CS151: Computer Science Fundamentals for Non-Majors

Last changed on May 3, 2020 GMT

NOTE: This course has been moved online in response to the CoViD19 pandemic. The syllabus has been changed significantly to reflect this. Please review the entire syllabus carefully.

- Lab sections and Office hours will continue using Zoom meetings. Links are in Section 2.
- Lectures will be recorded and posted under a YouTube playlist starting with Week 9. See Section 4.1.
- Grade weighting has been changed. Review Section 6.
- Exams and quizzes have been cancelled for the rest of the semester.
- The UNM Faculty Senate proposed and the UNM President has adopted resolution COVID 19-24 March 2020. Please read it carefully because it contains information about grading options of which you can take advantage.

Please email mfricke@unm.edu if you have questions about the new syllabus.

Recorded lectures (Posted Monday night)

Live lectures (Wednesday and Friday's at 1:00pm)

Contents

1 Description

This course is a freshman level introduction to computer science. Topics include programming constructs and the basics of data-structures and asymptotics.

Students enrolled in CS151: Computer Science Fundamentals for Non-Majors learn the foundations of computer science with an emphasis on practical application.

This syllabus is intended to make course expectations and policies clear so that you, the student, have the best chance possible of meeting those expectations. If anything is unclear please let me know so I can update the syllabus accordingly.

This syllabus is likely to be revised throughout the semester.

2 Instructors

Instructor: **Prof. Matthew Fricke**
Email: mfricke@unm.edu
Website: http://www.cs.unm.edu/~mfricke
Tel: (505) 277-2048 (7-2048 if calling from a campus phone)
Office Hours:
Tuesdays, 2:00-3:00pm: https://unm.zoom.us/j/263992587
Wednesdays, 10:00am-12:00am: https://unm.zoom.us/j/410709403

Student Lab Instructors

Aaron Bird	**Abby Pribisova**
aaronlobo@unm.edu	apribis@unm.edu
Office Hours: Fri 11-11:50am	Office Hours: Tue 11am-12:00pm
https://zoom.us/j/324630709	https://unm.zoom.us/j/93021607967
Lab Section 17, Mon 11-11:50am	Lab Section 019, Wed 11-11:50am
https://zoom.us/j/620447324	https://unm.zoom.us/j/94292316356
Lab Section 18, Fri 12-12:50pm	
https://zoom.us/j/332900937	
Noah Garcia	**Monica Hinga**
ngarcia715@unm.edu	mgwilson@unm.edu
Office Hours: Mon 2:00-3:00pm	Office Hours: Fri 2-3:00pm
https://unm.zoom.us/j/305805891	https://unm.zoom.us/j/467483175
Lab Section 015: Mon 12-12:50pm	Lab Section 016, Wed 12-12:50pm
https://unm.zoom.us/j/676801323	https://unm.zoom.us/j/100905099

Student Instructor Office: Farris Engineering Center 3370

3   Format

This is a three credit hour course consisting of three 50 minute lectures per week to be held on Monday, Wednesday, and Friday at 1:00pm, and one 50 minute laboratory section. Lab sections and lectures will be held over Zoom and through online recordings.

The laboratory sections are at various times during the week. You can attend a different section than the one you enrolled in only with permission of the lab instructor whose section you wish to attend and the instructor whose section you are officially enrolled in. ~~There will be graded assignments in the labs so not attending the section we expect will likely result in loss of a graded assignment.~~ Several of the labs are also full so trying to switch sections without discussion with the lab instructors could mean there is no room for you to move sections.

4   Resources

4.1   Recorded Lectures

Lectures are posted under this YouTube playlist.

4.2 Mailing List

Mailing List:
Subscribe to cs151@cs.unm.edu at https://snape.cs.unm.edu/listinfo/cs151.

The email list serves several purposes. 1) I will make announcements about the class on this list. There is no guarantee that I will also make those announcements in class. I may also make announcements in class that are not repeated on the email list. You are responsible for both. 2) The email list allows class-wide discussion. Feel free to post questions about the material presented in class, the code you are writing for your assignments, and logistic questions related to the class.

