CSCI 127: Joy and Beauty of Data

Lecture 1: Welcome, Syllabus, and Logistics

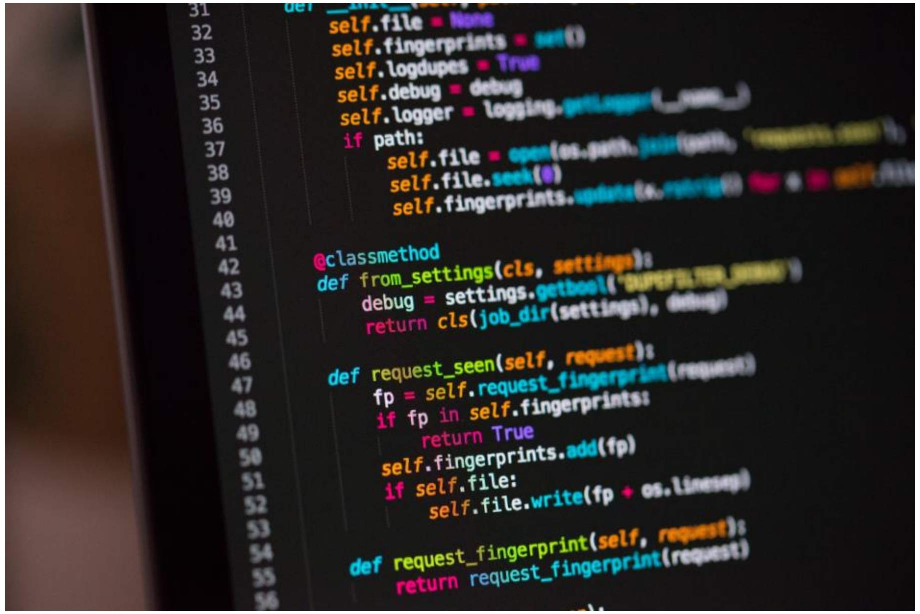
Reese Pearsall

Summer 2021

https://reesep.github.io/classes/summer2021/127/main.html

What is CSCI 127 ?

- This is a computer coding and problem-solving class



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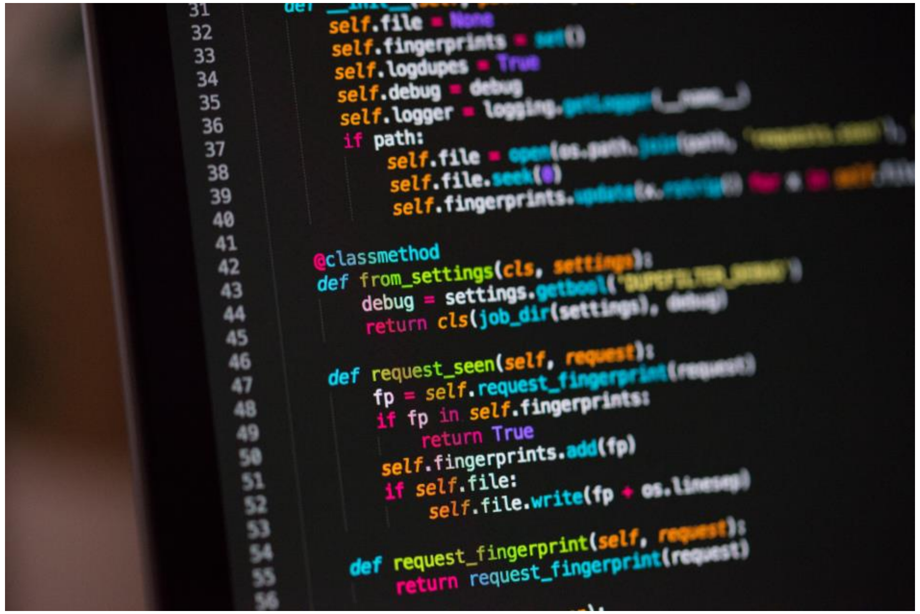

```
    def __init__(self, path=None, debug=False):
        self.file = None
        self.fingerprints = set()
        self.logdupes = True
        self.debug = debug
        self.logger = logging.getLogger(__name__)
        if path:
            self.file = open(os.path.join(path, 'requests.seen'), 'a+')
            self.file.seek(0)
            self.fingerprints.update(x.rstrip() for x in self.file)

    @classmethod
    def from_settings(cls, settings):
        debug = settings.getbool('DUPEFILTER_DEBUG')
        return cls(job_dir(settings), debug)

    def request_seen(self, request):
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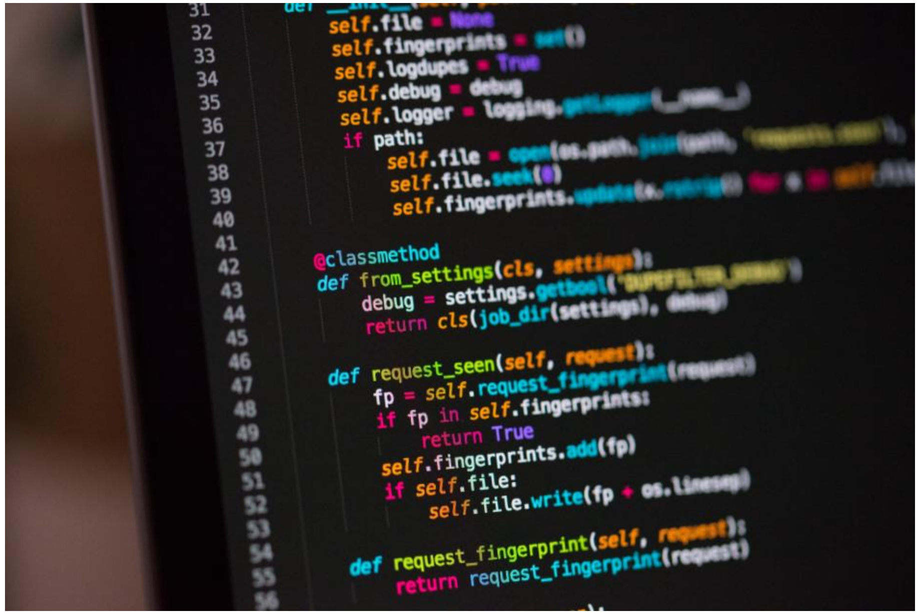

