Brandeis UNIVERSITY

COSI 12B: Advanced Programming Techniques
Spring 2023

Contact Details

Instructor: Ken Brumer
Office location: virtual
Email: kenbrumer@brandeis.edu
General announcements and Q&A forum will be available through LATTE. Students should email the professor on any personal or confidential topics and should expect to get a reply within 48 hours.

Meeting Times

Class Meetings

There are two types of class meetings held for this course:

Lectures: Tuesday, and Thursday 2:20pm-3:40pm (ET), online

The goal of lectures is to present and discuss the core course concepts. Lectures are not a substitute for assigned readings and coding practice. You are expected to attend lecture in addition to completing work outside of class in order to absorb the full content of the course.

Discussion sessions (recitation) are held weekly on Tuesday 5:30pm-6:50pm ET online.

The goal of the discussion session is to reemphasize the topics covered in the lecture and illustrate concepts using specific code examples and practice problems. You are expected to have studied the topics covered in lecture and to post on the LATTE forum questions that might have arisen.

Office Hours

Monday & Friday 9am – 10am (ET) online.

Snow Day Policy

For the first two snow days during the semester, class will be canceled. If there are additional snow days, we will cover the course material through zoom classes, recorded classes, or rescheduled classes. An announcement will be posted on Latte in that case.

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Course Description

The course will introduce students to object oriented programming using Java. It will focus on more sophisticated features of the language such as design of classes, interfaces, packages, and APIs. It will also cover the basic principles of software design, testing, and collaborative programming.

Prerequisites

COSI 10a or successful completion of the COSI online placement exam.

Learning Objectives:

The objectives of the course are to:

- Cover issues related to the definition, creation and usage of classes, objects, and methods.
- Discuss the principles of inheritance and polymorphism and demonstrate through problem analysis how they relate to the design of methods, abstract classes, and interfaces.
- Provide the foundation of good programming skills by discussing keys issues in the design of object-oriented software, including programming design patterns and programming testing.
- Understand, and implement recursive algorithms
- Cover the basics of creating APIs as well as allow students to explore the Java Abstract Programming Interface (API) and Java Collection Framework through programming assignments.

Learning Outcomes:

Upon completion of this class, students will be able to understand the concept of object-oriented programming (OOP) as well as the purpose and usage of inheritance, polymorphism, encapsulation, and method overloading. They will be able to create Java application programs using sound OOP practices (e.g., interfaces and APIs) and proper program structuring. Finally, they will be able to develop programs using the Java Collection API as well as the Java standard class library.

Credit Hours:

Success in this four-credit course is based on the expectation that students will spend a minimum of nine hours of study time per week in preparation for class (readings, papers, discussion sections, preparation for exams, etc.).

Recommended Textbooks

Building Java Programs - A Back to Basics Approach by Stuart Reges and Marty Stepp, Addison Wesley.

- The textbook is optional; however, it makes a useful supplement to the lecture presentations. It contains practice problems and online videos you can use to study for your exams.

Software

The recommended software for the course is the Java Development Kit (JDK) and the Eclipse editor.

Academic Integrity

Every member of the University community is expected to maintain the highest standards of academic integrity. A student shall not submit work that is falsified or is not the result of the student's own effort. Infringement of academic honesty by a student, subjects that student to serious penalties, which may include failure on the assignment, failure in the course, suspension from the University or other sanctions (see section 20 of R&R). Please consult Brandeis University Rights and Responsibilities for all policies and procedures related to academic integrity. Students may be required to submit work to TurnItIn.com software to verify originality. A student who is in doubt regarding standards of academic honesty as they apply to a specific course or assignment should consult the faculty member responsible for that course or assignment before submitting the work. Allegations of alleged academic dishonesty will be forwarded to the Department of Student Rights and Community Standards. Citation and research assistance can be found at Brandeis Library Guides - Citing Sources (https://guides.library.brandeis.edu/c.php?g=301723).

Note about the programming assignments: Assignments must be completed individually (unless specified otherwise by the instructor); all code you submit must be your own work. You may discuss general ideas of how to approach an assignment, but never specific details about the code to write. Any help you receive from or provide to classmates should be conceptual and should never involve implementation details or pieces of code.

As a student of this course, you are agreeing to the following rules:

- You may not work as a partner with another student on an assignment.
- You may not get code from online sources.
- You may not show another student your solution to an assignment, nor look at their solution, for any reason.
- You may not have another person "walk you through" an assignment, describe in detail how to solve it, or sit with you as you write it. You also may not provide such help to another student.