Many spam filters will redirect email from mailing lists to a spam folder. You are responsible for making sure you sign up for the mailing list and that you are receiving email from it.

4.3 Reading and Software

We are using two online resources for assignments and reading.

4.3.1 Python 3

The Python 3 portion of the course will be managed using ZyBooks. The bookstore has ZyBook licenses for sale or you can go directly to ZyBooks.com. Make sure you get the lab content as well.

1. Sign in or create an account at https://learn.zybooks.com
2. Enter zyBook code: UNMCS151LFrickeSpring2020
3. Subscribe

To access the online resources use this link:
https://learn.zybooks.com/zybook/UNMCS151LFrickeSpring2020

4.3.2 Monica and Noah's PyCharm Install Guide

Lab instructors Noah and Monica have put together a guide on how to install PyCharm. PyCharm is an "IDE": Integrated Devalopment Environment for Python. It has lot's of bells and whistles that you might find interesting. You do not **need** to use PyCharm for this course but if you plan to program more in the future using Python you might find it useful.

4.3.3 MATLAB Grader

The MATLAB assignments will be managed through MATLAB Grader. I will announce MATLAB readings during the course.

https://grader.mathworks.com/courses/11316-cs151-computer-science-fundamentals

4.3.4 MATLAB Academy

MATLAB has tutorials to get you started. I will occasionally use these tutorials as reading when assigning your MATLAB homework.

4.4 Abby's QuickBytes

Lab Instructor Abby Pribisova has created useful cs151 review videos.

5 Schedule

This is the planned schedule, any changes will be recorded here.

For UNM semester dates and deadlines are here:
http://registrar.unm.edu/semester-deadline-dates/spring-2020.html

Week 1 (Jan 22 - 26)

- Introduction
- Brief Introduction to Computers
- Thought you could only count to 10 on your fingers? You can actually count to 1023. Watch this.

Week 2 (Jan 27 - Feb 2)

- Starting Python
- Variables, Expressions, and Types
- Flow Control

Week 3 (Feb 3 - 9)

- Functions

Quiz 2 Solution

Feb 7 - Last day to DROP without "W" grade and receive a 100% tuition refund on LoboWeb

Week 4 (Feb 10 - 16)

- Modules
- Strings
- Python Lists and Dictionaries
- Graphics
- Exam 1 Review
- Quiz 3 Solution

Week 5 (Feb 17 - 23)

- Exam 1 (Grade Distribution)
- Exam 1 Solutions
- Week 5 Cumulative Grade Distribution
- Introduction to MATLAB
- Variables, Types, Branching, Iteration, and Functions in MATLAB
- Fibonacci and Matrix Multiplication

Week 6 (Feb 24 - March 1st)

- Python Objects and Classes
- MATLAB Objects and Classes

Week 7 (Mar 2 - 8)

- Python Class Inheritance
- Python File I/O

Week 8 (Mar 9 - 14)

- Plotting in Python
- Plotting in MATLAB
- ~~Exam 2 Review~~

Spring Break (Mar 15 - 22)

Week 9 (Mar 23 - 29)

- ~~Exam 2~~
- Course Changes
- Wednesday: Discussion

Week 10 (Mar 30 - April 5)

- Functional Programming

Week 11 (April 6 - 12)

- Introduction to Data structures and Algorithms
- Sorting Algorithms

Week 12 (April 13 - 19)

- Sorting Algorithms

April 17 - Last day to DROP without Dean's Permission on LoboWEB

Week 13 (April 20 - 26)

- Fingal's Cave Adventure
- Grade Distribution

Week 14 (April 27 - May 3)

- Fingal's Cave Adventure
- Map Graphic

Week 15 (May 4 - 10)

- Linked List

May 8 - Last day to DROP with Dean's Permission with form.

Final Exam Week (May 11 - 16)

Friday, May 15th, 12:30-2:30pm - Final Exam.