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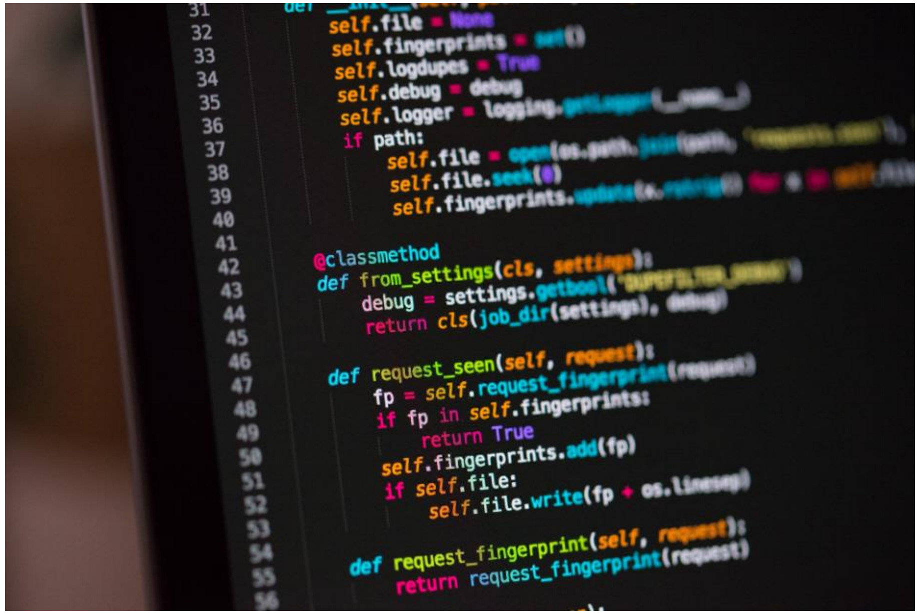
- This class is targeted for students new to computer science



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Reese Pearsall (Pierce-all)

Current grad student in the CS program. Pursuing degree in CS/Cybersecurity

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I've worked in several jobs as a software Engineer

- Quality Assurance Engineer @ TechLink
- Software Engineer @ US Air Force
- Currently Cybersecurity Software Engineer @ Hoplite Industries

About me (Personally)

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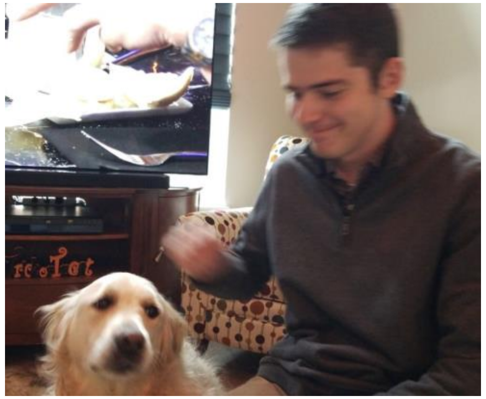
Home: Billings, Montana



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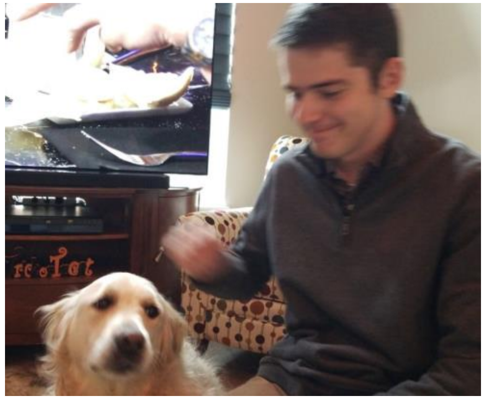

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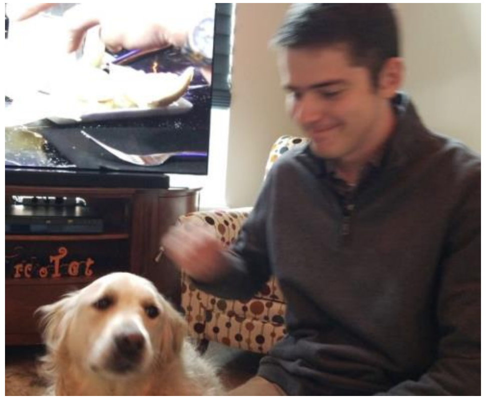

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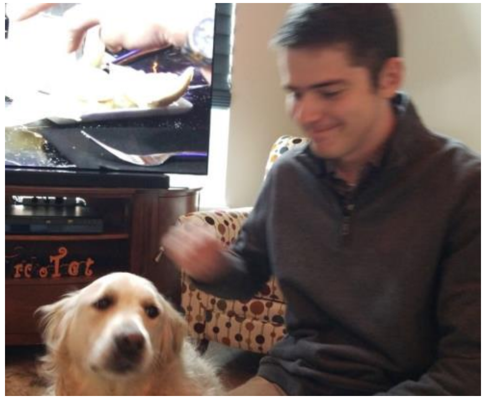
Outside of Academia…
Video games, dogs, *The Bachelor*, Tik Tok addiction, memes, and movies



