Course Description:

Number and Title:

CS 1331 Introduction to Object-Oriented Programming

Credit Hours:

3.0 semester credit hours (3-0-3)

Catalog Description:

Introduction to techniques and methods of object-oriented programming such as encapsulation, inheritance, and polymorphism. Emphasis on software development and individual programming skills.

Course Prerequisites and Co-requisites:

- Undergraduate Semester level CS 1301 Minimum Grade of C OR
- Undergraduate Semester level CS 1315 Minimum Grade of C OR
- Undergraduate Semester level CS 1321 Minimum Grade of C OR
- Undergraduate Semester level CS 1371 Minimum Grade of C

Computer Requirement:

Each student is required to have ready access throughout the semester to a notebook computer that meets the hardware and software requirements for the student's academic program.

Program Learning Outcomes:

Course Learning Outcomes:
By the end of this course students will be able to define, describe and recognize examples of the principles of:

- statically typed variables;
- structured programming;
- fundamental object-oriented language features (encapsulation, inheritance, polymorphism);
- ad-hoc polymorphism, run-time polymorphism (subtype polymorphism) and compile-time polymorphism (generics);
- exception handling;
- recursive definitions of algorithms and data structures;
- “Big-O” run time analysis of algorithms;
- basic algorithms for searching and sorting; and
- basic data structures for linked lists, stacks, and queues.

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**Instructor Information:**

**Instructor:**

Dr. Junfeng Qu  
e-mail: [jqu7@gatech.edu](mailto:jqu7@gatech.edu) (TBD)

**Office:**

Building B48

**Office hours:**

MW: 12:30pm – 16:30pm; T: 9:00am – 5:00pm

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**Class Meetings:**

MW 10:15am-12:20pm

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**Official Textbook:**
Title: *Introduction to Java Programming and Data Structures - Comprehensive Version*

Amazon link

Author: Y. Daniel Liang

Edition: Copyright 2018, 11th edition (10th edition is perfectly fine too)

Link to [resources for the book](#) including source

Software

Java Development Kit: Java SDK 9+, available from Oracle

Text Editors of Choice: [Notepad++](#) or [Atom](#) or [sublime](#)

Course Websites: All student grade information will be on the course’s Canvas site.

Note that the textbook is useful, but not required. We provide extensive lecture notes, example code, and programming exercises on the course web site.

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**Evaluation:**

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<thead>
<tr>
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<tbody>
<tr>
<td>Class Attendance</td>
<td>15%</td>
</tr>
<tr>
<td>Tests (1 &amp; 2 20% each)</td>
<td>40%</td>
</tr>
<tr>
<td>Homework</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>25%</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100%</strong></td>
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**Grading:**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>90 - 100%</td>
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<tr>
<td>B</td>
<td>80 - 89%</td>
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<tr>
<td>C</td>
<td>70 - 79%</td>
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<tr>
<td>D</td>
<td>60 - 69%</td>
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Course Schedule:

The course schedule is provided in the table below. Instructor reserves the right to update the schedule.

<table>
<thead>
<tr>
<th>Week</th>
<th>Contents</th>
<th>Liang</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>Intro to Java, Getting start with Unix/Windows</td>
<td>Ch. 01</td>
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<td></td>
<td>Value, Variables, Expressions, Assignment</td>
<td>Ch. 02</td>
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<tr>
<td>Week 2</td>
<td>Control Structures</td>
<td>Ch. 03-04</td>
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<td></td>
<td>Functions, String class</td>
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<td>Week 3</td>
<td>Loops</td>
<td>Ch. 05</td>
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<tr>
<td></td>
<td>Test1</td>
<td>Ch. 06</td>
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<td>Week 4</td>
<td>Arrays</td>
<td>Ch 7</td>
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<tr>
<td>Week 5</td>
<td>Classes, objects</td>
<td>Ch. 9, 10</td>
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<tr>
<td>Week 6</td>
<td>Inheritance, Overriding, abstract classes</td>
<td>Ch. 11, 13</td>
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<tr>
<td></td>
<td>Test2</td>
<td></td>
</tr>
<tr>
<td>Week 7</td>
<td>Polymorphism, Interface</td>
<td>Ch. 11, 13</td>
</tr>
<tr>
<td>Week 8</td>
<td>File IO, Exception, Recursion</td>
<td>Ch. 12, Ch. 18</td>
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<tr>
<td>Week 9</td>
<td>ADTs, Sets, Linked lists</td>
<td>Ch. 19, 20, 21</td>
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<tr>
<td></td>
<td>hashing, collection, algorithms</td>
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</tr>
<tr>
<td></td>
<td>Final Exam</td>
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</tbody>
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Course Policies:

Exam Policy

The written exams will be conducted during lecture periods as indicated on the class schedule. The written exams will cover concepts, as well as aspects of coding. Material from lecture and from the assigned sections of the book will be covered in each written exam. It is also expected that you will be familiar with the material and concepts from any programming homework that is due prior to an exam. One of the best ways to do well in this class is to thoroughly complete all the HWs and learn all the ideas that are embodied in them. This is not a course about memorization; it is about problem-solving. There are no cheat-sheets or calculators allowed during the exams.
All students are expected to attend the exams. Forgetting about the exam or simply missing it are not proper excuses and will receive a zero score. If documented sickness or excused school absence will prevent you from taking an exam, you should get written confirmation of the approved absence from the Registrar's office and notify the instructor prior to the day(s) of the absence.