Saturday, May 16, 9:00-11:00am - Make up Exam.

Sunday, May 17th, 2:30pm - Upload of Final Grades Expected by UNM.

6 Assignments and Grading

I use a 10 point fractional grading scale:

A+	A	A-	B+	B	B-	C+	I
98-100	93-97	90-92	87-89	83-86	80-82	77-79	Incomplete
C	C-	D+	D	D-	F		W
73-76	70-72	67-69	63-66	60-62	< 60		Withdrew

A+, A, and A- indicate excellent performance.
B+, B, and B- indicate good performance.
C+, C, and C- indicate satisfactory performance.
D+, D, and D- indicate less than satisfactory performance.
F indicates unsatisfactory performance.
W indicates withdrawal from the course.

The course grade is comprised of the following:

Weekly Reading: 30%
Weekly Lab Quiz: 5%
Weekly Homework: 55%

Weekly Reading: 10%
Weekly Lab Quiz: 20%
Weekly Homework: 20%
Exam 1: 10%
Exam 2: 15%
Exam 3: 25%

6.1 Weekly Reading

Weekly Readings will be assigned through ZyBooks on Python 3. MATLAB readings will be assigned from a variety of sources.

6.2 Exams

We will have 1 exam 3 in class exams. Each exam will be preceded by a review session in lecture and a practice exam will be made available. Each exam will necessarily test all the material covered until the time of the preceding review.

The exam is closed book, closed note, and closed device. No collaboration is allowed during the exam.

The questions will be designed to test whether students have completed and understood the weekly homework assignments and readings.

Format: short answer.

6.3 Homeworks

Homework assignments will be assigned through ZyBooks Python 3 and MATLAB Grader. Those systems enforce due dates and will not accept submissions after the due date.

Fingal's Cave Game Specification

Fingal's Cave Game Solution

6.4 Lab Assignments

Each week in your lab section you will be given a lab assignment to complete.

6.5 Lab Quizzes

Lab quizzes have been cancelled for the rest of the semester.

At the beginning of each lab your lab instructor will give a quiz on the previous lab's material. The lowest three quiz grades will be dropped. All quiz grades are weighted equally.

6.5.1 Exam Dates

Exam's 2 and 3 have been cancelled.

- February 17th, 1-1:50pm
- ~~March 23rd, 1-1:50pm~~
- ~~May 15th, 12:30-2:30pm~~

6.5.2 Exam and Quiz Make-ups

UNM Policies and Absences: http://pathfinder.unm.edu/campus-policies/class-absences-and-student-attendance.html

You may take the makeup exam scheduled on May 16th at 9:00am **only** with an **official note from the Dean of Students Office** and my consent. I or the Dean of Students may require verification of the reason for absence such as doctor's note, hospital billing, military orders, death notices, etc. If you are unable to obtain a note from the Dean of Students before the make up exam, you may take the make up but I will wait until you provide the note to enter your make up grade. Failure to provide a note from the Dean of Studetns will result in a zero on the make up exam.

There will be a single make up exam on Saturday, May 16th, at 9:00am. The make-up exam will be comprehensive and at least as difficult as the regularly scheduled exams. If you miss an exam, or multiple exams, the make up exam replaces those exam grades.

If you are unable to attend the make up exam you will receive a grade of "incomplete" until you are able to take a make up exam. A make up exam will be scheduled after the period of absence approved by the Dean of Students.

If these procedures are not followed, missing exam grades will be entered as zeros and the course grade calculated accordingly.

There will be no make-up lab quizzes, however the two lowest quiz grades will be dropped.

No additional or extra-credit work will be assigned to compensate for low grades on regularly scheduled assignments, exams, and quizzes.

6.5.3 Late Homeworks

Late homework will not be accepted unless accompanied by an absence note provided by the Dean of Students Office for the period beginning on or before the *day the assignment was due* until the *day before* the assignment is actually submitted.

7   Attendance

- Please see the UNM policy on class attendance: Class Attendance Policy
- Class attendance will not be recorded.

