Python Bootcamp for Incoming Graduate Students

Nathan Yoshino, 2021-2022 PFTF Fellow
PhD Candidate in Chemistry

def motivation(problem):

Many STEM graduate programs expect a working coding knowledge for courses and research despite many undergraduate curriculums including no coding content.

The causes many unprepared graduate students to struggle in their first quarter as they must juggle teaching themselves to code while tackling challenging new material.

return A coding bootcamp held at the beginning of the school year

class Bootcamp:

def __init__(self, days=3, organizers=3, volunteers=9, students=62):

self.Description = Three day workshop consisting of guided lecture, project work and group discussion

def goals():

return [A working knowledge of the fundamentals of Python and coding,

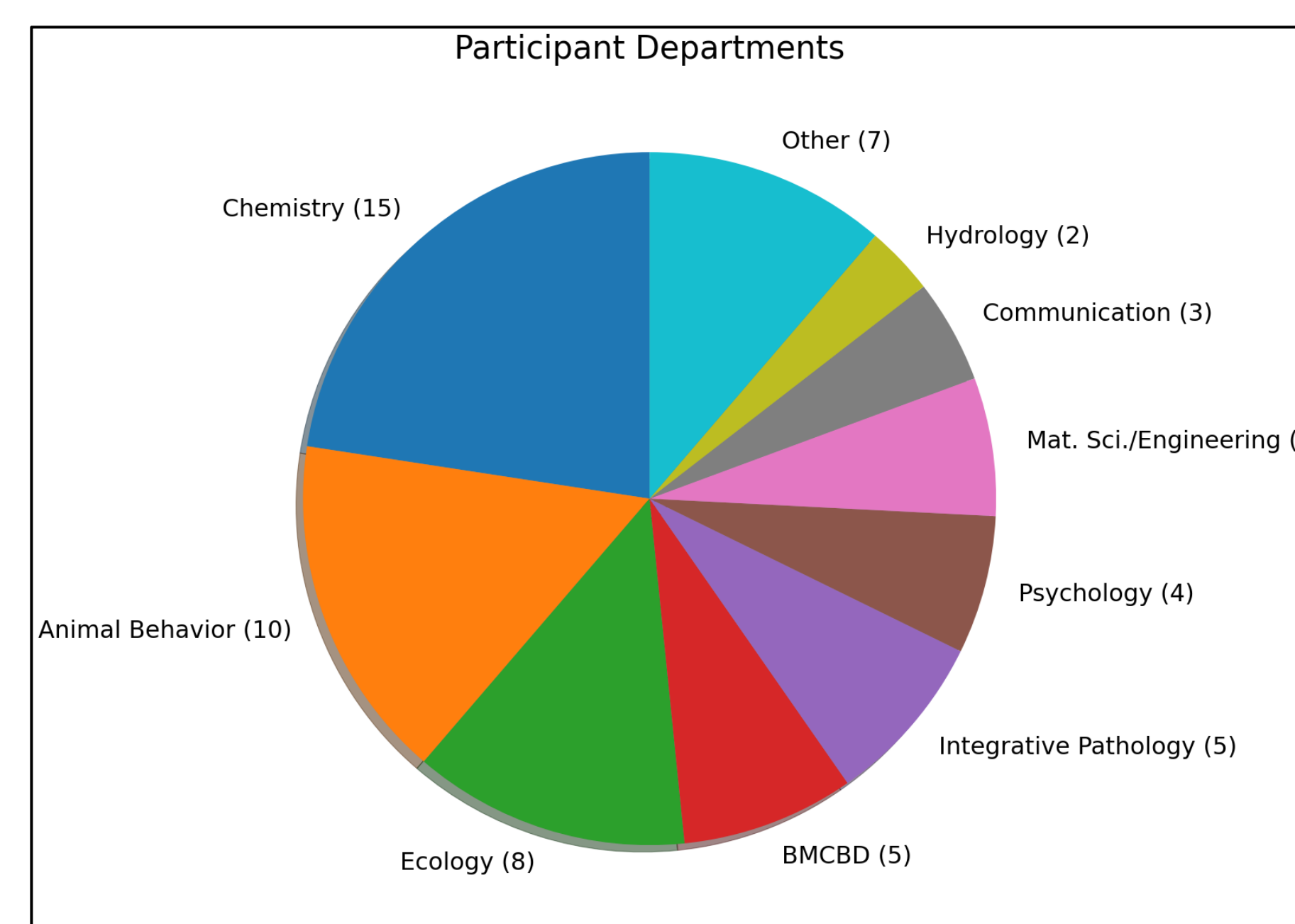Develop the ability to teach themselves and find new resources,

Emphasis on data processing]

def content():

Data importing and processing
Plotting and visual representation of data
Real research applications and problem solving
Finding new libraries and resources
Documentation
Debugging and errors

return Project: statistically analyze factors that contribute to countries success at the Olympics

---

```
import matplotlib.pyplot as plt
plt.plot(particpant_departments)
```


Participant Departments

62 attendees across 15 disciplines.

