

Welcome to **BILD62**

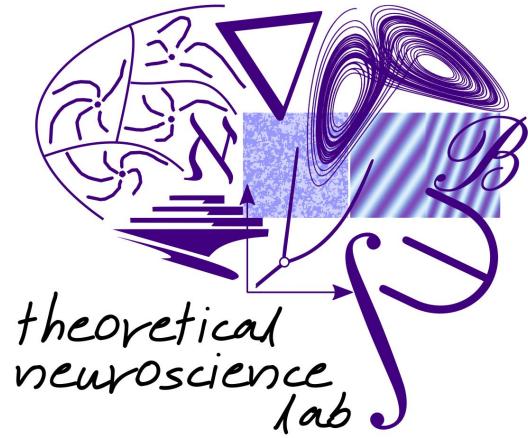
Johnatan (Yonatan) Aljadeff

Objectives for this afternoon

- Introduce the teaching staff, students, and class
 - Motivate learning how to code as a biology student
 - Discuss course logistics, expectations, & tools
-

My academic trajectory

- BSc (Physics), Tel-Aviv University
- PhD (Physics), UCSD
- Postdoc,
 - University of Chicago
 - Imperial College London



Since 2020,

- Assistant Professor of Neurobiology
- My lab uses theoretical and computational techniques to study problems in neuroscience.
- Focus on learning, synaptic plasticity, navigation

Introduction to our Instructional Assistants

Blanca Martin-Burgos
Neurosciences PhD student in
Bradley Voytek's lab
bmartinb@ucsd.edu

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4th year Biology BS student

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Discussion Sections (via zoom):
Tue, 5-5:50pm
Wed, 1-1:50pm
Thu, 11-11:50am
Fri, 2-2:50pm

All sections are full. Please come to section you are registered to.

Let's get to know each other a bit

With the person next to you, share:

- Your name
- Major
- Why you're taking this course

Objectives for this afternoon

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 - **Motivate learning how to code as a biology student**
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What does coding have to
do with *biology*?

Why *you*, right now?

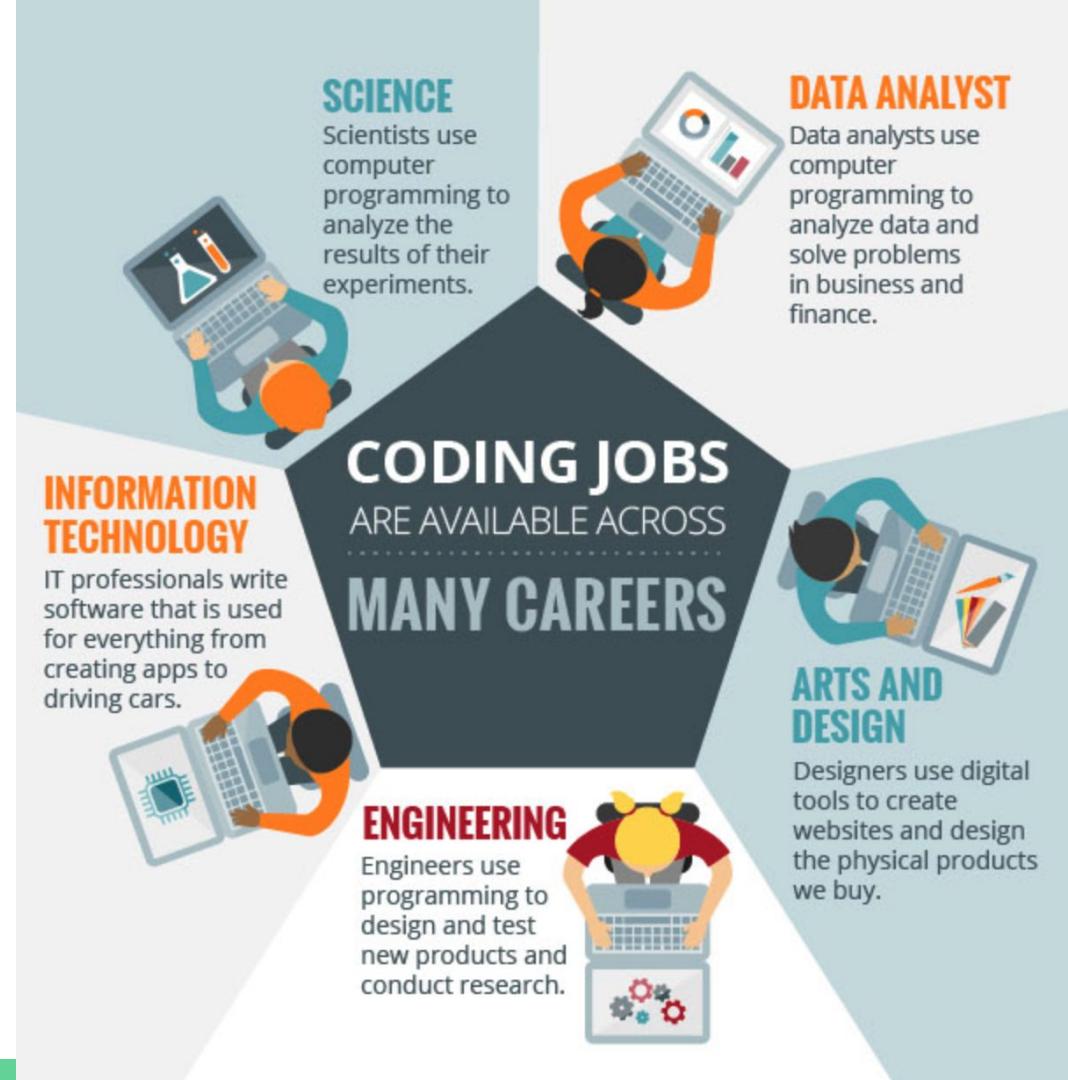


Why should I learn how to code?

