CMSC 132   Object–Oriented Programming II   Spring 2019
sections 010X and 030X *only*

In addition to the policies in this syllabus, various University policies concerning attendance, absences, academic integrity, etc., apply to students. These are summarized in or linked to from: `www.ugst.umd.edu/courserelatedpolicies.html`.

1   Prerequisites and description

This course is 4 credits. Its prerequisites are: a C− or better in CMSC 131 (or a score of 5 on the Java A AP exam, or passing the CMSC department's placement exam), and a C− or better in MATH 140.

     CMSC 132 is an introductory course in fundamental data structures (lists, trees, graphs, etc.) and their efficiency. Inheritance, concurrency, and design/implementation of problem solutions using object–oriented methods are also emphasized. Programming is done in Java. It is the second part of a two–semester course sequence that is required for computer science and computer engineering majors.

2   Course materials and textbook

Course materials will be available via the University's ELMS site `www.elms.umd.edu`. Registered students (and the top five on the waitlist for each section during the registration period) will automatically get access to ELMS for this course. Essential announcements will be made via ELMS that students are responsible for reading.

     The recommended textbook is *Data Structures and Algorithms in Java, 6th Edition*, Goodrich, Tamassia, & Goldwasser, Wiley, January 2014, ISBN 978–1–118–77133–4. A digital edition (ISBN 978–1–118–80314–1), with the same content but cheaper, is available via the book link next to the course sections in the University's online Schedule of Classes. Because this course is one of the 100 largest on campus, McKeldin Library has a copy of the text, which you can check out and read for 4 hours at a time by asking for it at the Library Services Desk. (Please do not use an illegal copy of the textbook; read the one in the library for free instead.)

3   The instructional staff, email, office hours, and course evaluations

(The list of TAs is not yet complete; the syllabus will be updated with their information after all of the TAs have been assigned to the course.)

Instructor

	Larry Herman
office	3211 A.V. Williams
phone	(301) 405–2762

Teaching TAs (section(s))

Stephanie Zhou	0101 & 0106
Austin Piel	0102
Sam Barham	0103 & 0104
Caroline Horsch	0105
Abby Snellman	0107
Brandon Stoeckel	0108
Asher Fink	0301 & 0302
Danée Fitzgerald	0303
Lizi Jordan	0304
Anna Carandang	0305
David Smith	0306
Amy Zhao	0307

Grading TAs

Akhil Saini
Amulya Bellam
Beatrix Tran
Dale Dullnig
Hanyu Wang
Janit Anjaria
Jingxi Chen
Michael Bui
Michael Maynord
Nathan Li
Pattara Sukprasert
Puneeth Bikkumanla
Rhea Nair
Saewon Kwak
Sasha Miller
Xinyao Zhang

3.1   Office hours and email

Office hours will be provided in a separate handout soon. While assistance for projects is available from the TAs during office hours, you are ultimately responsible for developing and debugging them yourself; learning these skills is part of

the coursework you're being graded for. If you come to office hours for help with program debugging, expect the TAs to point you in the right direction, after which it would be up to you to continue working on the problem on your own. A student will be able to receive help in the TAs' office hours at most **five times in a day**.

Because of the class size (nearly 550 students), electronic communication is to be used for urgent or emergency matters only. The instructional staff is not able via email to explain course material, assist with programming projects, discuss administrative issues, etc. Instead, discuss these in person (office hours, or discussion section or before and after class, if time permits).

Even in case of urgent issues that must be discussed electronically, the instructional staff will **only** read and reply to messages sent via the ELMS message system (click on *Inbox* in ELMS). Due to the class size messages may only be read every week or so. If you have a question or issue that takes an exchange of several messages to answer or resolve, this would take much longer than discussing it in person. Even in urgent situations requiring electronic contact, do **not** send a message to all members of the instructional staff. (There is no problem that requires 20–30 people to address it.)

3.2   Course evaluations

Course evaluations are important, and the department and instructors take student feedback seriously. Please complete your evaluation later in the semester at www.courseevalum.umd.edu. However, rather than waiting until the end of the course to give feedback, please bring any suggestions or concerns to our attention in person during the semester. Although we cannot guarantee to be able to change anything that is brought up, we welcome hearing any comments or questions, that you may have, and will see if they can be addressed.