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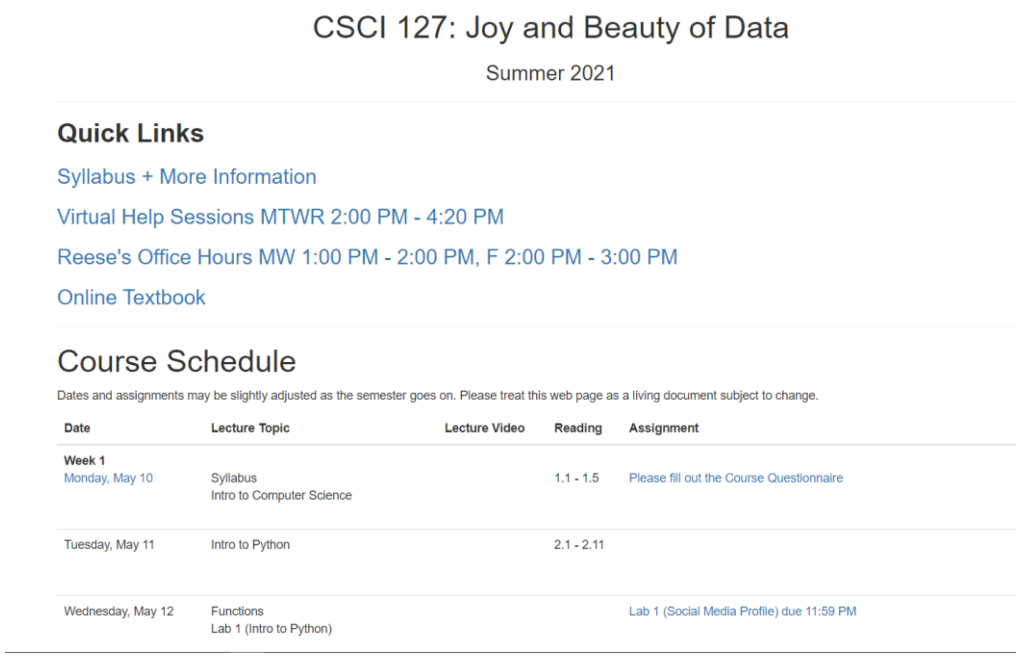
Online Course Logistics

Fill out the course questionnaire !!!

The course website is VERY IMPORTANT
https://reesep.github.io/classes/summer2021/127/main.html

All the lecture recordings, slides, lecture examples, and content will be posted there

D2L will be used for submitting assignments and posting grades (still figuring this out…)



CSCI 127: Joy and Beauty of Data

Summer 2021

Quick Links

Syllabus + More Information

Virtual Help Sessions MTWR 2:00 PM - 4:20 PM

Reese's Office Hours MW 1:00 PM - 2:00 PM, F 2:00 PM - 3:00 PM

Online Textbook

Course Schedule

Dates and assignments may be slightly adjusted as the semester goes on. Please treat this web page as a living document subject to change.

Date	Lecture Topic	Lecture Video	Reading	Assignment
Week 1 Monday, May 10	Syllabus Intro to Computer Science		1.1 - 1.5	Please fill out the Course Questionnaire
Tuesday, May 11	Intro to Python		2.1 - 2.11	
Wednesday, May 12	Functions Lab 1 (Intro to Python)			Lab 1 (Social Media Profile) due 11:59 PM

Online Course Logistics (Syllabus)

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Lecture: Lectures and delivery of lectures will be done asynchronously, which means we do not “meet” for lectures. There is no live zoom lecture. Lectures will be posted on the Course Website before class time everyday. It is your responsibility to watch the lectures on your own time. There will be about 2-4 lecture videos posted for each day, and I will try to limit each lecture to 15-30 min each.

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Lab: Labs will be posted ahead of time and it is your responsibility to work on them and get them submitted on time. There will be optional virtual help sessions 2:00 PM - 4:20 PM on the days when labs are due (via Webex). Attendance is not required. The purpose of these sessions is to provide you with support in case you have any questions or run into problems on the lab assignments. There will be roughly two labs each week (see course schedule for lab dates and times). On the days with 2 hours of lecture, there will not be a lab.

