CSc 120: Introduction to Computer Programming II

MWF 3:00pm-3:50pm (3pm Section), Gittings Bldg, room 129B
MWF 4:00pm-4:50pm (4pm Section), Gittings Bldg, room 129B

SYLLABUS: Spring 2023

Description of Course

This course provides a continuing introduction to programming with an emphasis on problem-solving. It considers problems drawn from a variety of domains, including Computer Science, and emphasizes both the broader applicability of the relevant data structures and programming concepts, as well as the implementation of those structures and concepts in software. Topics include arrays, lists, stacks, queues, recursion, trees, searching and sorting; classes and objects; invariants; asymptotic complexity; program development, testing, and debugging.

Course Prerequisites

A grade of C or higher in CSC 110 (or ISTA 130 or ECE 175) or prior programming experience with Python or a comparable programming language.

Instructor and Contact Information

Name: Janalee O'Bagy, Ph.D.

Email: **jobagy@arizona.edu**

Office: Gould-Simpson 823

Hours:

Wed	1:00pm – 2:00pm (beginning 1/25)
Thu	2:00pm – 3:30pm
Fri	1:00pm – 2:00pm
or by appointment	(Note: see the class website for updates)

Teaching Assistants: The contact information and office hours for the class TAs can be found on the class website.

Websites:
D2L: https://d2l.arizona.edu/d2l/home/1265423

Class website: https://www.obagy.com/cs120/

Required out-of-class videos: Access through D2L, then use the Content tab

Course Format and Teaching Methods

In-class Activities (ICAs)

During lecture, we will have a mix of traditional lecture and in-class activities, typically done in groups, that reinforce understanding of the material being presented. Students will submit their solutions for the activities to receive credit for participating in the lecture. We will use Gradescope for this.

Out-of-Class activities (OCAs)
In addition, each week there will be one or two short videos containing additional information and short quizzes. Students will access the videos through D2L (use the "Content" tab).

Obtaining Help

- **Academic advising:** If you have questions about your academic progress this semester, or your chosen degree program, consider contacting your department's academic advisor(s). Your academic advisor and the Advising Resource Center can guide you toward university resources to help you succeed. **Computer Science major students** are encouraged to visit https://www.cs.arizona.edu/undergraduate/advising for advisor contact information.
- **CS Tutor Center:** The Department of Computer Science offers FREE tutoring for students enrolled in CSC courses. You can view tutor schedules and sign up for tutoring sessions by visiting our CS Tutoring Page.
- **CS Help Desk:** The Computer Science IT team can help students with department technology issues including logging into/resetting your Lectura account, printing in the 930 lab, etc. You can submit a ticket for help by visiting the Computer Science Lab Helpdesk (note, requires UA login).
- **Life challenges:** If you are experiencing unexpected barriers to your success in your courses, please note the Dean of Students Office is a central support resource for all students and may be helpful. The Dean of Students Office can be reached at 520-621-2057 or DOS-deanofstudents@email.arizona.edu.
- **Physical and mental-health challenges**: If you are facing physical or mental health challenges this semester, please note that Campus Health provides quality medical and mental health care. For medical appointments, call (520-621-9202. For After Hours care, call (520) 570-7898. For the Counseling & Psych Services (CAPS) 24/7 hotline, call (520) 621-3334.

- **UA Ombuds**: The UA Ombuds Office (https://ombuds.arizona.edu/) helps with a wide variety of issues, concerns, questions, conflicts, and challenges. The primary mission of the Ombuds Program is to assist individuals in resolving conflict, facilitating communications, and assisting the University by surfacing issues and providing feedback on emerging or systemic concerns. Communications with the Ombuds Committee are informal and off-the-record. The Ombuds Committee is governed by the following standards: (1) Confidentiality; (2) Impartiality; (3) Informality; and (4) Independence.

Class Recordings

- Lectures may be recorded at the discretion of the instructor. If recorded, the lecture videos will be available through Panopto, which can be accessed through "D2L->UA Tools."
- For lecture recordings, which are used at the discretion of the instructor, students must access content in D2L only. Students may not modify content or re-use content for any purpose other than personal educational reasons. All recordings are subject to government and university regulations. Therefore, students accessing unauthorized recordings or using them in a manner inconsistent with UArizona values and educational policies (Code of Academic Integrity and the Student Code of Conduct) are also subject to civil action.