8   Cheating

8.1   UNM Policy

- See the UNM policy on academic dishonesty: Academic Dishonesty

8.2   Why it's a bad idea

Cheating is harmful to you, the University, and your fellow students:

- The university warrants that receipt of grades and a degree accurately reflects the knowledge and skills of the recipient. Cheating undermines the value of the degrees and grades awarded by the University.
- Cheating makes assignments and exams look easier than they really are. This encourages instructors to make assignments and exams harder than they would otherwise.
- The desire to cheat indicates that there is an issue with developing the desired skills that needs to be resolved. Please approach lab instructors or the professor to discuss problems with the material and how to honestly do better in the class.
- Cheating indicates that the material is not being sufficiently mastered, this will likely result in difficulties when you take classes in the future that require this course.
- Trading your integrity for a better grade is something that will stay with you for the rest of your life, whether or not you are discovered.
- If you are caught cheating you will receive a failing grade for the course. However, the University may take further action including dismissal from the University.

8.3   What I do allow

You may use any resources to complete the homeworks and lab assignments including working with other students and taking information from the internet. The homeworks and labs are designed to allow you to develop and practice your understanding of the material.

8.4   What I don't allow

Exams and lab quizzes will be used to test whether you have developed an individual understanding of computer science fundamentals and the syntax of Python 3 and MATLAB covered in the course. No collaboration or exam aids such as notes or devices may be used during the exam. Failure to follow this

policy will result in an F on the exam or quiz, possibly the course, and may result in disciplinary action by the University.

9 UNM Resources for Students

9.1 Student Health and Counselling (SHAC)

"SHAC provides quality health and counseling services to all UNM students to foster student success."

https://shac.unm.edu/

505.277.3136 (24-hr number)

9.2 Center for Academic Program Support

https://caps.unm.edu/index.php

"CAPS is the University of New Mexico's learning center. We are a free service that provides academic support for undergraduate students at UNM through peer-tutoring. Our tutors are UNM students who are trained to create comfortable and welcoming spaces for students to learn and thrive in. We are passionate about helping students achieve individual academic success at UNM through peer tutoring and interactions."

9.3 Accessibility Resource Center

https://arc.unm.edu/

In accordance with University Policy 2310 and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructor's attention, as I am not legally permitted to inquire. Students who may require assistance in emergency evacuations should contact the instructor as to the most appropriate procedures to follow. Contact Accessibility Resource Center at 277-3506 for additional information.

If you need an accommodation based on how course requirement interact with the impact of a disability, you should contact me to arrange an appointment as soon as possible. At the appointment we can discuss the course format and requirements, anticipate the need for adjustments and explore potential accommodations. I rely on the Disability Services Office for assistance in developing strategies and verifying accommodation needs. If you have not previously contacted them I encourage you to do so.

9.4   Equal Educational Opportunities

Our classroom and our university should always be spaces of mutual respect, kindness, and support, without fear of discrimination, harassment, or violence. Should you ever need assistance or have concerns about incidents that violate this principle, please let me know and/or access the resources available to you on campus, especially the LoboRESPECT Advocacy Center and the support services listed on its website (http://loborespect.unm.edu/).

Several Federal civil rights laws prohibit discrimination in programs or activities that receive Federal funds from the Department of Education. These laws prohibit discrimination on the basis of race, colour, and national origin (Title VI of the Civil Rights Act of 1964), sex (Title IX of the Education Amendments of 1972), age (Age Discrimination Act of 1975) and disability (The Americans with Disabilities Act of 2008). The Office for Civil Rights enforces these rights: https://www2.ed.gov/about/offices/list/ocr/know.html.

Please note that because I and the student lab instructors are considered "responsible employees" by the Department of Education, we are required to report any disclosure of gender discrimination (including sexual harassment, sexual misconduct, and sexual violence) to the university's Title IX coordinator. For more information on the campus policy regarding sexual misconduct, please see: UNM Policy.

UNM's Title IX Coordinator, Angela Catena, can be reached at acatena@unm.edu.