - **Projects/Labs:** Grading questions for projects/labs that are graded by the TA should first be brought to the same TA. If this does not resolve your question, please see the instructor.
  - **Exams:** All grading questions must be addressed before the exam leaves the presence of the instructor. If you are unable to stay after class to address questions, then return the exam to the instructor and continue the discussion during office hours. Once a test has been removed from the presence of the instructor, the score is final and will not be changed, even if it is found to be in error.
  - **Others:** All other grading questions may be brought to the instructor.

Please note that when an exam/assignment is brought with grading questions, we may examine the entire exam/assignment and your final grade may end up lower. All disagreements about scores must be brought to our attention within one week of when the item is returned.

Note that we generally adhere to Dr. Hougen's Principles on Grade Discussions: [http://www.cs.ou.edu/~hougen/classes/grade_discussions.html](http://www.cs.ou.edu/~hougen/classes/grade_discussions.html).

- **Canvas Grade Summary:** Canvas has a grade book that is used to store the data that are used to calculate your course grade. It is the responsibility of each student in this class to check their grades on Canvas after each assignment is returned. If an error is found, bring the graded document to me or a TA, and we will correct Canvas.
- **Top Hat Grade Summary:** Top Hat has its own grade book for tracking in-class exercise participation and performance. These grades will be transferred to Canvas.

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**Assignments**

- **Readings:** For each lecture and lab day, the course schedule lists a set of readings. You are responsible for this material before class begins. In addition, the homework questions
for the assigned sections in the Zyante book are due before class begins (1:29 pm). You are required to do both the participation and challenge problems.

The Catme survey that is due the 2nd week of the semester will count as a homework assignment.

- **Lab Assignments:** Weekly lab assignments will be distributed during the Thursday lab sessions and due the next day (at 11:59 pm). Lab assignments will be graded off-line. However, the grader may request that you come in for an in-person appointment to discuss your solution.

- **Projects:** Five 2-week long projects will be given over the course of the semester. Projects are due before class begins. Projects will be graded during an in-person code review with a TA or the instructor. Groups will sign up together for a code review time slot. Both members of the project group must be present in order for the code review to proceed. During the code review, both group members must be able to discuss the specifics of the project solution.

- **Late policy:** Because late assignments will seriously impact your ability to follow the next section of the course, you are required to complete and hand in homework and lab assignments on time.

Projects may be handed in late. If late by 0-24 hours, the project grade will incur a 10% penalty; if late by 24-48 hours, a 20% penalty will be imposed. Projects that have not been handed in by 48 hours will receive no credit.

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**Course Evaluations**

The College of Engineering utilizes student ratings as one of the bases for evaluating the teaching effectiveness of each of its faculty members. The results of these forms are important data used in the process of awarding tenure, making promotions, and giving salary increases. In addition, the faculty uses these forms to improve their own teaching effectiveness. The original request for the use of these forms came from students, and it is students who eventually benefit most from their use. Please take this task seriously and respond as honestly and precisely as possible, both to the machine-scored items and to the open-ended questions.

**Adjustments for Pregnancy/Childbirth Related Issues**

Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact me as soon as possible to discuss. Generally, modifications will be made where medically necessary and similar in scope to accommodations based on temporary disability. Please see http://www.ou.edu/eoo/faqs/pregnancy-faqs.html for commonly asked questions.

**Title IX Resources**
For any concerns regarding gender-based discrimination, sexual harassment, sexual misconduct, stalking, or intimate partner violence, the University offers a variety of resources, including advocates on-call 24.7, counseling services, mutual no contact orders, scheduling adjustments and disciplinary sanctions against the perpetrator. Please contact the Sexual Misconduct Office 405-325-2215 (8-5) or the Sexual Assault Response Team 405-615-0013 (24.7) to learn more or to report an incident.

**Copyright notice:** Many of the materials created for this course are the intellectual property of Andrew H. Fagg. Other materials are adopted/adapted with permission from the work of Dr. Amy McGovern and Dr. Deborah Trytten. These include, but are not limited to, the syllabus, lectures and course notes. Except to the extent not protected by copyright law, any use, distribution or sale of such materials requires the permission of the instructor.