International Academy: Software Engineering Track
The University of Texas at Austin
Spring 2025

Dr. Fares Fraij
Course Syllabus

General Info.

Course Description

This course covered the standard material in a first-semester "Introduction to Programming" course in a computer science curriculum. Using Java as our primary language, we worked from the basics of variables and conditional statements up to multidimensional arrays and object inheritance. In addition to the standard material, this course included an emphasis on software engineering. Lessons introduced the major phases of the software lifecycle and
assignments emphasized professional code style and documentation. We briefly introduced the ideas behind Agile software development. The course required the completion of a software project solving a real-world problem of the student's choice; one week was spent on problem analysis, one and a half weeks on program design, and the remaining time on implementing and documenting the final product. Beginning with the design phase, students worked on the project as pairs, and they were encouraged to use git to collaborate. Students had the opportunity to develop their English writing and speaking skills by writing technical documentation and code comments as well as by giving two oral presentations in class, including a "sales pitch" of their final software project.

Prerequisites

No pre-requisite

Lecture Date, Time and Location

20 January – 14 February
M T W Th Fri: 2:00 p.m. - 3:30 p.m.
Canvas: https://utaustinesl.instructure.com/
Ed Discussion: URL: https://edstem.org/us/

Textbooks

No required textbook to purchase. All texts will be freely available or otherwise provided.

Instructor [Fares Fraij, PhD (https://www.cs.utexas.edu/~fares/)](https://www.cs.utexas.edu/~fares/)

- Office hours: Usually available 10 minutes before/after class and by appointment.
- Contact: via Canvas email for personal questions such as inquiries about grades.

  Note: Most questions about assignment instructions or the course in general should be submitted to Ed (https://edstem.org/us/) rather than by sending an email to the instructor.

Grade Basis This course is not for credit toward any university degree. Therefore, grading will be informal and will be based on your effort to complete assignments, projects and in-class work. Each student's overall raw score, out of 100 points, is distributed as follows.

- Attendance   : **25 points**.
- Presentation   : **25 points**.
- Project   : **40 points**.
- Project Sales Pitch: **10 points**.

Letter Grade The mapping from overall raw scores to letter grades will depend somewhat on the overall performance of the class. The nominal cutoffs are as follows.

A/A- : 92
A-/B+ : 90
B+/B : 87
B/B- : 80
B-/C+ : 75
C+/C : 73
C/C- : 71
C-/D+ : 69
D+/D : 67
D/D- : 65
D-/F : 63

These nominal cutoffs will not be increased; for example, a student achieving a raw score of 92 is guaranteed to receive an A in the course.

Student Guidelines

Basic Requirements	• You must have a computer capable of running the Java 8 (https://www.oracle.com/java/technologies/downloads/#java8).
	• We will not perform any intense computations, so any standard laptop purchased within the past 8 years should work (2GB+ of memory).
	• Tablets running a mobile operating system will not be sufficient for programming.
	• I will use Dr Java (http://www.drjava.org/), but you may use any editor you want, but I might no be able to help you troubleshoot any issues you have in that editor.
Attendance	• Attendance is required for you to the most out of this course. You are expected to **show up** and **stay** for the whole class.
	• You may have one unexcused absence before I deduct points.
	• Excused absences for religious holidays and major life events will be accommodated subject to prior notice.
In-class participation and group work	• There will be frequent in-class tasks and participation.
	• I'll present a piece of code and ask you about it.
	• The goal of participation is to increase the level of interaction in the class and help you learn.
	• Therefore, you are not responsible to come up with a correct answer.
	• I may also split students into groups to do some in-class work or assignments.
	• When working with groups, you should be proactive and contribute.
	• If you're absent from group meeting, you must communicate the necessary information to your group to compensate for your absence.
	• If you don't contribute, you may not receive credit.

Late Work
- Assignments generally must be submitted before class on the day the assignment is due.
- If you cannot complete the assignment on time, you should contact me as far in advance as possible.
- I will usually not deduct points for assignments up to 24 hours late if you contact me in advance.
- Repeatedly submitting assignments late will result in deduction.

Materials
- The **syllabus**, the **schedule**, the **course material**, the **assignments** and the **projects** of the course are available on Canvas.
- **Additional course material** will be made available through [Canvas (https://utaustinesl.instructure.com/)](https://utaustinesl.instructure.com/)

Regrading Policy
- After receiving your grades, you have **only one week** to contest your grades.
  - To request a regrade, send an email to the instructor including your **name** and details about your grade argument or point out a specific problem associated with your grade for example scores were added incorrectly.

