CSc 120: Introduction to Computer Programming II

MWF 9:00am-9:50am, ILC, room 141
MWF 3:00pm-3:50pm, Gittings Bldg, room 129

SYLLABUS: Spring 2019

Course Description
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 and pre-/post-conditions; incremental program development, testing, and debugging.

Course Prerequisites
CSc 110 or prior programming experience with Python or comparable programming language. Students should be able to decompose simple problems, write short programs (50-100 lines) incorporating simple control and data structures (if, for, while statements; array and list data structures), and test and debug simple programs.

Instructor and Contact Information
Name: Janalee O’Bagy, Ph.D.
Email: jobagy@email.arizona.edu
Office: Gould-Simpson 854
Office Hours: Mon 1:00pm – 2:30pm
Tues 9:00am – 10:00pm
Wed 1:00pm – 2:30pm
or by appointment (Note: see the class website for updates)

Section Leaders: This class has TBD section leaders. Their contact information and GS lab hours can be found on the class website.

Class website: https://www2.cs.arizona.edu/classes/cs120/fall19

Piazza: piazza.com/arizona/spring2019/csc120

Course Objectives
The course will provide a foundation in fundamental computer science concepts such as object oriented programming, data structures and abstract data types, complexity analysis, and 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

Participating in the course and attending lectures and sections is vital to the learning process. As such, attendance is expected at all lectures and section meetings. If you anticipate being absent, are unexpectedly absent, or are unable to participate in class activities for an extended period, 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.

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

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 Designee) will be honored. See: https://deanofstudents.arizona.edu/absences.

Makeup Policy for Students Who Register Late

Students who register late may not make up any missed work.

Course Communications

Course communications will be made through the Piazza website for this class, at piazza.com/arizona/spring2019/csc120

It is your responsibility to make sure that you are signed up for this class in Piazza and to read postings and announcements in a timely manner. Not doing so is not an acceptable reason for failing to meet any announced changes to assignment specifications or deadlines.

Required Texts or Readings


This text is also available on-line here: https://runestone.academy/runestone/static/pythonds/index.html

Readings will be assigned from this book; students are required to complete the assigned readings before class. Students will also be given additional information and resources that will be needed complete their assignments.

In-Class Activities

Our goal is to foster an atmosphere of engagement and collaboration in all lectures. In addition to opportunities to participate in class daily, there will be specific in-class activities that will be
graded. These will often be small group (2-4 student) exercises that are directly relevant to the day's lecture topic. Sometimes they will be individual activities, such as quizzes.

Although attendance during lecture is not required and is not a component of the grade, the expectation is that students will attend all lectures and actively participate.

*The graded in-class activities cannot be made-up or replaced by other work.* However, there will be enough graded in-class activities to ensure that missing one or two will not impact your grade significantly. Each graded in-class activity will be .5 or less of your grade.

**Assignments and Examinations: Schedule/Due Dates**

**I. Programming Assignments**

Programming assignments will typically be given weekly. All assignment scores count towards the final grade.

Assignments will generally be given on Wednesdays and will consist of two components: a set of short problems due on Saturday; and a set of larger problems due the following Thursday. Students will receive their grades and feedback by the end of the day on the following Monday.

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

**Late Days**

Each student will be allocated 3 Late Days which may be used throughout the semester. A late day allows the student to turn in an assignment’s long problem(s) up to 24 hours late. Only one late day can be used per assignment.

Note that late days cannot be used on the short problems.

If a student has used all of his or her late days, a late submission will not be accepted. The student will receive a 0 on that assignment.

**II. Section Activities**

Sections are held as a separate class meeting. Section attendance is mandatory and counts towards the section score for that day. The section activities will be graded for participation, not for correctness.

**III. Midterms**

There will be midterms on the following dates:

- Midterm 1: Friday, February 15, 2019
- Midterm 2: Wednesday, April 3, 2019

Make-up exams will not be given except for unforeseeable emergencies and extenuating circumstances.

**Final Examination**

For the 3:00pm lecture:

- Tuesday, May 7, 3:30pm – 5:30pm, in the regular classroom (Gittings 129)

For the 9:00am lecture:

- Thursday, May 9, 10:30am -12:30am, in the regular classroom (ILC 141)
University policies regarding final exams can be found here: https://www.registrar.arizona.edu/courses/final-examination-regulations-and-information

**Grading Scale and Policies**
Grades will be computed using the following weighting for the graded components of the class:

- 45% Weekly programming assignments
- 5% In-class activities and reading assignments
- 5% Section activities and participation
- 30% Midterms (15% each)
- 15% Final

The weighted scores computed using this scheme will translate to letter grades as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>90% and above</td>
</tr>
<tr>
<td>B</td>
<td>80% and above, but below 90%</td>
</tr>
<tr>
<td>C</td>
<td>70% and above, but below 80%</td>
</tr>
<tr>
<td>D</td>
<td>60% and above, but below 70%</td>
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<tr>
<td>E</td>
<td>Below 60%</td>
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</tbody>
</table>

University policy regarding grades and grading systems is available at http://catalog.arizona.edu/policy/grades-and-grading-system

**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** All regrade requests for programming projects must be made within one week of when the grade is returned. All regrade requests for exams must be made within one week of when the graded exam is returned, except for the final.