- Coding is useful for:
 - Data acquisition (controlling hardware, image acquisition, etc)
 - Data analysis & visualization
 - Computational modeling
- Beyond research, there are more and more jobs for software engineers, and they pay well

(see report by Burning Glass:

<https://www.burning-glass.com/research-project/coding-skills/>

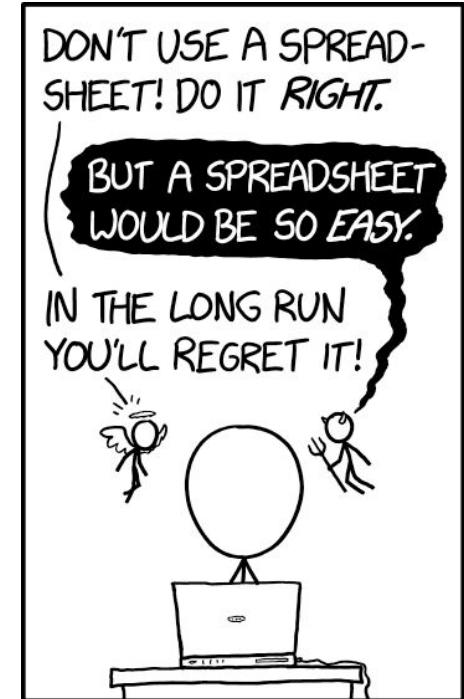


Excel can only handle datasets with **“1 million rows, and 16,000 columns** — many datasets in biology are much larger than this!

You can automate analyses in Excel, but this is quite limited.

There are also specialized biological data analysis software programs, but often these are limited in how much they can be customized.

Code is *infinitely* customizable.



<https://xkcd.com/2180/>

PyMOL (membrane.pse)

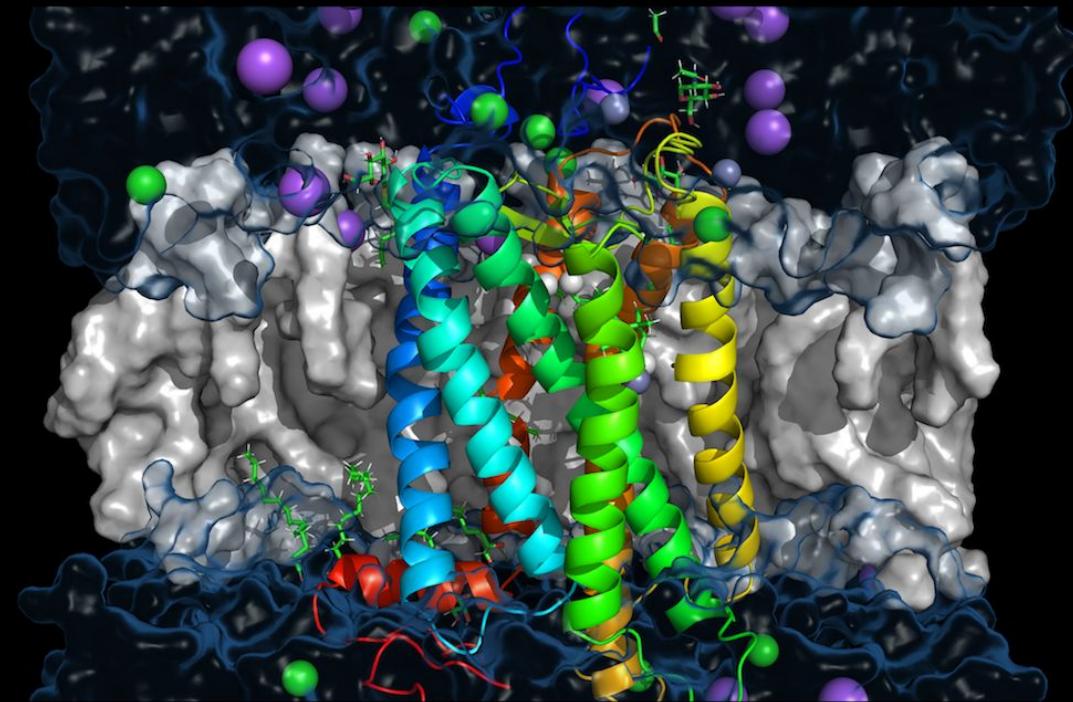
Save: Please wait -- writing session file...
Save: wrote "/Users/piotr/membrane.pse".

PyMOL-ray 2440, 1300

Ray: render time: 208.91 sec. = 17.2 frames/hour (208.91 sec. accum.).

