VANDERBILT
School *of* Engineering

Syllabus

Spring 2023

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Time and location

- **Days** / Mondays, Wednesdays, and Fridays
- **Time** / 10:10 am – 11:00 am (Section 1) / 11:15 am – 12:05 pm (Section 2) / 2:30 pm – 3:20 pm (Section 3)
- **Location** / Stevenson Center 5 (Sci. & Engr.) 326 (Sections 1 and 2) / Featheringill Hall (FGH) 134 (Section 3)

Instructor

- **Name** / Dr. Gina Bai (Sections 1 and 2)
- **Email** / rui.bai@vanderbilt.edu
- **Name** / Dr. Robert Tairas (Section 3)
- **Email** / robert.tairas@vanderbilt.edu

- **Office hours** / Available on Brightspace under **Content | Staff**.

Teaching assistants

Names, emails, and office hour times of all TAs will be posted on Brightspace under **Content | Staff**.

Textbook

- **Required textbook** / CS 1101: Programming and Problem Solving (zyBooks)
- **Purchasing** / Create an account at learn.zybooks.com and then enter our zyBooks code: `VANDERBILTCS1101Spring2023`. Be sure to use your name as registered on Brightspace, your email as registered on Brightspace and use your VUNetID for Student ID.

Course catalog description

An intensive introduction to algorithm development and problem solving on the computer. Structured problem definition, top down and modular algorithm design. Running, debugging, and testing programs. Program documentation.

Prerequisites

None

Course overview

CS 1101 is intended to introduce beginning computer science (CS) students to the analysis, design, implementation, testing, and debugging of programs. The emphasis in the course is on the use of programming techniques to solve problems, and to introduce the breadth of the discipline of computer science. The Java programming language and the IntelliJ IDEA programming environment is used. Students will be introduced to object-oriented programming as an integral part of programming methodology. CS 1101 is a three-credit course, which includes three hours of lecture and various programming assignments each week.

This course is also for those students who are interested in learning the basics of creating their own computer programs to support their work in their respective disciplines. In almost every field of study, we are seeing an increase in the reliance on computers to do everything from modeling and simulation to data acquisition and analysis. This course will not only introduce you to programming basics but will more importantly develop your skills in computational thinking: reformulating difficult problems by breaking them down into precise, step-by-step methods for completing a task in a finite amount of time.

Course topics

The topics covered in this course include (but are not limited to):

1. Computer organization
2. Problem analysis and algorithm design
3. Variables and expressions
4. Console input/output (I/O)
5. Various control structures
6. Methods and calling protocols
7. Arrays
8. Sorting algorithms
9. File I/O
10. Classes and Object-Oriented Programming (OOP)
11. Inheritance and polymorphism

Course management

- **Brightspace** / brightspace.vanderbilt.edu / This course uses Vanderbilt's course management tool called Brightspace. This tool will be an important source of information regarding the class. You are expected to check it regularly. You are responsible for any class announcements or schedule changes (e.g., change in office hours) posted to Brightspace.

- **Piazza** / piazza.com/vanderbilt/spring2023/cs1101 / This course will utilize the online social media tool called Piazza as our course discussion board for questions and answers regarding course material. Questions regarding programming assignments should be posted on Piazza rather than being emailed to the course instructor or TA. Students are encouraged to answer the questions from other students. Please make sure you read and understand the rules on the use of Piazza for CS 1101. In particular, you are not allowed to post computer code that deals with an assignment. The rules are posted on Piazza.

  You should be receiving an email invitation to join the CS 1101 Piazza course sometime during the first week of classes. You are responsible for any class announcements or schedule changes (e.g., change in office hours) posted to Piazza. Currently Piazza is requesting contributions from registered users. These contributions are optional, you do not need to contribute anything to use Piazza for CS 1101.

- **Top Hat** / tophat.com / This course will utilize the learning platform called Top Hat to allow students access to the lecture slides during class time. Class participation in the form of questions will be posted on Top Hat during class time. Top Hat is free to use as Vanderbilt has a campus-wide license. You should be receiving an email invitation to join the CS 1101 Top Hat course sometime during the first week of classes.