Course Objectives

The course will provide a foundation in fundamental computer science concepts such as object-oriented programming, data structures and abstract data types, asymptotic worst-case complexity, program design, testing, and debugging.

Expected Learning Outcomes

Students who successfully complete this course should be able to:

- effectively decompose simple programming problems into suitable functions;
- comfortably write moderate-sized (100–300 line) programs incorporating a variety of control and data structures;
- implement common data structures such as stacks, queues, linked-lists and trees and use recursive solutions when appropriate;
- implement classes given design guidance;
- use a provided style guide to produce clean, readable code;
- identify and create black box and white box tests and to use assertions in order to facilitate the testing and debugging of their programs;
- determine the time complexity of simple algorithms and state their complexity in terms of big-O notation.

Absence and Class Participation Policy

The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at https://catalog.arizona.edu/policy/class-attendance-and-participation

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable: http://policy.arizona.edu/human-resources/religious-accommodation-policy.

Absences pre-approved by the UA Dean of Students (or dean's designee) will be honored. See https://deanofstudents.arizona.edu/policies/attendance-policies-and-practices –

Participating in the course and attending lectures and other course events are vital to the learning process. As such, attendance is required at all lectures. Absences may affect a student's final course grade. If you anticipate being absent, are unexpectedly absent, or are unable to participate in class online activities, please contact me as soon as possible. To request a disability-related accommodation to this attendance policy, please contact the Disability Resource Center at (520) 621-3268 or drc-info@email.arizona.edu. If you are experiencing unexpected barriers to your success in your courses, the Dean of Students Office is a central support resource for all students and may be helpful. The Dean of Students Office is located in the Robert L. Nugent Building, room 100, or call 520-621-7057.

We will not take attendance during lecture, however, all students are required to submit the in-class activity (ICA) solutions. These solutions, which should include the Word of the Day (if one is selected), will demonstrate their engagement with the material. (While the ICAs will be available online, students watching the recording will not know the Word of the Day, and as such will receive at most half credit for the ICA.)

Note: attendance is required for exams, unless the student has a disability-related accommodation (see below).

To request a disability-related accommodation to this attendance policy, please contact the Disability Resource Center at (520) 621-3268 or drc-info@email.arizona.edu. If you are experiencing unexpected barriers to your success in your courses, the Dean of

Students Office is a central support resource for all students and may be helpful. The Dean of Students Office is located in the Robert L. Nugent Building, room 100, or call 520-621-7057.

Illnesses and Emergencies

- If you feel sick, or may have been in contact with someone who is infectious, stay home. Except for seeking medical care, avoid contact with others and do not travel.
- Notify your instructor(s) if you will be missing up to one week of course meetings and/or assignment deadlines.
- If you must miss the equivalent of more than one week of class and have an emergency, the Dean of Students is the proper office to contact (DOS-deanofstudents@email.arizona.edu). The Dean of Students considers the following as qualified emergencies: the birth of a child, mental health hospitalization, domestic violence matter, house fire, hospitalization for physical health (concussion/emergency surgery/coma/COVID-19 complications/ICU), death of immediate family, Title IX matters, etc.
- Please understand that there is no guarantee of an extension when you are absent from class and/or miss a deadline.

Statement on compliance with COVID-19 mitigation guidelines: As we enter the semester, our health and safety remain the university's highest priority. To protect the health of everyone in this class, students are required to follow the university guidelines on COVID-19 mitigation. Please visit www.covid19.arizona.edu.

Makeup Policy for Students Who Register Late

Students who register for class late will be allowed to make up missed assignments; all missed assignments will be due at the same time as the second long assignment. Students will not be allowed to register for the class more than two weeks after it begins.

Course Communications

The primary path for outside-lecture communications will be the class Discord server. The Discord link is posted on D2L and the class website. If a student has an issue that cannot reasonably be resolved through Discord (inappropriate to discuss publicly, private issue, etc.) then the student may email the instructor.

Required Texts or Readings

There are no required textbooks. Students are responsible for the material provided in the lecture slides, which are posted on the class website before the lectures.

Assignments and Examinations: Schedule/Due Dates

I. Programming Assignments

This class will have regular programming assignments

Assignments will generally be given on Mondays and will consist of two components: (1) a set of short problems due on Thursday, and (2), a set of one or more larger problems due the following Tuesday.