Reset Zoom Orient Draw/Ray
Unpick Deselect Rock Get View
< < Stop Play > > McClear
Builder Properties Rebuild

PyMOL>



all	A	S	H	L	F
ions 1/1	A	S	H	L	F
(sele)	A	S	H	L	F
water 1/1	A	S	H	L	F
protein 1/1	A	S	H	L	F
membrane1 1/1	A	S	H	L	F
membrane2 1/1	A	S	H	L	F

Mouse Mode 3-Button Viewing
Buttons L M R Wheel
& Keys Rota Move MovZ Slab
Shft +Box -Box Clip MovS
Ctrl Move PkR Pk1 MvS
CtSh Sele Orig Clip MovZ
SnglClk +/- Cen Menu
DblClk Menu - PkRt
Selecting Residues
State 1/ 1

◀ ▶ □ ▢ ▤ ▥ S ▾ F

PyMOL>-

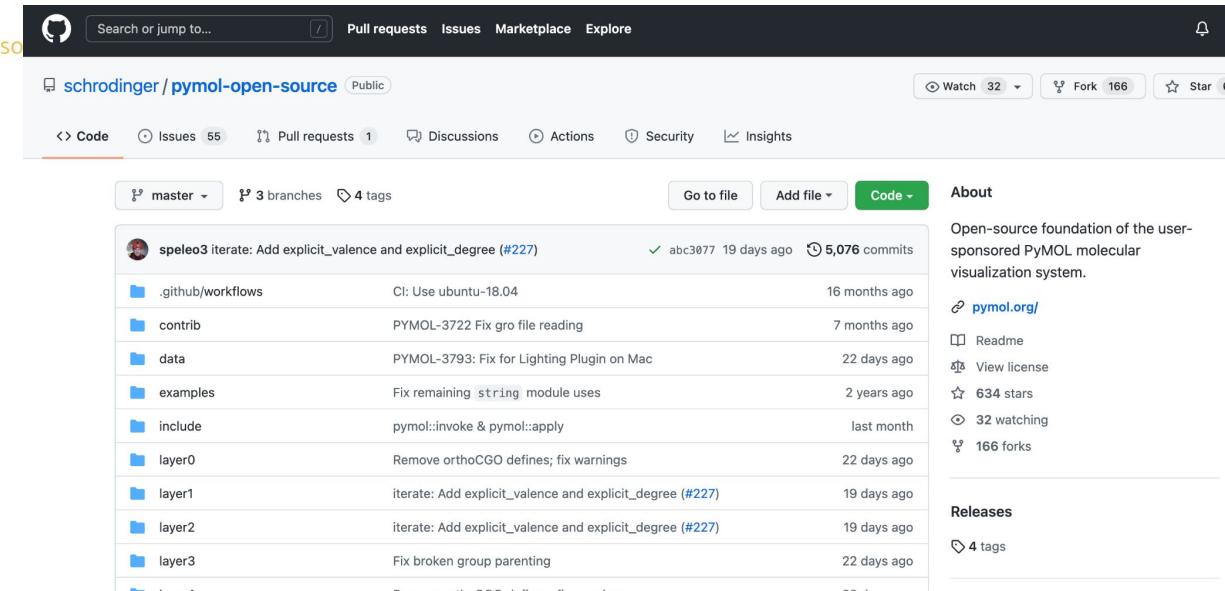
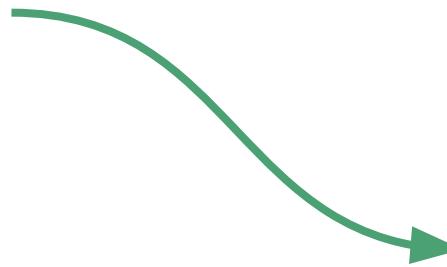
Open-Source Philosophy

PyMOL is a commercial product, but we make most of its source code freely available under a permissive license. The open source project is maintained by [Schrödinger](#) and ultimately funded by everyone who purchases a PyMOL license.

Open source enables open science.
This was the vision of the original PyMOL author Warren L. DeLano.

[Visit the Open-Source Project](#)

[Become a sponsor](#)