**Scheduled Topics/Activities**

<table>
<thead>
<tr>
<th>Week no.</th>
<th>Week of</th>
<th>Topic</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>01/09/2019</td>
<td>Syllabus; Python review</td>
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<tr>
<td>2</td>
<td>01/14/2019</td>
<td>Python review and Classes and objects (OOP)</td>
<td></td>
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<tr>
<td>3</td>
<td>01/21/2019</td>
<td>Top Down Design; Debugging</td>
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<td>4</td>
<td>01/28/2019</td>
<td>Invariants, pre-/post-conditions</td>
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<td>5</td>
<td>02/04/2019</td>
<td>Exceptions; Testing</td>
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<tr>
<td>6</td>
<td>02/11/2019</td>
<td>Array-based lists; Big-O</td>
<td>Midterm 1 2/15/2019</td>
</tr>
<tr>
<td>7</td>
<td>02/18/2019</td>
<td>Big-O; linked lists</td>
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<tr>
<td>8</td>
<td>02/25/2019</td>
<td>Linked lists; list comprehensions</td>
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<tr>
<td>9</td>
<td>03/04/2019</td>
<td><strong>Spring Break</strong></td>
<td></td>
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<tr>
<td>10</td>
<td>03/11/2019</td>
<td>Recursion</td>
<td></td>
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<tr>
<td>11</td>
<td>03/18/2019</td>
<td>Recursion; Sorting</td>
<td></td>
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<tr>
<td>12</td>
<td>03/25/2019</td>
<td>Stack; queues, circular structures</td>
<td></td>
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<tr>
<td>13</td>
<td>04/01/2019</td>
<td>Trees; searching trees</td>
<td>Midterm 2 4/3/2019</td>
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<tr>
<td>14</td>
<td>04/08/2019</td>
<td>Binary search trees</td>
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<tr>
<td>15</td>
<td>04/15/2019</td>
<td>Hash tables</td>
<td></td>
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<tr>
<td>16</td>
<td>04/22/2019</td>
<td>Hash tables; generators; iterators; map; lambda</td>
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<tr>
<td>17</td>
<td>04/29/2019</td>
<td>Recursive search; review</td>
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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 or disruptive activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.). 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 physical or academic barriers based on disability or pregnancy, you are welcome to let me know so that we can discuss options. You are also encouraged to contact Disability Resources (520-621-3268) to explore reasonable accommodation.

If our class meets at a campus location: Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

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: http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity.

Programming assignments must be completed individually; 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 limited and should never involve details of how to code a solution. You must abide by the following rules:

- You may not work as a partner with another student on an assignment.
- You may not show another student your solution to an assignment, nor look at another student’s 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. This includes current or former students, tutors, friends, SLs, paid consultants, people on the Internet, or anyone else.

- You may not post your homework solution code online to ask others for help. This includes public message boards, forums, file sharing sites and services, or any other online system.

If you are retaking the course, you may resubmit a previous solution unless that program was involved in an academic misconduct case. If misconduct was found, you must write a new version of that program.

Under our policy, a student who gives inappropriate help is equally guilty with one who receives it. Instead of providing such help to someone who does not understand an assignment, please point them to other class resources such as lecture examples, the textbook, the IPL, or a SL or instructor. You must not share your solution and ideas with others. You must also 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. Please be careful, and contact the instructor if you are unsure whether a particular behavior falls within our policy.

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.

The penalty for a violation of the policy is, at a minimum, a reduction in grade; depending on the seriousness of the violation it may be as high as an overall failing grade for the course.

**UA Nondiscrimination and Anti-harassment Policy**

The University is committed to creating and maintaining an environment free of discrimination; see [http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy](http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy)

**Additional Resources for Students**

UA Academic policies and procedures are available at [http://catalog.arizona.edu/policies](http://catalog.arizona.edu/policies)

Student Assistance and Advocacy information is available at [http://deanofstudents.arizona.edu/student-assistance/students/student-assistance](http://deanofstudents.arizona.edu/student-assistance/students/student-assistance)

**Confidentiality of Student Records**


**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.