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Daily Help Sessions: There will be virtual help sessions 2:00 PM - 4:20 PM Monday, Tuesday, Wednesday, Thursday, via Webex. These optional meetings are a good way to get help and ask questions you may have. This is a fixed time where Reese will always be available to provide help.

My contact information

Best way to contact me is by email

reesepearsall@montana.edu

You can usually count on a response within 5 hours

*I’d prefer you to call me **Reese**. Mr. Pearsall is also acceptable (but sounds weird to me)

Office Hours
MW: 1:00 PM – 2:00 PM, F 2:00 PM – 3:00 PM   AND BY APPOINTMENT
https://montana.webex.com/meet/b37k331

Virtual Help Sessions
Monday-Thursday 2:00 PM - 4:20 PM
https://montana.webex.com/meet/b37k331

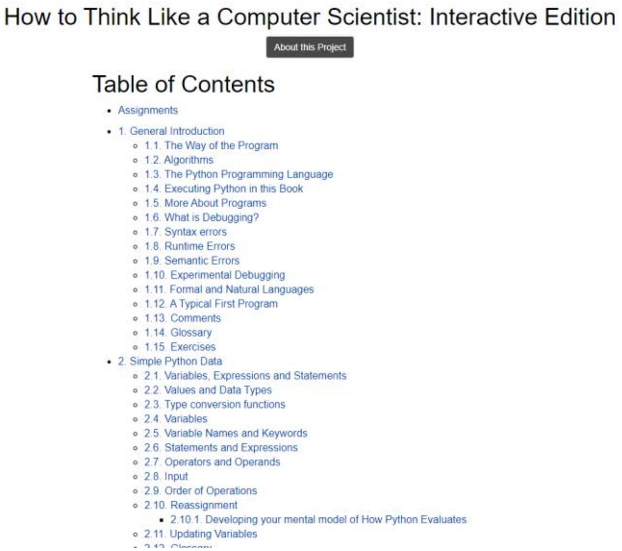
}

Get help, ask questions, debug programs, tell me how things are going, computer science questions, etc

Textbook and Resources

The online (interactive) textbook is **FREE.**

Python 3.9 and IDLE editor are required: download site.
(I will go over installation instructions tomorrow)



How to Think Like a Computer Scientist: Interactive Edition

Table of Contents

- Assignments
- 1. General Introduction
  - 1.1. The Way of the Program
  - 1.2. Algorithms
  - 1.3. The Python Programming Language
  - 1.4. Executing Python in this Book
  - 1.5. More About Programs
  - 1.6. What is Debugging?
  - 1.7. Syntax errors
  - 1.8. Runtime Errors
  - 1.9. Semantic Errors
  - 1.10. Experimental Debugging
  - 1.11. Formal and Natural Languages
  - 1.12. A Typical First Program
  - 1.13. Comments
  - 1.14. Glossary
  - 1.15. Exercises
- 2. Simple Python Data
  - 2.1. Variables, Expressions and Statements
  - 2.2. Values and Data Types
  - 2.3. Type conversion functions
  - 2.4. Variables
  - 2.5. Variable Names and Keywords
  - 2.6. Statements and Expressions
  - 2.7. Operators and Operands
  - 2.8. Input
  - 2.9. Order of Operations
  - 2.10. Reassignment
    - 2.10.1. Developing your mental model of How Python Evaluates
  - 2.11. Updating Variables
  - 2.12. Glossary

Catalog Description

- Credits: 4
- Corequisite: M 151Q Pre-Calculus
- Recommended Prerequisite: Prior programming experience OR CSCI 107 Joy and Beauty of Computing
- Description: Provides a gentle introduction to the exciting world of big data and data science. Students expand their ability to solve problems with Python by learning to deploy lists, files, dictionaries and object-oriented programming. Data science libraries are introduced that enable data to be manipulated and displayed.