In the event of a medical emergency or an illness that is severe enough to require medical attention, students are responsible for contacting the Office of the Vice President and Dean of Students as soon as possible to report the medical issue or emergency, providing dated documentation from a medical professional and requesting assistance in notifying their instructors. The medical documentation will be handled confidentially within the Office of the Vice President and Dean of Students and will inform a decision as to whether communication with instructional faculty is appropriate.

If a student is going to miss an exam and this can be coordinated with the instructor ahead of time, then it may be possible to schedule an alternative make-up exam. We will try to do so in the 1-2 days following the exam. If that can't be worked out or isn't possible, alternatively, we will instead substitute the student's score/percentage on the final exam for the missed exam's score/percentage. Note that this does not mean that anyone can substitute the final exam grade for another exam's grade or simply decide not to take an exam. The policy only applies for legitimate excused absences.

**Homework**

During the course of the semester, there will be approximately one programming assignment per week on the weeks without exams. The HWs will be distributed via Canvas. We recommend that you start on the HWs early. Do not leave them until the night they are due. If you are stuck on a portion of the program for longer than the recommended time, you should definitely see your TA to get a stronger understanding of the concepts involved prior to putting continued effort into the assignment.

Note that an assignment turned in at one minute after midnight is not one minute late. It is four hours and one minute late. And no smart student would ever ask to have a program considered that is over four hours late.

You should also read the collaboration policy below to learn about our policies about how you can work on the HW assignments with your peers, if you so choose. For all assignments, you will submit all the source files (.java) that you created to Canvas. Make sure to practice safe-submission and retrieve your submission after you submit it to make sure all the files you thought you turned in were there.

After receipt of a homework grade, you have two weeks to inquire about the grade and check into any potential grading problems with your homework.
Attendance

All students are required and expected to attend class. No lecture notes/slides will be published, hence the need for class attendance. If you want to take notes from lecture on your laptop, that is fine. The grade of attendance is calculated based on the percentage of total number of classes you participated during the summer program.

Email Policy

You must conduct all official email correspondence for this course using your official GT email account. This is to protect your privacy. Email from outside sources such as gmail, hotmail, yahoo, and other personal accounts will be ignored. (Be sure to use an informative email subject that includes CS1331 in the subject of the email! For example, Subject: 1331 exam 1 question. Definitely do not email saying "I'm in your CS class..." as we often teach numerous CS courses.)

HW Collaboration Policy

We have chosen to focus the assessment of students' knowledge of course concepts and skills on in-class exams rather than homework assignments. Homework assignments are opportunities for learning and discovery; they are not instruments of evaluation. (In fact, homework assignments are considered in the final grade largely to motivate students to work on the assignments.)

Because homework assignments are now not used for assessment, we relax the constraints on collaboration with respect to these assignments, that is, collaboration between students in CS 1331 is permitted. Collaboration includes students working together to gain an understanding of course concepts, active discussions with teaching assistants and instructors to learn about course material, and interactions in other GT-approved activities that help students to learn and understand the topics covered in the course. We do expect that you understand and can explain any homework solution that you submit, no matter how you worked on it.

As has always been the case, however, plagiarism is not allowed. Plagiarizing is defined by Webster's as "to steal and pass off (the ideas or words of another) as one's own : use (another's production) without crediting the source." Taking assignments from other classmates, being given a homework solution from an outside GT source, or downloading completed assignments from websites are considered plagiarism and are not allowed. You should not give a copy of your code, or a portion of your code to another student. You should not email your code, IM your code, or share your code with other students. You should not allow another student to look at your code for the purpose of copying it into their assignment. These are activities that are simply meant to earn a score, not understand our course material. If caught plagiarizing, you will be dealt with according to the GT Academic Honor Code.

If you collaborate with other students in class or use approved sources other than those provided for everyone in the course (e.g., instructors, teaching assistants, the textbook, the course web site, the course newsgroups, the lectures, or the recitations) to help yourself learn and understand, then you must give appropriate credit to those collaborators and/or sources. As long as you
acknowledge the collaboration that occurred, your grade will not be affected nor will you be charged with academic misconduct. On the other hand, a failure to acknowledge collaborations or give appropriate credit to sources of help (other than course materials or personnel as noted above) will be treated as plagiarism, a violation of Georgia Tech's Student Conduct Code.

To ensure that you acknowledge a collaboration and give credit where credit is due, we require that you place a collaboration statement at the beginning of every set of homework solutions you submit. That collaboration statement should say either:

"I worked on the homework assignment alone, using only course materials." 

or

"In order to help learn course concepts, I worked on this homework with [give the names of the people you worked with], discussed homework topics and issues with [provide names of people], and/or consulted related material that can be found at [cite any other materials not provided as course materials for CS 1331 that assisted your learning]."

For quizzes and exams, all work must be your own. Cheating off of another person's test or quiz is unethical and unacceptable. Cheating off of anyone else's work is a direct violation of the GT Academic Honor Code, and will be dealt with accordingly.

Use of any previous semester exams to help studying is allowed for this course; however, I remind you that while they may serve as examples for you, they are not guidelines for any tests, quizzes, homework, projects, or any other coursework that may be assigned during the semester.

**Academic Integrity**

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech's Academic Honor Code, please visit [http://www.catalog.gatech.edu/policies/honor-code/](http://www.catalog.gatech.edu/policies/honor-code/). Unless otherwise noted (for example, the HW collaboration policy described above), all work should be strictly your own. Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations. If you have any questions about these policies, just ask your instructor.

**Accommodations for Students with Disabilities**

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404) 894-2563 or [http://disabilityservices.gatech.edu/](http://disabilityservices.gatech.edu/), as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

General list of [resources for students](http://www.catalog.gatech.edu/policies/honor-code/) at Georgia Tech.