Assignments will be due by 7pm.

NOTE: The first week of class may have a different assignment due-date schedule.

Each assignment pair (short/long assignment) will be worth the same amount. No assignments are dropped, however, during the last week of the class, students will be given the opportunity to rewrite one of the long assignments and have it regraded.

Late Day

Each student will be allocated 1 Late Day which may be used throughout the semester. A late day allows the student to turn in an assignment's long problem set up to 24 hours late.

NOTE: a late day cannot be used on the short problems or on the last (re-do) assignment.

If a student has used their late day, a late submission on a later assignment will not be accepted. The student will receive a 0 on that assignment.

II. Activities

In-class Activities (ICAs)

During lecture, we will have a mix of traditional lecture and in-class activities, typically done in groups, that reinforce understanding of the material being presented. Students will submit their solutions for the activities to receive credit for participating in the lecture. We will use Gradescope for this. The ICAs must be submitted to Gradescope by 7pm on the day of the lecture.

Out-of-Class Activities (OCAs)

In addition, each week there will be one or two short videos with embedded quizzes. Students will access the videos through D2L (Choose the "Content" tab). The OCAs for any given week are due the Saturday ending the week at 7pm.

III. Feedback Meetings

Students will periodically meet with their TAs, where they will discuss recent programming assignments and other issues. Each student will meet with their TA approximately seven times during the semester. Each student will arrange with their TA about when and how to meet, but the meetings will take place roughly every other week.

Credit will be given for these meetings if the student is on time and participates in the discussion. Each meeting will be graded on an all-or-nothing basis.

We will use a nonlinear scaling method for these grades, as shown below:

Miss 0 or 1 meetings	->	Full credit for the category
Miss 2 meetings	->	75% credit for the category
Miss 3 meetings	->	50% credit for the category
Miss 4 meetings	->	25% credit for the category
Miss 5 meetings	->	No credit

IV. Midterms

There will be two midterms given on the following dates:

Midterm 1: Friday, February 24, 2023

Midterm 2: Friday, April 7, 2023

Midterms are given during the normal class period and will be 50 minutes. No midterms are dropped.

Make-up exams will not be given, however, if a midterm is missed due to *extenuating circumstances*, I will use the grade of the final exam to replace the midterm grade.

V. Final Examination

The final exam is given in the regular classroom (Gittings 129B) for both Sections.

For the **4:00pm Section** – Friday, May 5, 2023, from 3:30pm-5:30pm.

For the **3:00pm Section** – Tuesday, May 9, 2023, from 3:30pm-5:30pm.

Final Exam Regulations and Final Exam Schedule: https://registrar.ariz ona.edu/faculty-staff-resources/room-class-scheduling/schedule-classes/final-exams

VI. Regrades

For the long portion of programming assignments, students should contact their TA to ask for a regrade. For tests, students should use Gradescope's "Regrade Request" feature to ask the grader responsible for the question. In both cases, students should attempt to resolve the issue with that contact person, but they can escalate to the instructor if an acceptable solution cannot be reached.

Grading Scale and Policies

Point Distribution

Grades will be computed using the following weighting for the graded components of the class:

45%	Weekly programming
4%	In-class activities (ICAs)
3%	Out-of-class activities (OCAs)
3%	Feedback Meetings
30%	Midterms (15% each)
15%	Final

Grading Scale

The weighted score computed using the above distribution will translate to letter grades as follows:

90% and above:	A
80% and above, but below 90%:	B
70% and above, but below 80%:	C
60% and above, but below 70%:	D
Below 60%:	E

I will use a simple grade cutoff scheme. This means if you earn the number of points listed for a given grade, you are guaranteed that grade. At the end of the semester, I

reserve the right to lower these cutoffs, but I will not raise these cutoffs. (This means I can make it easier to earn the letter grades in the categories above, but not harder.)

Grading Schedule

Programming assignments will typically be graded within 6 days of the due date. If exceptions have to be made occasionally, staff will inform the students about the delay and the reason for it.

Tests will be graded within 10 days.

Late Work

Students have 1 Late Day that can be used on any long programming problem except the last long programming assignment.