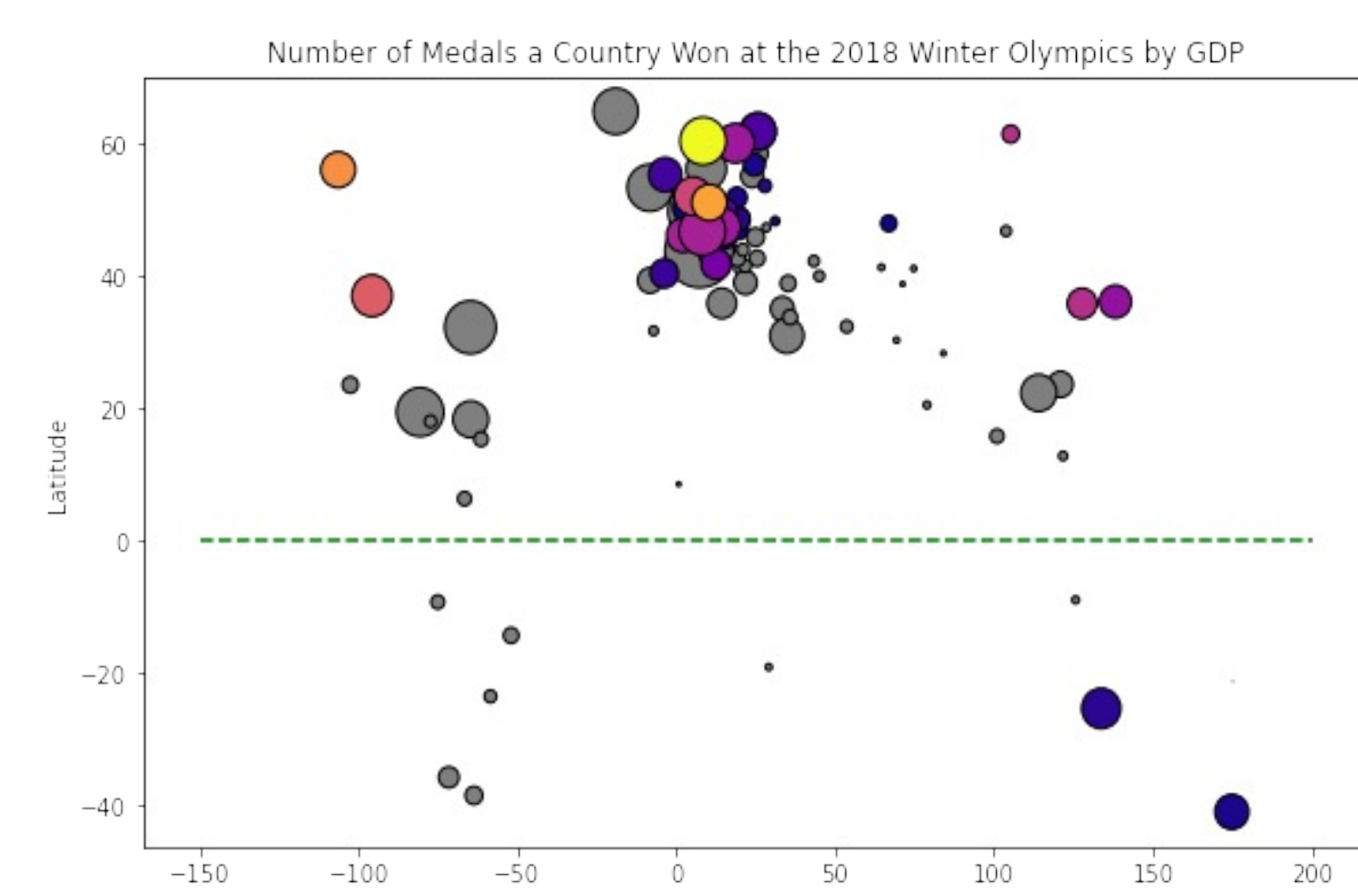# 51 students attended at least two days.

```
import cv2
```


9 volunteers facilitated student questions and discussion.

Guided lectures lead by 3 speakers.

Maggie Berrens   Parker Bremer

Number of Medals a Country Won at the 2018 Winter Olympics by GDP

Students learned to import, process, and plot raw data.