Pedagogical Underpinnings

What will you learn? This course has several goals. One is to help students develop a working knowledge of the Java programming language. A second goal, because this course is part of the UT International Academy, is to practice discussing, designing, and documenting technical material in English. A third goal is to encourage students to think critically: Computer Science is a beautiful field encompassing much more than programming, and this is your introduction.

By the end of this course, students will

1. Develop a basic understanding of software construction, including fundamentals such as data types and control structures.
2. Learn how to define a problem, design an algorithmic solution, and test an implementation.
3. Develop a working knowledge of Java.
4. Learn algorithms and data structures traditionally taught in first and second programming courses such as searching, sorting, arrays, recursion, OOP, lists, stacks, queues, and trees.
5. Practice documenting their software in English.
6. Be able to implement programs consisting of several hundred lines of code, culminating in a programming project that will be presented at the end of the course.
7. Additional topics based on student interest.

- Assignments generally must be submitted before class on the day the assignment is due.
- If you cannot complete the assignment on time, you should contact me as far in advance as possible.
- I will usually not deduct points for assignments up to 24 hours late if you contact me in advance.
- Repeatedly submitting assignments late will result in deduction.

How will you learn? New information will be given through lectures as well as required and suggested readings. This loosely constitutes the "Theory" portion of this course.

In the "Applications" portion, you will practice programming. Most of your learning will take place when you are practicing the concepts from the lectures to solve more and more complex problems using more and more sophisticated programming practices. You will learn by doing.

These two portions are not exclusive; they will overlap. For example, I will demonstrate programming ideas in live demos, and we may even try collaborative coding.

University Resources for Students

Technology Help	https://its.utexas.edu/contact
Libraries	http://www.lib.utexas.edu/
Services for Students with Disabilities	The university is committed to creating an accessible and inclusive learning environment consistent with university policy and federal and state law. Please let me know if you experience any barriers to learning so I can work with you to ensure you have equal opportunity to participate fully in this course. If you are a student with a disability, or think you may have a disability, and need accommodations please contact Services for Students with Disabilities (SSD). Please refer to SSD's website for contact and more information: http://diversity.utexas.edu/disability/. If you are already registered with SSD, please deliver your Accommodation Letter to me as early as possible in the semester so we can discuss your approved accommodations and needs in this course.
Counseling and Mental Health Center	The Counseling and Mental Health Center (https://cmhc.utexas.edu/index.html) serves UT's diverse campus community by providing high quality, innovative and culturally informed mental health programs and services that enhance and support students' well-being, academic and life goals. To learn more about your counseling and mental health options, call CMHC at (512) 471-3515. If you are experiencing a mental health crisis, call the CMHC Crisis Line 24/7 at (512) 471-2255. Important Safety Information: If you have concerns about the safety or behavior of fellow students, TAs or Professors, call BCAL (the Behavior Concerns and COVID-19 Advice Line): 512-232-5050. Your call can be anonymous. If something doesn't feel right – it probably isn't. Trust your instincts and share your concerns.
Title IX Reporting	Title IX is a federal law that protects against sex and gender-based discrimination, sexual harassment, sexual assault, unprofessional or inappropriate conduct of a sexual nature, dating/domestic violence and stalking at federally funded educational institutions. UT Austin is committed to fostering a learning and working environment free from discrimination in all its forms. When unprofessional or inappropriate conduct of a sexual nature occurs in our community, the university can: Intervene to prevent harmful behavior from continuing or escalating. Provide support and remedies to students and employees who have experienced harm or have become involved in a Title IX investigation. Investigate and discipline violations of the university's relevant policies (https://titleix.utexas.edu/relevant-polices/).

Under Texas Law, I am a "Responsible Employee" and must report any Title IX related incidents that are disclosed in writing, discussion, or one-on-one. Before talking with me, or with any faculty or staff member about a Title IX related incident, be sure to ask whether they are a responsible employee. If you would like to speak with someone who can provide support or remedies without making an official report to the university, please email advocate@austin.utexas.edu. For more information about reporting options and resources, visit http://www.titleix.utexas.edu/, contact the Title IX Office via email at titleix@austin.utexas.edu, or call 512-471-0419.