4   Course topics

The duration and order of topics may vary according to the pace of lecture, so this list is approximate:

Topic	# lectures
Course introduction	1/2
Review of some CMSC 131 Java concepts (Ch. 1)	3 1/2
Inheritance and object–oriented design (Sec. 2.1 & 2.2)	3
Abstract classes (Sec. 2.3)	1/2
Error handling & exceptions (Sec. 2.4)	1 1/2
Generics (Sec. 2.5)	1 1/2
Inner classes (Sec. 2.6)	1/2
Linear data structures (Ch. 3)	3
Algorithm analysis (Ch. 4)	3 1/2
Recursion (Ch. 5)	2
Stacks and queues (Ch. 6)	1

Topic	# lectures
Iterators and Java collections (Ch. 7)	1 1/2
Trees and binary search trees (Ch. 8 & Sec. 11.1)	2
Heaps and priority queues (Ch. 9)	1
Hashing, sets, and maps (Ch. 10)	3
Graphs (Ch. 14)	2 1/2
Concurrency and threads	3
Introduction to networking	1 1/2
Sorting (Ch. 12)	3
Algorithm strategies	1
Introduction to software engineering and testing	1

Some smaller topics, not listed here, will be covered only in discussion section.

5   Class, attendance, absences and excused absences, and accommodations

Class locations and times are available in the Schedule of Classes at https://ntst.umd.edu/soc. Students are responsible for all academic and administrative material discussed in lecture and discussion section, whether they were in class to hear it or not. Other than cases of excused absences (see Section 5.2 below) or University cancellations, students are expected to attend all lectures and discussion sections.

Electronic devices (laptops, tablets, cell phones, etc.) may not be used in lecture. Attendance will be taken during lecture using a system called Arkaive, via an app that you install on your phone. Students should install the Arkaive app now, from either the App Store or Google Play, to be able to report attendance. Further details will be given in class.

On a regular basis students must attend the lecture and discussion section they are registered for, unless they have a reason to regularly attend a different one and ask their instructor (in person) for permission. In–class graded coursework will not be counted if it is done in a different lecture or discussion section without permission.

If a student **occasionally** cannot attend their own lecture or discussion they can attend a different one, but must ask the instructor or TA momentarily before class for permission, so any in–class graded coursework will be counted.

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5.1   Absences

Unless you are missing (or already missed) an exam due to last minute illness or emergency, do **<u>not</u>** email the instructor or your TA about an absence. (In case of unexpectedly missing an exam, send a message via ELMS to the instructor immediately. The rest of this section applies to all **other** absences.)

If you are going to miss class (lecture or discussion) and you <u>can</u> attend another class:

> If a **few times** during the semester you know in advance that you are not going to be able to attend your own lecture or discussion but are able to go to another one at a different time, you are expected to do that; there may be in–class graded coursework that you would otherwise miss and not get credit for. (You must inform either the instructor or TA– in person right before the other class– to get permission to do any graded coursework there, otherwise it will not be counted. Do not send email to get permission to attend another class; ask in person before class.) If you do attend another class it is not an absence.

If you are going to miss class (lecture or discussion) and you <u>cannot</u> attend another class:

> If you know you are going to miss class and cannot attend another one, and you think it may be a case where the absence could be excused (excused absences are defined and described in Section 5.2 below), do not send email– the size of the course makes it impossible to keep track of absences via email. Instead fill out the Report an absence form on ELMS, and read the information on it carefully (as well as Section 5.2 below). Except in cases where advance notification is impossible, you are expected to fill out this form **in advance** (which means **prior to the beginning of the class you will be missing**), or the absence will likely not be excused.

> You will need to discuss the absence in person with your instructor when you return, to present required documentation, determine if the absence is excused, and make arrangements (if necessary) for coursework affected by the absence. Be sure to read see Section 5.2 below before discussing the absence.

Before or after any absence, excused or not, do not send a message to your TA or instructor to find out what you will miss or missed. The size of the course makes it infeasible for us to fill you in electronically. Instead you would be responsible for finding out what was missed and getting notes from a classmate who was present. (If you don't know anyone else in the course just ask whoever is sitting next to you when you can return to class about what happened during your absence.)

Students missing more than a certain number of classes may become ineligible to receive assistance on programming projects during office hours, since the TAs are not responsible for explaining material during office hours that was already taught in class. (Given the course size this is infeasible.)

5.2   Excused absences

An excused absence refers to missing class for a University–approved reason, which will not affect a student's grade. The University's course–related policies for excused absences and other situations are summarized at:

<div align="center">www.ugst.umd.edu/courserelatedpolicies.html</div>

Most policies there are not repeated here– you should read that information carefully. Here we only emphasize a few points from that page and define necessary specifics for this course.