- You may not post your homework solution code online or ask others for online help. This includes public message boards, forums, file sharing sites and services, or any other online system.
- You must ensure that your work is not copied by others, such as making sure to log out of shared computers, not leaving printouts of your code in public places, and not emailing your code to other students or posting it on the web.
- Programming assignments will be tested for similarity using the MOSS, or similar software. Any sign of collaboration will result in a 0 and being reported to the Assistant Dean of Student Rights and Community Standards.

Under our policy, a student who gives inappropriate help is equally guilty as one who receives it. Instead of providing such help to someone who does not understand an assignment, point them to other class resources such as lecture examples, textbook, TAs, or instructor.

We enforce this policy by running similarity detection software over all submitted student programs.

Assignments

Please refer to LATTE for assignments, due dates, and submit all work via LATTE.

Exams/Quizzes

There will be two in-class quizzes (see the schedule below).

TAs

TAs: Will be introduced on LATTE

Evaluation

Your final grade will be determined by the accumulation of points which will be weighted as follows:

Grade Activity	Percentage
Programming Assignments	50%
Exams	50%

- **Programming Assignments (50%)**: There will be six programming assignments. Assignment and relative info including due date will be posted on LATTE. All assignments will be weighted equally. See below for late submission policy.
- **Exams (50%)**: There will be two exams, worth 25% each. **Exam 1 (March 7th), Exam 2 (May 2nd).** The exams are held in person during regular class meeting times. All students must attend the exams.

Re-grading

Any re-grading request must be submitted via Latte (by filling the form) at most four days after grades are released. Any re-grading requests after this period will not be granted.

Late/Make-Up Policy

Assignments are due by the dates posted on LATTE. Each student has 3 free late days which can be applied to any of the assignments, besides the last assignment. The 3 days can be split between multiple assignments. You **do NOT** need to tell us if you plan to use your late days. These will be applied automatically if you submit late for the first 3 late days.

After the 3 late days are exhausted, each additional day that an assignment is late will come with a significant grade penalty on that assignment, as shown below.

In case of a medical emergency, late submission or a make-up exam can only be requested **before** the date of the exam, or the due date of the assignment, if a note from a medical professional is provided.

Days Late	Penalty
1	5%
2	10%
3	20%
4	30%
5	40%
6	50%
7	60%
More than 7	No credit

A "day" is defined as the 24-hour period following the time that an assignment is due.

University Essential Resources

Accommodations

Brandeis seeks to welcome and include all students. If you are a student who needs accommodations as outlined in an accommodations letter, I want to support you. In order to provide test accommodations, please see Prof. Brumer immediately. I want to provide your accommodations but cannot do so retroactively. If you have questions about documenting a disability of requesting accommodations, please contact Student Accessibility Support (SAS https://www.brandeis.edu/accessibility/) at 781.736.3470 or access@brandeis.edu.

Course Materials

If you are having difficulty purchasing course materials, please make an appointment with your Student Financial Services or Academic Services advisor to discuss possible funding options and/or textbook alternatives.

LATTE

LATTE is the Brandeis learning management system: http://latte.brandeis.edu. Login using your UNET ID and password.

Library

The Brandeis Library collections and staff offer resources and services to support Brandeis students, faculty and staff. These include workshops, consultations, collaboration, materials and instruction on emerging trends in technologies such as machine learning, emerging trends in research such as data visualization, and emerging trends in scholarship such as open access. Librarians at the Circulation Desk, Research Help Desk, Archives & Special Collections, Sound & Image Media Studios, MakerLab, AutomationLab, and Digital Scholarship Lab are available to help you. https://www.brandeis.edu/library/about/index.html

Student Support

Brandeis University is committed to supporting all our students so they can thrive. The following resources are available to help with the many academic and non-academic factors that contribute to student success (finances, health, food supply, housing, mental health counseling, academic advising, physical and social activities, etc.). Please explore the many links on this Support at Brandeis page (https://www.brandeis.edu/support/undergraduate-students/browse.html) to find out more about the resources that Brandeis provides to help you and your classmates to achieve success.

Inclusivity

Name and Pronoun Usage

As this course includes class discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect. This includes the ability for all students to have their chosen gender pronoun(s) and chosen name affirmed. If the class roster does not align with your name and/or pronouns, please inform the instructor of the necessary changes.

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Inclusion Statement

We believe that diversity and inclusiveness are essential to excellence in academic discourse and innovation. In this class, the perspective of people of all races, ethnicities, gender expressions and gender identities, religions, sexual orientations, disabilities, socioeconomic backgrounds, and nationalities will be respected and viewed as a resource and benefit throughout the semester. Suggestions to further diversify class materials and assignments are encouraged. If any course meetings conflict with your religious events, please do not hesitate to reach out to your instructor to make alternative arrangements.

You are expected to treat your instructor and all other participants in the course with courtesy and respect. Disrespectful conduct and harassing statements will not be tolerated and may result in disciplinary actions.