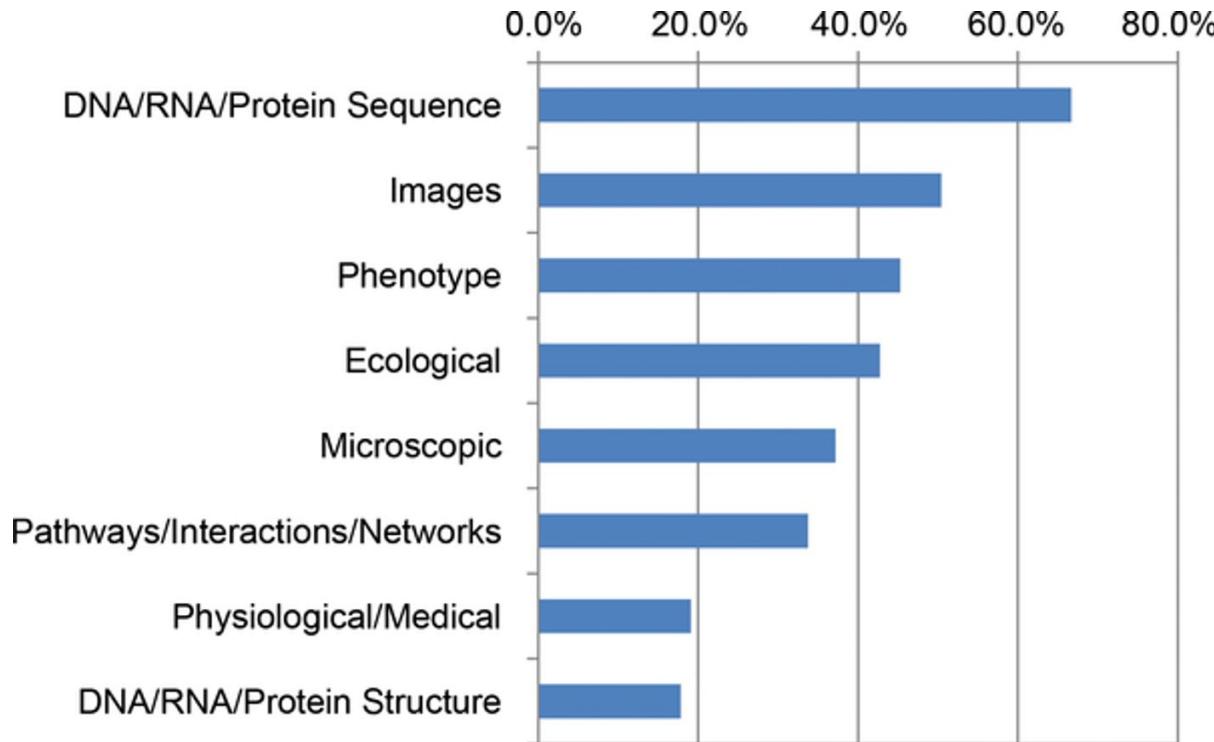


The screenshot shows the GitHub repository page for `schrodinger/pymol-open-source`. The repository is public and has 5,076 commits. The main page displays a list of recent commits, including:

- speleo3 iterate: Add explicit_valence and explicit_degree (#227) - 19 days ago
- .github/workflows CI: Use ubuntu-18.04 - 16 months ago
- contrib PYMOL-3722 Fix gro file reading - 7 months ago
- data PYMOL-3793: Fix for Lighting Plugin on Mac - 22 days ago
- examples Fix remaining string module uses - 2 years ago
- include pymol::invoke & pymol::apply - last month
- layer0 Remove orthoCGO defines; fix warnings - 22 days ago
- layer1 iterate: Add explicit_valence and explicit_degree (#227) - 19 days ago
- layer2 iterate: Add explicit_valence and explicit_degree (#227) - 19 days ago
- layer3 Fix broken group parenting - 22 days ago

On the right side of the page, there are sections for **About**, **Releases**, and **Code**. The **About** section describes it as the open-source foundation of the user-sponsored PyMOL molecular visualization system. The **Releases** section shows 4 tags. The **Code** section includes links for Go to file, Add file, and Code.

AND many software packages for biologists can be modified... if you know how to code!



Major data types used by National Science Foundation (NSF)
Biological Sciences Directorate (BIO) principal investigators (PIs).

By taking this class, you're ahead of the game!

Many researchers learn to code informally, and relatively late in their careers



ashley, ahem, dr. juavinett
@analog_ashley



Neuroscientists of Twitter, when did you learn* how to code?

*Let's say, when you felt reasonably capable writing your own simple code (e.g. reading data and plotting, or communicating with an Arduino)