While prior programming experience or 107 is recommended as a prerequisite, you can still easily succeed in this course if you have never programmed before. Just be ready to put in a little more effort.

Course Outcomes

By the end of this course, students should be able to:

- Utilize lists, files, dictionaries and arrays to solve problems in Python.
- Utilize fundamental object-oriented principles such as classes, objects, methods and inheritance to solve problems in Python.
- Utilize data science libraries to solve data science problems in Python.
- Understand the broad area of data science and its relevance.

++ My goals for you ☺

Train you to become a better problem solver by applying Python concepts and intuition to solve a wide range of problems

Give you the coding foundation you need for future CS classes

Grading (Important)

Exams (30%)

- Two exams (midterm and final) both worth 15%
- Exams consist of multiple choice and short programming problems
- Posted online. You will be given ~16 hours to complete and submit to D2L
- You can use your computer, the textbook, and any notes on the exam
- You can **not** use search engines to access external resources
- I will provide sample test questions and practice exams along the way

Grading (Important)

Exams (30%)
Labs (25%)

- ~2 lab assignments each week
- Programming assignments
- You are given "class time" to work on it
- Should only take 1-2 hours to complete a lab
- Due 11:59 P.M. (submitted to D2L)
- I will try to post them ahead of time
- I will drop your lowest lab grade

Grading (Important)

Exams (30%)
Labs (25%)
Programs (30%)

- Programming assignments that are done outside of class
- There is a total of 4 programs (weighted evenly)
- Longer than labs; should take 2-4 hours to complete
- Due 11:59 PM (submitted through D2L)
- You will be given ~1 week to work on program

Grading (Important)

Exams (30%)
Labs (25%)
Programs (30%)
Watching online lectures (10%)

- I can see through Tech Smith Relay who watched the lecture recording (and how much you watched)
- At the end of the semester, I will go through all the lectures and verify who watched each lecture
- Watch all the lectures = easy 10%

Grading (Important)

Exams (30%)
Labs (25%)
Programs (30%)
Watching online lectures (10%)
1 on 1 meeting w/ Reese (5%)

- You will schedule a time to meet with me outside of office hours
- Mostly a check-in, make sure you are doing OK
- I’ll release more details as we get into week 2

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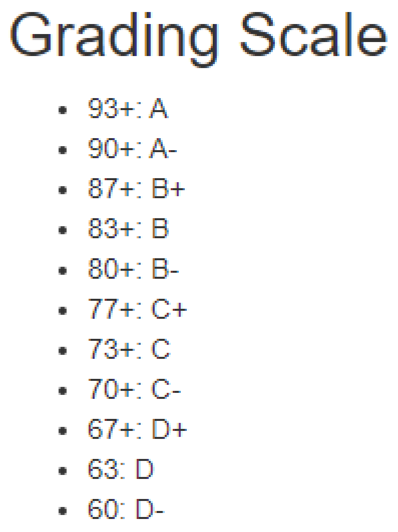


Grading Scale

- 93+: A
- 90+: A-
- 87+: B+
- 83+: B
- 80+: B-
- 77+: C+
- 73+: C
- 70+: C-
- 67+: D+
- 63: D
- 60: D-

Extra credit opportunities? Probably

I wont curve grades (unless grades are much lower than I anticipate)

If you are within one 1% of the next letter grade, I will bump you up

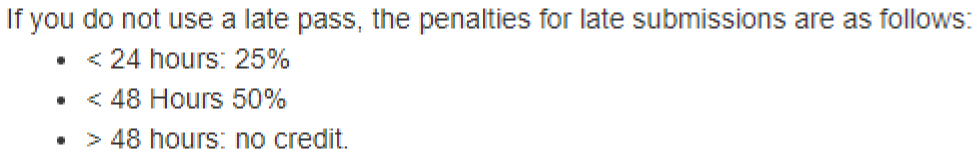
Late Assignment Policy (Important)

You are given 2 virtual late passes

- Late passes allow you to submit an assignment up to 48 hours late with no penalty

<u>Rules:</u>

- If you decide to use a late pass, you MUST indicate in your submission that you are electing to use one
- Cannot change this decision later
- Cannot use late passes on exams
- Cannot use more than one late pass on an assignment



If you do not use a late pass, the penalties for late submissions are as follows:

- < 24 hours: 25%
- < 48 Hours 50%
- > 48 hours: no credit.