Regrades

Regrades must be requested within 7 dates of the grade being returned to the student. For everything except tests, students should contact their TA to ask for a regrade. For tests, they should use the Regrade Request tool inside GradeScope. In either case, the student should start by contacting the appropriate person. Afterwards, they are free to contact the instructor if a resolution cannot be found.

Extra Credit

Extra credit will not be available.

Department of Computer Science Grading Policy:

1. Instructors will explicitly promise when every assignment and exam will be graded and returned to students. These promised dates will appear in the syllabus, associated with the corresponding due dates and exam dates.
2. Graded homework will be returned before the next homework is due.
3. Exams will be returned "promptly", as defined by the instructor (and as promised in the syllabus).
4. Grading delays beyond promised return-by dates will be announced as soon as possible with an explanation for the delay.

Incomplete (I) or Withdrawal (W):

Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete and http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal respectively.

Dispute of Grade Policy: See the regrade policy above.

Scheduled Topics/Activities

The lectures will cover the material shown in the table below. Note that the schedule is approximate and subject to change. The order of topics is subject to change. Students are responsible for all material covered in lecture, even if the actual lectures deviate from this overview.

As described in the "**Assignments and Examinations: Schedule/Due Date**" section above, programming assignments (PAs) consist of short and long components and are given weekly. The due date for each component is given in the table, as well as the Midterm exam dates.

Week no.	Week of	Topic/Lecture Slides	Assigned	Assignment Due Dates & Midterm Dates
1	01/09/2023	Class intro, Python review	PA 1 – 01/13	
2	01/16/2023	Python review		PA 1 short – 01/19
3	01/23/2023	Python review, References,	PA 2 – 01/23	PA 1 long – 01/24 PA 2 short – 01/26
4	01/30/2023	Classes and Objects	PA 3 – 01 30	PA 2 long – 01/31 PA 3 short – 02/02
5	02/06/2023	Linked lists	PA 4 – 02/06	PA 3 long – 02/07 PA 4 short – 02/09
6	02/13/2023	Linked lists	PA 5 – 02/13	PA 4 long – 02/14 PA 5 short – 02/16
7	02/20/2023	Stacks & Queues	PA 6 – 02/20	PA 5 long – 02/21 **Midterm 1 – 02/24**
8	02/27/2023	Recursion	PA 7 – 02/28	PA 6 short – 02/28 PA 6 long – 03/02
	03/06/2023	~~Spring Break~~		
9	03/13/2023	Recursion and Trees	PA 8 - 03/13	PA 7 long – 03/14 PA 8 short – 03/16
10	03/20/2023	Trees, Binary Search Trees	PA 9 – 03/20	PA 8 long – 03/21 PA 9 short – 03/23
11	03/27/2023	Trees, Testing	PA 10 – 03/27	PA 9 long – 03/28 PA 10 short – 03/30
12	04/03/2023	Complexity		PA 10 long – 04/04 **Midterm 2 – 04/07**
13	04/10/2023	Complexity	PA 11 – 04/10	PA 11 short – 04/13
14	04/17/2023	Hash tables	PA 12 – 04/17	PA 11 long – 04/18 PA 12 short – 04/20
15	04/24/2023	Hash tables, Debugging	PA 13 – 04/24 (redo opp)	PA 12 long – 04/25
16	05/01/2023	Advanced topics; review		PA 13 long – 05/01 (redo opp)

Department of Computer Science Code of Conduct

The Department of Computer Science is committed to providing and maintaining a supportive educational environment for all. We strive to be welcoming and inclusive, respect privacy and confidentiality, behave respectfully and courteously, and practice intellectual honesty. Disruptive behaviors (such as physical or emotional harassment, dismissive attitudes, and abuse of department resources) will not be tolerated. The complete Code of Conduct is available on our department web site. We expect that you will adhere to this code, as well as the UA Student Code of Conduct, while you are a member of this class.

Classroom Behavior Policy

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Students are asked to refrain from disruptive conversations with people sitting around them during lecture. Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students.

Threatening Behavior Policy

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students.

Accessibility and Accommodations

At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience barriers based on disability or pregnancy, please contact the Disability Resource Center (520-621-3268, https://drc.arizona.edu/) to establish reasonable accommodations.

Code of Academic Integrity

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See https://deanofstudents.arizona.edu/student-rights-responsibilities/academic-integrity .