19% High school or earlier

30% College

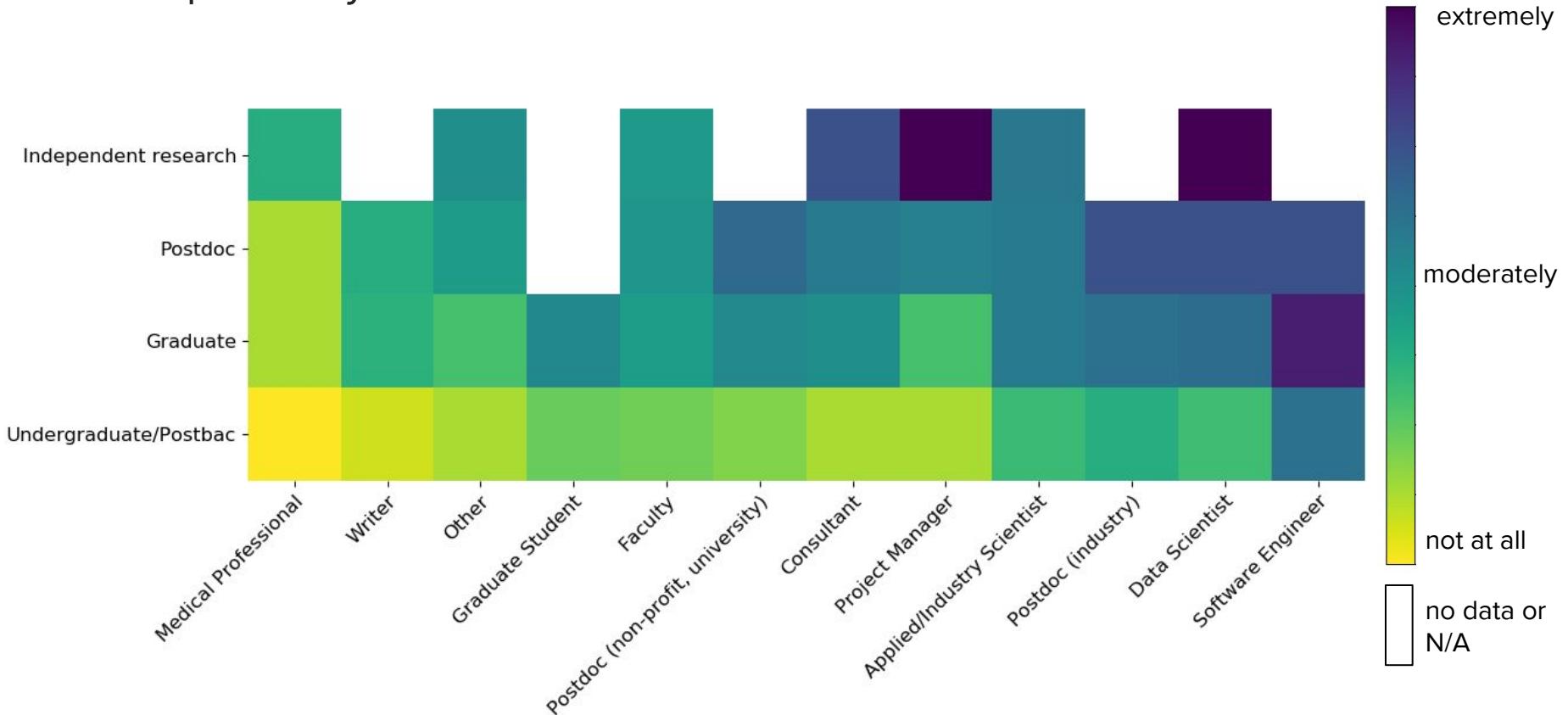
36% Graduate school

15% After graduate school

313 votes • Final results

+ many comments that they *still* hadn't learned how, and wanted to!

How comfortable did/do you feel working with code at this point in your career?



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-

First step: let's drop our ideas of what it means to be a *coder*.

Programming, like learning a language, *takes time*.

What is programming, anyway?

- Programming is the way humans communicate with computers
 - It's a language!
- The instructions we give the computer are taken **literally** and **sequentially**.



What is programming, anyway?

- Programming is the way humans communicate with computers
 - It's a language!
- The instructions we give the computer are taken **literally** and **sequentially**

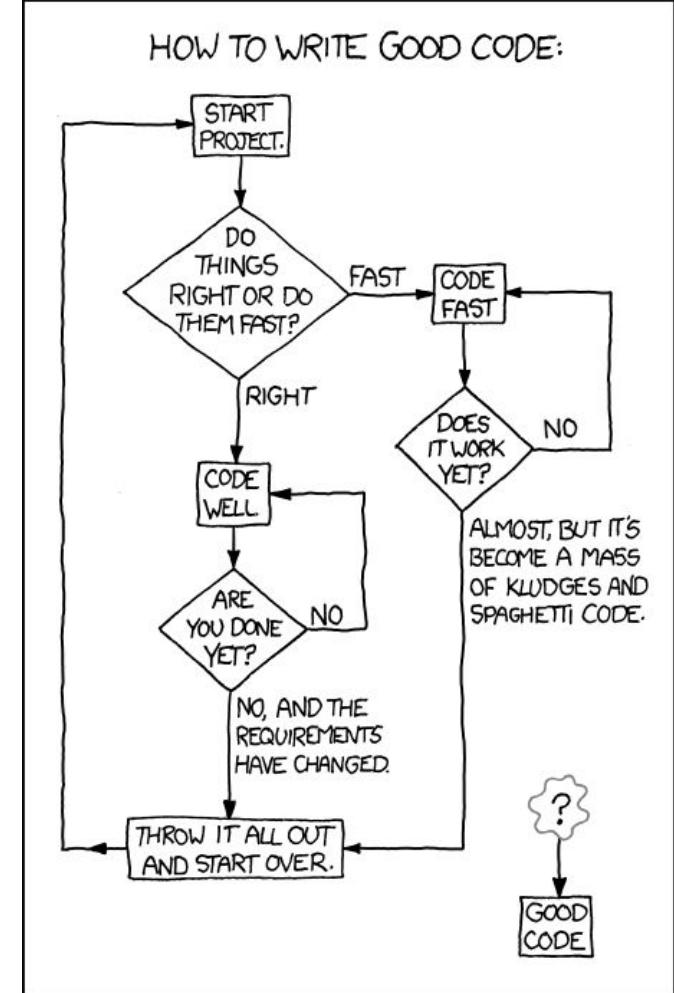
Capitalization matters:
print() ≠ **Print()**

b = a * 2
a = 2

computer: what is a?