University Policies

Sharing of Course Materials is Prohibited

No materials used in this class, including, but not limited to, lecture hand-outs, videos, assessments (quizzes, exams, papers, projects, homework assignments), in-class materials, review sheets, and additional problem sets, may be shared online or with anyone outside of the class unless you have my explicit permission. This same policy includes materials which are sourced from other authors unless you have their explicit permission.

Do not Share Class Recordings

Class recordings are reserved only for students in this class for educational purposes and are protected under FERPA. The recordings should not be shared outside the class in any form. Violation of this restriction by a student could lead to Student Misconduct proceedings.

Academic Integrity

Each student in the course is expected to abide by the University of Texas Honor Code: "As a student of The University of Texas at Austin, I shall abide by the core values of the University and uphold academic integrity." Plagiarism is taken very seriously at UT. Therefore, if you use words or ideas that are not your own (or that you have used in previous class), you must cite your sources. Otherwise you will be guilty of plagiarism and subject to academic disciplinary action, including failure of the course. You are responsible for understanding UT's Academic Honesty and the University Honor Code which can be found at the following web address:
https://deanofstudents.utexas.edu/conduct/standardsofconduct.php
Assignments will be graded using an automated grading system that also checks for plagiarism and copying.
You may discuss the assignment with each other, but per UT policy your submission must be your own program.
Examples of cheating are many and include accessing another student's account, looking at someone else's solution code, copying or downloading someone else's solution code, having another student walk you through the solution and how to code it, discussing the problem at such a detailed that you are essentially coding together, having another student perform significant debugging of your code, having another student write your code for you and / or allowing others to copy of access your solution code. This list is not all inclusive.
This means you shall not look on the internet for code to solve your problems. You shall not make use of code you find from other sources including the world wide web. Materials from the web should only be used for educational purposes. Thus, you can read about linked lists and look at examples of linked list code, but you must not copy any code from the web or be looking at any of this code from the web when writing anything you turn in.
Examples of allowable collaboration include discussions of general concepts and solution strategies and help with syntax errors.
If you have questions, please ask the instructor!

Penalties This course does not grant credit towards any degree or course prerequisite at UT. Therefore, my responsibility for identifying cheating is less.

The primary victim of you cheating would be you. Most of your learning in this class will be through practice, including assignments. When you cheat, you lose the opportunity to learn.

If you are having difficulty completing assignments, please tell me!

However, if I discover that you have cheated, then you will receive a failing review and no credit of any kind for the course, you will be referred to the UT Office of the Dean of Students for discipline, and I will notify your current/home academic institution.

Getting Started:

To start off right

1. Sign into Canvas (https://utaustinesl.instructure.com/) to confirm that you're registered for the course and can see your grades.
2. I'll invite you to Ed Discussions (https://edstem.org/). Post class questions to **Ed**. Regarding a personal question, e-mail us on **Canvas**.
3. Get Java installed on your machine: Download the Java SE Development Kit. You can download Java 8 from Oracle (https://www.oracle.com/java/technologies/downloads/#java8). We shall limit ourselves to the features of Java version 8.0.
4. Pick and set up an IDE. (Interactive Development Environment. A program that helps you write programs.) I'll use Dr Java (http://www.drjava.org/).
5. Get a GitLab account (https://gitlab.com/) .
6. Get git (https://git-scm.com/downloads) installed on your machine
7. Read and use the Simple Program Hygiene Rules for Java: https://www.cs.utexas.edu/~scottm/cs312/handouts/program_hygiene.html

Credit

- Justin Yirka
- CS 312 – Mike Scott – UT Austin – https://www.cs.utexas.edu/~scottm/cs312/
- CS 312 – Chand John – UT Austin – https://www.cs.utexas.edu/~chand/cs312/
- CS 314 – Mike Scott – UT Austin – https://www.cs.utexas.edu/~scottm/cs314/
- CSE 142 – Omar Ibrahim – UW - https://courses.cs.washington.edu/courses/cse142/21su
- IB Computer Science – Larry Baker
- Introduction to Programming Using Java – David J. Eck – https://math.hws.edu/javanotes/
- Think Java 2e – Allen Downey and Chris Mayfield – https://greenteapress.com/wp/think-java-2e/
- Think Data Structures – Allend Downey – https://greenteapress.com/wp/think-data-structures/