Uploading material from this course to a website other than D2L (or the class piazza) is strictly prohibited and will be considered a violation of the course policy and a violation of the code of academic integrity. Obtaining material associated with this course (or previous offerings of this course) on a site other than D2L (or the class piazza), such as Chegg, Course Hero, etc. or accessing these sites during a quiz or exam is a violation of the code of academic integrity. Any student determined to have uploaded or accessed material in an unauthorized manner will be reported to the Dean of Students for a Code of Academic Integrity violation, with a recommended sanction of a failing grade in the course.

The University Libraries have some excellent tips for avoiding plagiarism, available at http://new.library.arizona.edu/research/citing/plagiarism.

Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor's express written consent. Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.

Nondiscrimination and Anti-harassment Policy

The University of Arizona is committed to creating and maintaining an environment free of discrimination. In support of this commitment, the University prohibits discrimination, including harassment and retaliation, based on a protected classification, including race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation,

gender identity, or genetic information. For more information, including how to report a concern, please see http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy

Our classroom is a place where everyone is encouraged to express well-formed opinions and their reasons for those opinions. We also want to create a tolerant and open environment where such opinions can be expressed without resorting to bullying or discrimination of others.

Additional Resources for Students

UA Academic policies and procedures are available at http://catalog.arizona.edu/policies

Visit the UArizona COVID-19 page for regular updates.

Campus Health
http://www.health.arizona.edu/
Campus Health provides quality medical and mental health care services through virtual and in-person care. Voluntary, free, and convenient COVID-19 testing is available for students on Main Campus. COVID-19 vaccine is available for all students at Campus Health.
Phone: 520-621-9202

Counseling and Psych Services (CAPS)
https://health.arizona.edu/counseling-psych-services
CAPS provides mental health care, including short-term counseling services.
Phone: 520-621-3334

The Dean of Students Office's Student Assistance Program
https://deanofstudents.arizona.edu/support/student-assistance
Student Assistance helps students manage crises, life traumas, and other barriers that impede success. The staff addresses the needs of students who experience issues related to social adjustment, academic challenges, psychological health, physical health, victimization, and relationship issues, through a variety of interventions, referrals, and follow up services.
Email: DOS-deanofstudents@email.arizona.edu
Phone: 520-621-7057

Survivor Advocacy Program
https://survivoradvocacy.arizona.edu/
The Survivor Advocacy Program provides confidential support and advocacy services to student survivors of sexual and gender-based violence. The Program can also advise students about relevant non-UA resources available within the local community for support.
Email: survivoradvocacy@email.arizona.edu
Phone: 520-621-5767

Campus Pantry

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live and believes this may affect their performance in the course, is urged to contact the Dean of Students for support. In addition, the University of Arizona Campus Pantry is open for students to receive supplemental groceries at no cost. Please see their website at: *campuspantry.arizona.edu* for open times.

Furthermore, please notify me if you are comfortable in doing so. This will enable me to provide any resources that I may possess.

Pronouns and Preferred Names

This course affirms people of all gender expressions and gender identities. If you prefer to be called a different name than what is on the class roster, please let me know. Feel free to correct instructors on your pronoun. If you have any questions or concerns, please do not hesitate to contact me directly in class or via email (instructor email). If you wish to change your preferred name or pronoun in the UAccess system, please use the following guidelines:

Preferred name: University of Arizona students may choose to identify themselves within the University community using a preferred first name that differs from their official/legal name. A student's preferred name will appear instead of the person's official/legal first name in select University-related systems and documents, provided that the name is not being used for the purpose of misrepresentation. Students are able to update their preferred names in UAccess.

Pronouns: Students may designate pronouns they use to identify themselves. Instructors and staff are encouraged to use pronouns for people that they use for themselves as a sign of respect and inclusion. Students are able to update and edit their pronouns in UAccess.

More information on updating your preferred name and pronouns is available on the Office of the Registrar site at https://www.registrar.arizona.edu/.

Safety on Campus and in the Classroom

Familiarize yourself with the UA Critical Incident Response Team plans: https://cirt.arizona.edu/

Also watch the video available at https://ua-saem-aiss.narrasys.com/#/story/university-of-arizona-cert/active-shooter

Confidentiality of Student Records

http://www.registrar.arizona.edu/personal-information/family-educational-rights-and-privacy-act-1974-ferpa?topic=ferpa

Land Acknowledgement Statement

We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.

Subject to Change Statement

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.