The path to writing good, efficient code

1. Make it **work**
2. Make it **right**
3. Make it **fast**



XKCD, <https://xkcd.com/844/>

The path to writing good, efficient code

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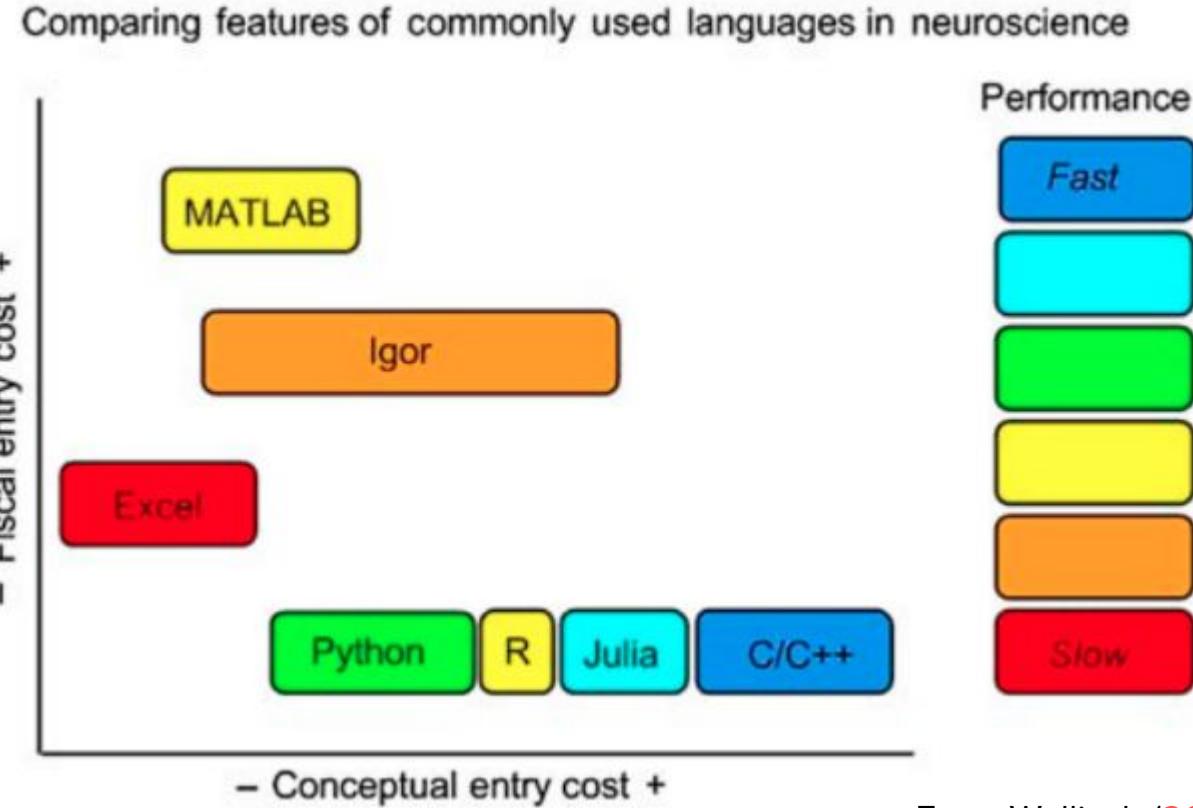
Our goal is to get to this step

If you ultimately became a programming professional, you'll care about step 3.

For most problems scientists face, step 3 isn't paramount.

Considerations for choosing a programming language

- Fiscal & conceptual entry
- Usage in particular field or profession



From Wallisch (2017)

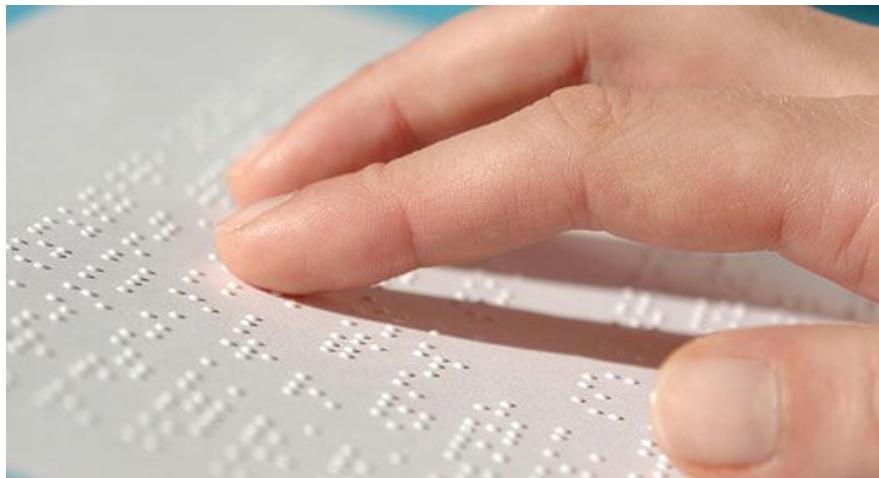
All coding languages eventually need to talk to the computer in binary:

01001000 01100101 01101100 01101100 01101111 00100001

(hello)

[Learn How To Write Your Name In Binary Code](#)

There are many types of binary code, beyond computers



Braille

<https://www.afb.org/blindness-and-low-vision/braille/what-braille>

A ● -	J ● ---	S ● ● ●
B - ● ● ●	K - ● -	T -
C - ● - ●	L ● - ● ●	U ● ● -
D - ● ●	M --	V ● ● ● -
E ●	N - ●	W ● - -
F ● ● - ●	O ---	X - ● ● -
G - - ●	P ● - - ●	Y - ● - -
H ● ● ● ●	Q - - ● -	Z - - ● ●
I ● ●	R ● - -	

Morse code

https://www.discoveryworld.org/about/blog/discover_at_home/morse-code/

In this class, we'll use Python

- Programming language, development led by Python Software Foundation (www.python.org)
- Uses concise structure & wording similar to human language
- An **interpreted** language — it doesn't speak *directly* to the computer
- Can be used for many purposes, from web programming, to creating games, to analyzing & visualizing data
 - Extension: '.py'
- We'll also work in **Jupyter Notebooks**
 - Extension '.ipynb'



Course logistics

Course Objectives

- Read and run basic Python programs, recognizing the structures used (i.e. variables, conditionals, loops, functions) and explaining how they work
- Manipulate and create objects in Python, including data structures and classes
- Write, edit, and execute Python code in Jupyter Notebooks as well as the command line
- Analyze and visualize simple datasets in Python
- Implement common algorithms for analyzing biological data (e.g., time series, images) and determine when such computations are appropriate

Grading breakdown

Assignments (50%)

Midterm (20%)

Final project (30%)

Notes:

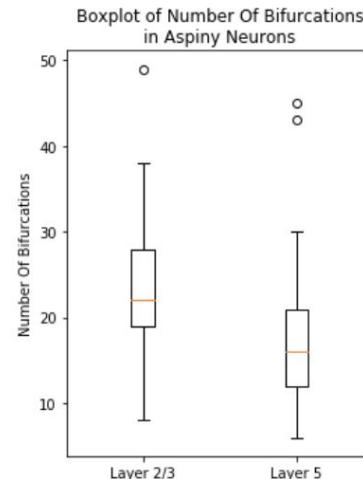
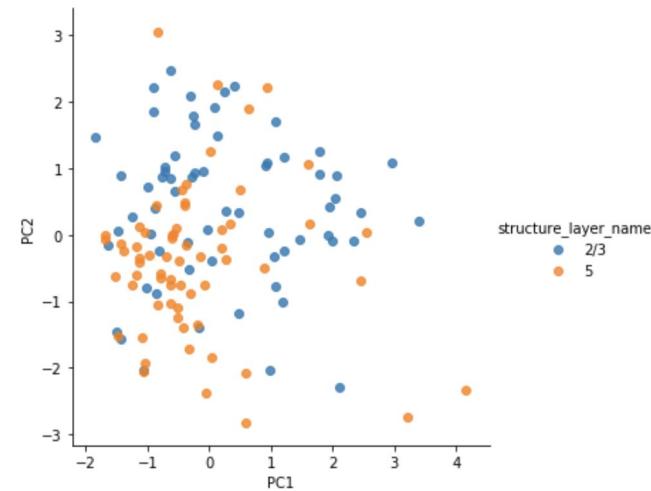
- Assignments & project components lose 10% each day they are late
 - 3 “slip days”
-

Assignments

- Due **Fridays at 5pm**
- Worth 2.5-10% each
- Completed individually
- Programmatically graded (via Datahub/NBGrader)
- In discussion section, we'll walk through how to submit these.

Project, groups of 2-3

- Includes the project proposal, code, and deliverables.
- Your final project will take some sort of **biological data** and analyze it to draw conclusions.
- We will discuss possibilities for your project as we move through the course.



Organization of content in this course

- **Lectures:** Information that I present in class; many PDF, some via Jupyter Notebooks, or a mix of the two
- **Materials:** Jupyter Notebooks that we will manipulate in class, and that will be useful sandboxes for you
- **Resources:** Additional resources that can help provide more background information to supplement your learning
 - See syllabus as well as links at the end of lectures

END OF YEAR SALE - SAVE 50%

0 1
Days0 6
Hours1 1
Minutes0 6
Seconds[VIEW PLANS](#)

DATAQUEST

[COURSES](#)[STUDENT STORIES](#)[WE'RE HIRING](#)[BLOG](#)[START LEARNING](#)[LOG IN](#)

Learn Data Science

Whether you're new to the field or looking to take a step up in your career, Dataquest can teach you the data skills you'll

Take a FREE course!

 Email Password

You can also sign up for **Stepik** (<https://stepik.org/course/56730/>) or **DataQuest** (free!) & complete lessons in parallel with our course.

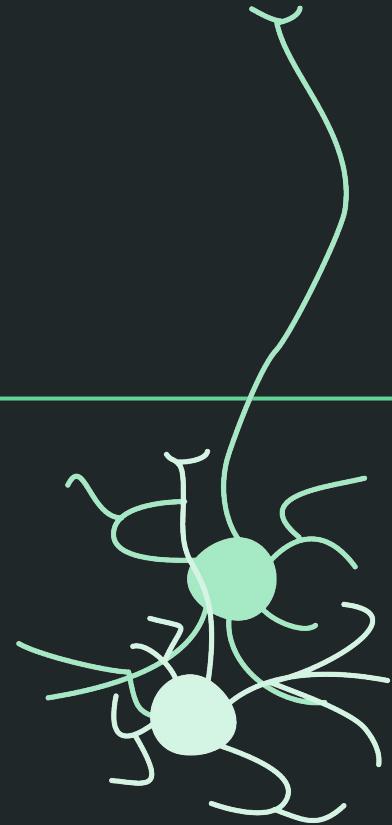
Python Basics for Data Analysis (Skill Path) or Data Scientist in Python (Career Path)

Office hours

Why should you come to office hours?

- You have clarifying questions about the course or its content
- You have concerns about the course and your progress

Tools for this class



Course Tools



Submitting non-coding assignments & managing grades

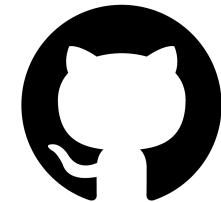


jupyterhub

Coding exercises & assignments



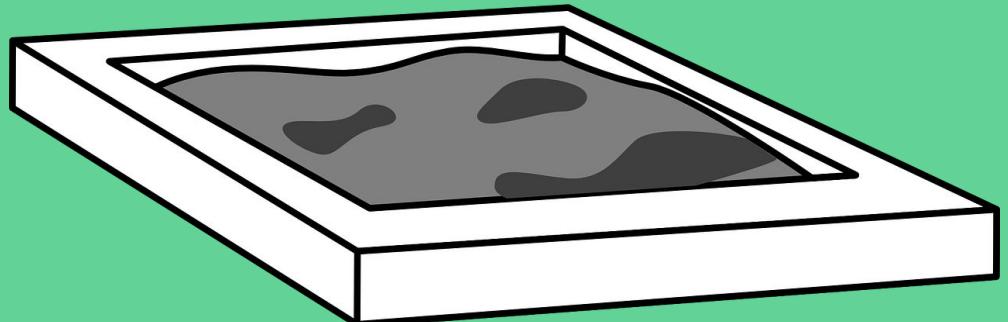
Sharing private course content



GitHub

Sharing public course materials
<https://github.com/BILD62>

Interacting with course materials



You can find all of our course materials on either Canvas or the course GitHub: <http://www.github.com/BILD62>

Lectures

In other words, PDF slides shown during class.