Getting Help and Succeeding

Getting Help and Succeeding

Don’t:

- Slack off
- Mentally check out halfway through the class
- Wait to do assignments until the last night
- Dedicate your entire summer to this class
- Cheat

This class is NOT nice to people that don’t ask for help if they need it

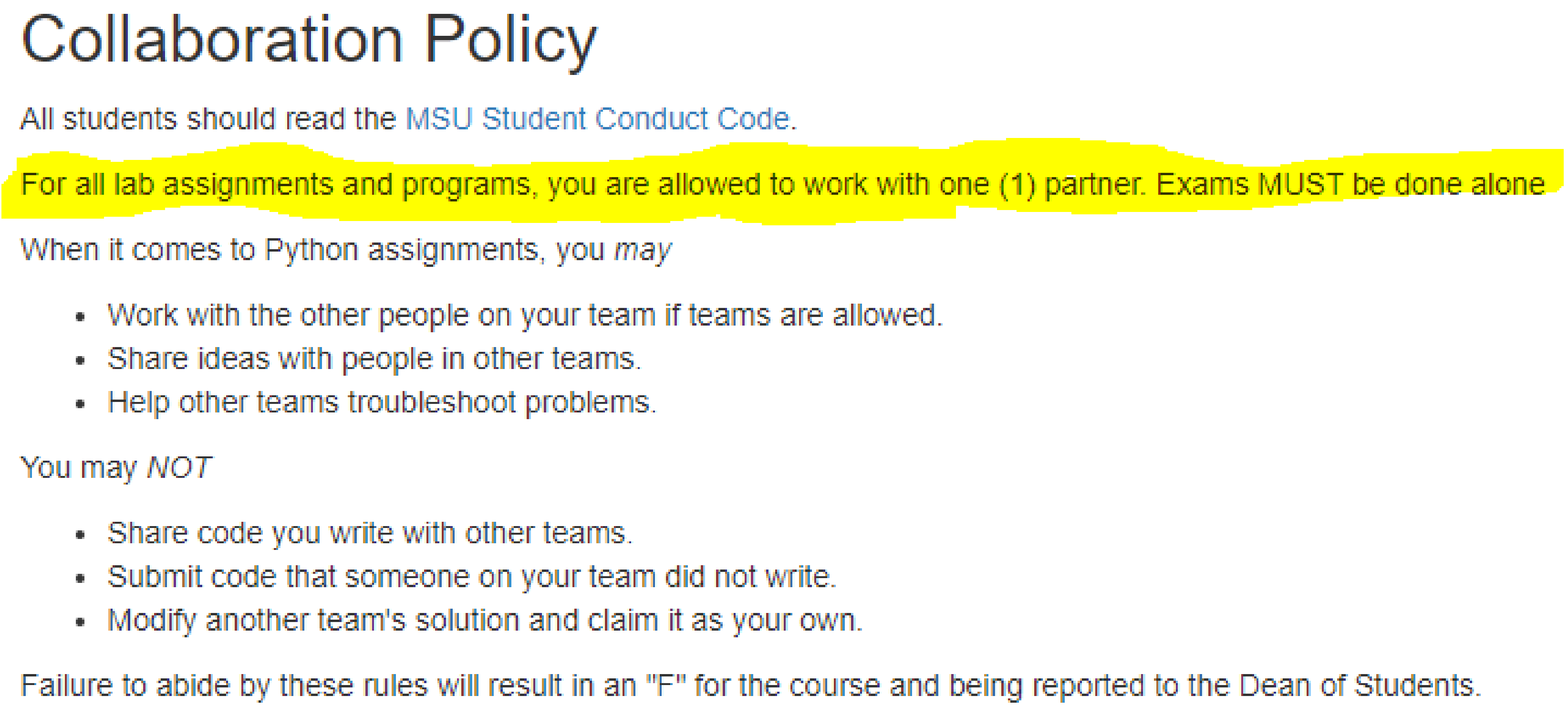
Getting Help and Succeeding

Do:

- Ask for help if you are struggling
- Start on assignments early
- Keep up with lectures
- Have fun
- Be honest

I am not trying to scare you, but rather warn you about issues I’ve seen in the past ☺

Collaboration Policy



Collaboration Policy

All students should read the MSU Student Conduct Code.