- For it to be excused, notification of absence must be provided **in advance**, or **as soon as possible** for situations where advance notification cannot be given.

- For this course, any documentation provided to support an excused absence (as described in the policy) must be in **hardcopy** (not scanned or emailed).

  Medical documentation must specify dates of illness or inability to attend class. Please add to any documentation the list of specific graded coursework (if any) that you missed during the absence, if you think it may be excused.

- As mentioned above, use Report an absence on ELMS to inform us of a absence. (Note you must still discuss the absence with the instructor in person as soon as possible when you return, to provide documentation, etc.)

- Self–documentation of illness can be used only **once during the semester** for an excused absence.

- The major scheduled grading events (this term is defined in the policy linked to above), which self–documentation of illness can **not** be used for, are the midterm exams and the final exam.

5.3   How excused absences will be handled

All arrangements for excused absences and missed coursework must be made with the instructor, even if the coursework that was missed was done in discussion section.

- An excused absence for an exam will be handled by giving a makeup exam.

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- Rather than a makeup or extra time to complete it, the score for an excused absence for an in–class worksheet will be the average of the student's scores for the other in–class worksheets.

Note that excused absences are **almost never justification for extensions on projects**. Projects will be assigned with sufficient time to be completed by students who have a reasonable understanding of the necessary material and begin promptly, even if an excused absence occurs. In cases of **protracted, extremely serious** illness, or **severe emergency situations,** **_short_** extensions on projects may be considered, depending upon the circumstances. Discuss the situation with the instructor as soon as possible (in person unless this cannot be done).

5.4   Students with disabilities

A student with academic accommodations due to disability must provide documentation from ADS (Accessibility and Disability Support Services) to their instructor **near the beginning of the semester**. (Bring it to office hours; do not discuss after class.) Arrangements for exam accommodations **must** be made with the instructor **at least three business days prior to the exam date**, or (according to ADS) the right to an accommodation will be forfeited.

6   Coursework, grades, and dates

If you experience difficulty during the semester keeping up with the academic demands of your courses, you may consider contacting the Learning Assistance Service. Their educational counselors can help with time management issues, reading, note–taking, and exam preparation skills.

6.1   Weights of coursework

Coursework will count toward the final grade according to the following percentages:

Midterms:	three midterms	42%	(equally weighted)
Final:	will be comprehensive	21%	
Programming projects	ten expected projects	23%	(weighted differently)
In–class (discussion or lecture) worksheets	these will typically be group work	10%	(equally weighted)
Class participation		4%	

Besides the graded coursework, ungraded practice problems will be provided as worksheets done during class, and as homework and exam practice problems (with solutions) via ELMS. These problems will allow you to test your knowledge of the material and prepare for graded coursework. If you have questions about these problems or need help solving them, ask during the TAs' office hours (or discussion section, if time permits). Some but not all of the in–class worksheets will be graded; these will be unannounced and will usually be pair or group exercises.

6.2   Project policies and minimum project requirements

Projects will be written in the Eclipse IDE and can be done on the machine of your choice, usually your own computer (although there are computers available in some libraries and other places on campus for those who need to use them). A separate handout will describe how to install and set up Eclipse.

A handout with the project submission and grading policies will be provided when Project #1 is assigned. Projects will all be worth 100 points, but they will be weighted differently based on difficulty. Some projects will be much larger and more difficult, and will have more time to be done in. Others will be much smaller and easier, and will be assigned for just a few days. Because their relative difficulty can't necessarily be known in advance, their weights will be approximated in the gradebook, and finalized near the end of the semester. In order to be able to pass the course a student **must** submit versions of all projects that satisfy minimum criteria, as the project policies will explain in detail.

6.3   Grading and grades

Grades will be recorded on ELMS. There may be more assignments in the gradebook than we will actually end up having; any unused assignments in the gradebook will just be deleted at the end of the semester.

Ask questions or discuss concerns about any grades in person. Do not make comments on grades in the ELMS gradebook; due to the size of the course they will not be read.

If you feel that something was graded incorrectly on an exam you may provide a hardcopy explanation within a week of when the exam is returned and solutions are provided. Keep in mind that the exam may be regraded in its entirety, and upon consideration of the explanation it may be determined that the exam deserves fewer points than given in the original grading. (Therefore it is in your interest to check carefully and make sure that something was really graded

wrong before asking for the grading to be reconsidered.) Questions about project grading should be directed to the TA who graded the project (not the instructor or your teaching TA).