- **codePost** / codepost.io / This course will utilize the online grading tool called codePost for programming assignment grading. You can view your score and comments related to any deductions you receive on codePost. There is no cost to use codePost. You will receive an email invitation to join the CS 1101 codePost course after the first programming assignment has been graded.

- **Gradescope** / gradescope.com / This course will utilize the online grading tool called Gradescope for exam grading. You can view your score and comments related to any deductions you receive on Gradescope. Gradescope is free to use as Vanderbilt has a campus-wide license. You will receive an email invitation to join the CS 1101 Gradescope course after the first exam has been graded.

Laptop use

All students must have a portable computer meeting the specifications outlined at the following link or those that were in effect during year of entry to the university: engineering.vanderbilt.edu/transit/ComputerRecommendation.php. If your laptop is out of order, you can use a computer in the computer lab at FGH 201 and 203.

Software

You are highly encouraged to use the IntelliJ IDEA programming environment developed by JetBrains when working on programming assignments. Installation instructions are available on Brightspace under **Content | Course Documents**. You do not need this right away. More details will be given in class. Subsequent CS courses will use other programming environments from JetBrains that have a similar interface with IntelliJ IDEA.

Academic honesty

The Honor Code System of Vanderbilt University applies to all work done in CS 1101 this semester. It is your obligation to make certain that you understand and abide by all these rules. This course utilizes special software tools to identify potential plagiarism in programming assignments.

Anyone suspected of cheating will be reported to the Honor Council. Individual work must be prepared individually although group discussions about general ideas and perspectives are permitted. The information below regarding the Honor Code System comes from the Vanderbilt University Student Handbook.

"Cheating, plagiarizing, or otherwise falsifying results of study is prohibited. The System applies not only to examinations, but also to all work handed in (including drafts), such as papers, reports, solutions to problems, tapes, films, and computer programs, unless excepted by the instructor. The System also applies to any act that is fraudulent or intended to mislead the instructor, including falsifying records of attendance for class, for events for which attendance is required or for which class credit is given, or for internships or other work service. Work in all courses— including those that involve, in whole or in part, online learning—is subject to the provisions of the System."

In terms of this course, the basic rule is this: All work submitted in this class must be done completely on your own without assistance from any person, place, or thing except the instructor or TAs for this course, and the course textbook and course lecture slides.

If you have any doubts, ask your instructor for clarification, not another student (not even a TA). For more specific information on how the Honor Code applies to this course, please see the Academic Honesty Policy document on Brightspace under **Content | Course Documents**.

In addition to other possible disciplinary sanctions that may be imposed, the presumptive penalty for a first offense is failure in the course.

Grading

Your final course average is based upon the following areas.

5%	TopHat Activities[†]	10%	Exam 1 (02/08)
10%	zyBook Activities[‡]	15%	Exam 2 (03/22)
45%	Programming Assignments	15%	Final Exam[*]

[†]Must participate in ≥ 70% of all TopHat in-class questions to receive 100% for *TopHat Activities*.
[‡]Must complete ≥ 90% of the total points of all zyBook activities to receive 100% for *zyBook Activities*.
[*]The *final exam* will take place on Friday, 04/28/2023, 7:00 pm – 10:00 pm (no alternate dates provided).

Final grades for this course are based on your final course average as follows in the table below.

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
97	93	90	87	83	80	77	73	70	67	63	60	

The Incomplete (I) is a temporary placeholder for a grade that will be submitted at a later date. The grade of I is given only under extenuating circumstances and only when a significant body of satisfactory work has already been completed in the course. For additional information, please see the Undergraduate Catalog.

Exam make-up policy

Exams must be taken at announced times unless previous permission is given by the instructor for a serious documented reason. A student sending an email or leaving a phone message does not constitute permission. Otherwise, a late penalty (20–100%) may be assessed.