For all lab assignments and programs, you are allowed to work with one (1) partner. Exams MUST be done alone

When it comes to Python assignments, you *may*

- Work with the other people on your team if teams are allowed.
- Share ideas with people in other teams.
- Help other teams troubleshoot problems.

You may *NOT*

- Share code you write with other teams.
- Submit code that someone on your team did not write.
- Modify another team's solution and claim it as your own.

Failure to abide by these rules will result in an "F" for the course and being reported to the Dean of Students.

Plagiarism (Important)

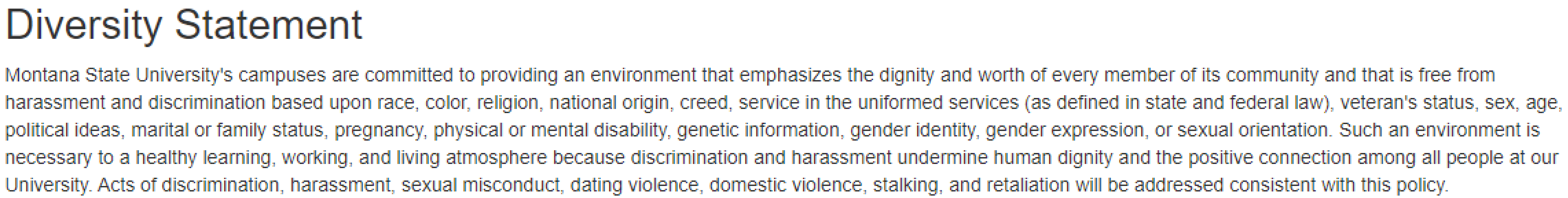
You may not copy or modify solutions that are not your own (from the internet, classmate, …) for any graded material

Copying small snippets of code is acceptable, although you should include a reference in your submission

I know how to use Google and I have a Chegg membership, so if you find something, I will too!

It’s really easy for me to tell if you copied and pasted an entire solution from the Internet, so PLEASE DONT

Diversity Statement



Diversity Statement

Montana State University's campuses are committed to providing an environment that emphasizes the dignity and worth of every member of its community and that is free from harassment and discrimination based upon race, color, religion, national origin, creed, service in the uniformed services (as defined in state and federal law), veteran's status, sex, age, political ideas, marital or family status, pregnancy, physical or mental disability, genetic information, gender identity, gender expression, or sexual orientation. Such an environment is necessary to a healthy learning, working, and living atmosphere because discrimination and harassment undermine human dignity and the positive connection among all people at our University. Acts of discrimination, harassment, sexual misconduct, dating violence, domestic violence, stalking, and retaliation will be addressed consistent with this policy.

tl;dr I want this class to be a great experience for EVERYONE

The End

Fill out the course questionnaire !!!

I am super excited for this class, and I hope you are too!

Next time: Intro to computer science, computers, and software