These skills were put into practice with a short project they worked on in group discussion.
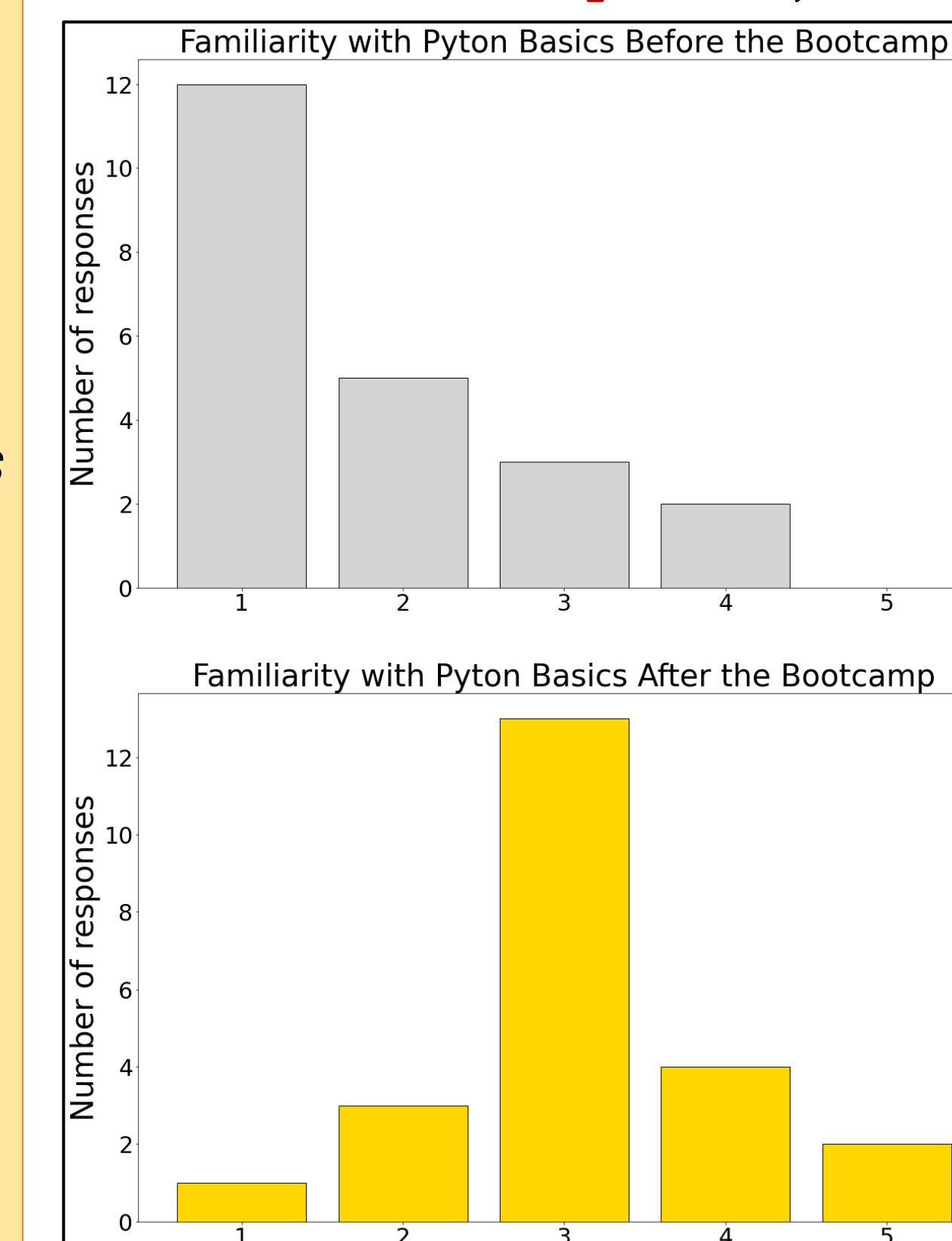
---

def feedback():

plt.plot(On a scale from with 1 being not at all and 5 being very, how familiar are you with the basics of Python?)

Of the attendees, 22 responded to a feedback survey.

Before the workshop, 17 respondents rated their familiarity with Python basics as < 3 on a scale from 1-5.

After the workshop, 18 respondents rated their familiarity as > 3.

20 respondents reported they felt more confident to find new recourses to teach themselves.

print(responses)

"Thank you so much! I appreciate how available the resources are. I learned a lot."
"I do feel better equipped to seek out new coding resources"
"This was helpful. Maybe go a little bit slower in the future since I got lost a bit during during the second day."

def future_work(feedback):

Next year the Bootcamp will sponsored by the UC Davis DataLab and provide more space, volunteers, resources, and input onn content.
Other graduate students are prepared to take the lead for the bootcamp next year.
Given the feedback, the bootcamp may be expanded or go slower to cover the content more in-depth.

UCDAVIS DataLab
Data Science and Informatics

if __name__ == "__acknowledgements__":

Maggie Berrens and Parker Bremer for their help organizing
Teresa Dillinger and Dr. Ellen Hartigan O'Connor for the opportunity to participate in PFTF
The UC Davis DataLab staff including: Nick Ulle, Pamela Reynolds and Andrew Fox
My PhD advisor, Dr. Lee-Ping Wang for his support
Previous PFTF Fellow Dr. Sommer Johansen for her prior work on this project
My fellow PFTF cohort for all of the insights and laughs