Programming assignment late policy

A programming assignment submission is late when at least one of the problems in the assignment is submitted late. For example, if a programming assignment has three problems and two of the problems were submitted before the due date but one of the problems was submitted after the due date, then the entire programming assignment is considered late.

- **Late submission penalties** / Unless specified otherwise, programming assignments are due at 11:59 pm on the due date. Assignments will be accepted late up to 48 hours. Those turned in up to 24 hours late will be penalized 20% and those turned in 24–48 hours late will be penalized 50%. After 48 hours past the due date, no programming assignments will be accepted for credit.

- **Free late days** / We do understand that there are unforeseen emergencies (illness, accidents, broken laptops, etc.) that cannot always be planned for in advance. Instead of having to ask for special allowances on an individual basis, we will give you four (4) self-granted extensions or "free late days" that you may use to be exempt from the late penalties described above after the due date for programming assignments. You will receive two of these free late days at the start of the semester and you will receive two additional free late days in Week 8 of the semester. You do not need to notify us if you need to use your free late days, we will simply deduct them when you submit late. Free late days may not be used for zyBooks activities and are only applicable to the programming assignments.

- **Word to the wise** / We will not ask for justification when your free late day is utilized, but we will assume you will use your self-granted extensions fairly and wisely. It pays to save your free late days for true cases of emergencies (e.g., your hard drive crashes, you come down with the flu, etc.) and for the harder assignments toward the end of the semester. Further extensions are not even considered until you have exhausted your own free late days.

- **No programming assignments will be accepted more than 48 hours after the original assignment due date regardless of the use of free late days or not** / That means you can use at most two free late days on any one programming assignment. Further extensions are rarely granted and then only for extraordinary circumstances (such as extended medical problems or other documented emergencies as designated by the Dean of Student Services). Only the course instructor can grant extensions, not the TA's. If you experience serious medical problems or other personal issues that would hamper your progress in this course for an extended period of time, you must contact one of the Deans of your school for help. They will contact your instructors and we will follow their advice concerning your situation.

zyBooks activities late policy

Unless specified otherwise, zyBooks activities are due at 11:59 pm on the due date. Since the zyBooks material is designed to go hand-in-hand with the lecture material, late completed activities will not be accepted (unless a note is provided from the Dean's office). To receive full credit for zyBooks activities, you must complete ≥ 90% of all the required activities in zyBooks. And again, free late days can not be used for zyBooks activities.

Optional recitation sessions

The optional recitation sessions are designed to give students extra time, help, and instruction that is valuable for success in CS 1101. This course offers four recitation sessions each week, starting from the week of February 5th, 2023. The recitation sessions allow a smaller group of students to review and apply the topics covered in large lectures to programming exercises with support and guidance from the recitation leaders. Emphasis will be placed on how to interpret and decompose the program descriptions and then convert them to Java programs. The recitation sessions are opportunities for you to problem-solve with other students so that you can benefit from more perspectives. The recitation leaders will also be circulating to answer questions and help when needed.

The recitation session schedule and reservation form are available on Brightspace under **Content | Recitation Sessions**.

Grading appeals

If you have a question concerning the grade you receive on an assignment or exam, you must bring your question to the appropriate staff member within two weeks of the grade being posted (on codePost for programming assignments and on Gradescope for exams). Questions on the grading of assignments should be brought to the attention of a TA. If the problem cannot be resolved with your TA, only then should you contact the instructor. Questions on exam grading should be brought to the attention of the instructor.