Final course grades will be curved as needed, based on each student's total numeric score for all coursework at the end of the semester. (In other words, individual assignments or exams will not be curved; just the final course grades.) It is expected that plus/minus grades will be given, although the distribution of grades and performance of students will dictate what the curve will look like (or if there even is one), how many grades in each range there will be, etc.; these are things that cannot be predicted in advance.

6.4 Exam and project dates

Midterm exams will be held during lecture. The exam and project due dates are below. These dates might vary depending on lecture progress and other factors (for example, if the University has unexpected closures, the entire remaining schedule could require readjustment). Inform the instructor immediately if you have a conflict with a scheduled midterm date.

Project #1:	Thu, Feb 14
Project #2:	Wed, Feb 27
Exam #1:	Fri, Mar 1
Project #3:	Tue, Mar 12
Project #4:	Thu, Mar 28

Project #5:	Mon, Apr 1
Exam #2:	Fri, Apr 5
Project #6:	Fri, Apr 12
Project #7:	Tue, Apr 16
Project #8:	Mon, Apr 22

Exam #3:	Wed, May 1
Project #9:	Fri, May 3
Project #10:	Mon, May 13
Final exam:	Fri, May 17, 4–6

The final exam will be rescheduled **only** for students having another final at exactly the same time (which should only apply to BMGT 221 and ENES 221), or for students with more than three final exams on the same day. If either situation applies to you, you must inform the instructor **at least two weeks in advance** of the final exam.

7 Academic integrity

Campus policy asks students to include the honor pledge on each examination or major assignment in every course; consequently, you will be requested to write or type it on exams and projects.

Unless otherwise noted, all graded coursework is to be done **individually**, so cooperation or use of unauthorized materials on assignments is a violation of the University's Code of Academic Integrity. **Any evidence** of this **will be submitted** to the Office of Student Conduct, which could result in an XF for the course, suspension, or expulsion.

For academic honesty purposes, **projects are to be considered comparable to a take–home exam, so any cooperation that would be prohibited on an exam is <u>also</u> prohibited on a project.** Note the following:

- In learning the material students are welcome to study together or to receive help from anyone else. It's OK to discuss with others the course material or the **requirements** of a project.

- When it comes to actually designing, writing, or debugging a project, other than help from the instructional staff, these must **solely and entirely** be a student's **own work**.

VIOLATIONS OF THE CODE OF ACADEMIC INTEGRITY MAY INCLUDE, BUT ARE NOT LIMITED TO:

1. Failing to do any of the work on a project by yourself, other than assistance from the instructional staff.
2. Using any ideas or any part of another person's program, or copying anyone else's work in any way.
3. Giving any parts or ideas from your program, including test data or test cases, to anyone else.
4. Transferring any part of a program to or from anyone else, by any means.
5. Putting a program anywhere (for example, a website online) for any other students to access. (Note this also applies in the future to students taking the course in later semesters.)

In designing or writing projects, students are free to use information and code provided by the instructional staff, **only** if the source is cited in a comment in the relevant section of the program, only short sections of provided code are used, and the substantial part of the coursework is the student's own individual work. If you have any question about a particular situation or source, ask the instructor in advance.

Should you have difficulty with a project you should see the teaching assistants in office hours, rather than soliciting help from anyone else in violation of these rules.

IT IS THE RESPONSIBILITY, UNDER THE HONOR POLICY, OF ANYONE WHO SUSPECTS ACADEMIC DISHONESTY HAS OCCURRED TO REPORT IT TO THE INSTRUCTOR, OR DIRECTLY TO THE OFFICE OF STUDENT CONDUCT.

You are encouraged to learn more about academic integrity at the Student Honor Council's website, and to read the Code of Academic Integrity, the Code of Student Conduct, and the University's policy regarding acceptable use of information technology resources (including computer accounts) for yourself, using the links on the course's ELMS page.

8   Copyright for materials

Most course materials are copyright Larry Herman (and in some cases other CMSC faculty and instructors not specifically listed due to space limitations) © 2019. All rights reserved for these materials. Students are permitted to use course materials for their own personal use only. Materials may not be distributed publicly or privately to any others (excepting other students currently in the course), in any way or format. A student who distributes copyrighted material without permission (for example, uploading materials that are copyrighted by the instructor to websites) is subject to being forwarded to the Office of Student Conduct.

9   Changes made since the syllabus was originally provided

February 3: One typo in Section 3.1 was corrected, and the currently–assigned TAs were added to the syllabus.

February 23: The last TA's name was added, and the Project #2 due date was updated.