Calculating your final grade

Although total points on an assignment may vary, the actual weighting is the same for all assignments. You can calculate your weighted final course average as follows:

1. Calculate the percentage for your TopHat activities by dividing your overall TopHat activities score by 70% of the total possible points of all TopHat activities. If the result is greater than one, then truncate the value to one. Multiply this by the weight assigned to TopHat activities.
2. Calculate the percentage for your zyBook activities by dividing your overall zyBook activities score by 90% of the total possible points of all zyBook activities. If the result is greater than one, then truncate the value to one. Multiply this by the weight assigned to zyBook activities.
3. Calculate the percentage of your programming assignments by dividing the total points you received from all programming assignments by the total possible points of all programming assignments. Multiply this by the weight assigned to programming assignments.
4. Calculate the percentage for your Exam 1 and multiply that by the weight of Exam 1.
5. Calculate the percentage for your Exam 2 and multiply that by the weight of Exam 2.
6. Calculate the percentage for your final exam and multiply that by the weight of the final exam.
7. Add up your total points. The maximum should be 100% if you did it correctly.

Students with disabilities

Vanderbilt is committed to equal opportunity for students with disabilities, as am I. If you need course accommodations due to a disability, please contact Student Access Services (SAS) at vanderbilt.edu/student-access to initiate that process. After SAS has notified me of relevant accommodation(s) and you and I have discussed how this (these) may best be approached in this class, I will facilitate the accommodation(s). Absent notification from SAS and a discussion with me, it is assumed that you have no disabilities or seek no accommodations.

Mental health and wellness

If you are experiencing undue personal and/or academic stress during the semester that may be interfering with your ability to perform academically, Vanderbilt's Student Care Network offers a range of services to assist and support you. I am available to speak with you about stresses related to your work in my course, and I can assist you in connecting with the Student Care Network. The Office of Student Care Coordination (OSCC) is the central and first point of contact to help students navigate and connect to appropriate resources on and off-campus, develop a plan of action, and provide ongoing support. You can schedule an appointment with the OSCC at vanderbilt.edu/carecoordination or call 615-343-WELL.

The Student Care Network also offers drop-in services on campus on a regular basis. You can find a calendar of services at vanderbilt.edu/studentcarenetwork/satellite-services.

If you or someone you know needs to speak with a professional counselor immediately, the University Counseling Center offers Crisis Care Counseling during the summer and academic year. Students may come directly to the UCC and be seen by the clinician on call, or may call the UCC at (615) 322-2571 to speak with a clinician. You can find additional information at vanderbilt.edu/ucc.

Excellence and inclusion

It is my belief that everyone in this class can excel and that our collective learning experience is improved by including everyone fully. Toward that end, I commit to doing my best to use inclusive language and practices. If you observe actions in which I am not respectful or inclusive, please bring those to my attention.

Sexual misconduct or power-based personal violence

If you have experienced sexual misconduct or power-based personal violence, please contact Project Safe at vanderbilt.edu/projectsafe, the VU Police Department, or the nearest emergency room as best fits your needs. If you share with me any information about such experiences, I am required by law to report this to Vanderbilt's Title IX Coordinator.

Accreditation

Vanderbilt University's programs in Computer Science, Computer Engineering, and Electrical Engineering are accredited by ABET (abet.org). Expected ABET student outcomes for this course include being able to: 1) analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions, 2) design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline, and 3) apply computer science theory and software development fundamentals to produce computing-based solutions.

Emergency evacuation plan

In the event of a fire or other emergency requiring evacuation, the occupants of this class should leave the building through the exits closest to the classroom. A link to the evacuation procedures is available on Brightspace under **Content | Course Documents**. If you need special assistance during an evacuation, please discuss this with me as soon as possible. Vanderbilt University policy forbids reentry to a building in which an alarm has occurred without authorization by Vanderbilt Security.

Syllabus changes

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will notify students of such changes both by posting an announcement to all students.

Final thoughts

Students are expected to:

- Participate in all aspects of the course.
- Abide by the Honor Code System.
- Communicate with other students in a polite and professional manner.
- Keep abreast of all course announcements.
- Ask questions when confused or needing clarification.

This class will focus on teaching you concepts of programming, analysis and critical thinking while learning the Java programming language. The analytical and thinking skills that you learn will be skills you will use throughout your college career and beyond. Some of these concepts may come easily to you while others may stretch you outside your comfort zone and push you to grow as an individual.

I hope you enjoy the course, learn a lot and get the grade you are capable of earning.