Hosted on GitHub.

Materials

Jupyter Notebooks hosted at
[http://www.github.com/
BILD62/BILD62_FA24.git](http://www.github.com/BILD62/BILD62_FA24.git)

You can pull these locally or to DataHub, or look at them online via GitHub or Binder



If I use both a PDF and a Jupyter Notebook during lecture, these numbers will match



Assignments

Submitted through **Assignments** tab

Answers to weekly assignments will be posted in the assignments folder within our course repository



THE MAGIC LINK FOR THIS
COURSE:

[https://datahub.ucsd.edu/hub/user-redirect/
git-sync?repo=https://github.com/BILD62/BI
LD62_FA24](https://datahub.ucsd.edu/hub/user-redirect/git-sync?repo=https://github.com/BILD62/BILD62_FA24)



THE MAGIC LINK FOR THIS COURSE:

Sync with your datahub:



[https://datahub.ucsd.edu/hub/user-redirect/
git-sync?repo=https://github.com/BILD62/BILD62_FA24](https://datahub.ucsd.edu/hub/user-redirect/git-sync?repo=https://github.com/BILD62/BILD62_FA24)



*Where our course
content lives*

To clone Materials to DataHub:

1. Click on the magic link:

[https://datahub.ucsd.edu/hub/user-redirect/git-sync?repo=https://git
hub.com/BILD62/BILD62_FA24](https://datahub.ucsd.edu/hub/user-redirect/git-sync?repo=https://git hub.com/BILD62/BILD62_FA24)

2. Log in to DataHub as prompted.
3. You'll be in our course materials folder now!
4. If you want, save your own copy by adding your initials to the end
of the file name. **DO NOT DO THIS FOR ASSIGNMENTS!**
5. Next time you click the link, you'll have a fresh copy, plus your
copy.

To interact with Jupyter Notebooks on your computer

OPTIONAL

1. Install Anaconda with Python 3.12 for your operating system.
2. If you're using Windows, [download git](http://www.github.com/BILD62/BILD62_FA2024.git).
3. In Terminal (Mac) or the Anaconda Prompt (Windows), clone the repository by running the following command:
`git clone http://www.github.com/BILD62/BILD62_FA2024.git`
4. Open Jupyter Notebook. There are two ways to open:
 - o In Terminal (Mac) or the Anaconda Prompt (Windows), type **jupyter notebook**
 - o Open Anaconda Navigator and launch jupyter notebook
5. On the Jupyter landing page, navigate to the notebook and open it.
 - o It will open in a browser but is *not* using an internet connection.

Before next class...

- Take the incoming student survey
- Access Canvas (canvas.ucsd.edu) & DataHub (datahub.ucsd.edu)
- (Optional) Sign up for Stepik and/or DataQuest
- (Optional) Install Python 3.12 (via the Anaconda distribution) on your computer (<https://www.anaconda.com/distribution/>)

You only *really* need access to the DataHub, but having the ability to use Python & Jupyter Notebooks on your local computer *may* be useful!

Career Center

PLAN FOR YOUR
FUTURE

SUCCEED IN YOUR
SEARCH

FIND JOBS AND
EXPERIENCE

GET INTO GRAD
SCHOOL

EVENTS

ADVISING



UPWARD & ONWARD

The Career Center can coach you on how to find that ideal job, internship or experiential outcome. Boost your skillset and become better prepared now.

[SIGN UP OR LOG INTO HANDSHAKE](#)

[MEET WITH A CAREER ADVISOR](#)

BEGIN YOUR JOURNEY HERE

No matter where you are in your search, resources are available to help. Tell us a little about yourself and we'll point you in the right direction.



← → C writinghub.ucsd.edu/what-we-do/undergraduate-services.html

COVID-19 Updates Due to the level of COVID-19 cases on campus, masking is required in classrooms and campus-operated residential facilities. Learn more on the [Return to Learn website](#) and stay up to date with County and State guidelines as well as [CDC guidelines](#).

[Learn More](#)

Update

WRITING HUB



Who We Are ▾ What We Do ▾ Undergrads ▾ Grad Students ▾ Educators ▾ Our Impact ▾ Teaching + Learning Commons ▾ 🔍 ▾

HOME / What We Do / Undergraduate Student Services

What We Do

Events + Sign-Ups

Writing Consultations

Consultant Education

Undergraduate Student Services

Graduate Student Services



Undergraduate Student Services

Writing Hub undergraduate services expand and enhance students' learning through and success with writing. By giving students a place to engage with writing *as writing*, outside of substantive course content, the Writing Hub leverages existing writing assignments in students' coursework for personalized learning interactions that promote deep learning and engagement.

The Writing Hub serves over 4,300 unique students each year through our one-on-one consultations, writing-focused workshops, and collaborations with campus partners.

One-On-One Writing Consultations

Undergraduate writing consultations engage students in their writing assignments and non-course related writing projects (such as statements of purpose for postgraduate study, cover letters, publications, etc.). Peer consultants aim to give students personalized and actionable feedback through conversation and supportive questioning.

Want to learn more? Visit our [Writing Consultations](#) page to understand the foundations of our approach and our [Consultant Education](#) page to learn how we train our writing consultants. We invite you to [Meet our Undergraduate Consultants](#) and [Make an Appointment!](#)

MAKE AN
APPOINTMENT



Writing Workshops

Education

Doctoral

Undergraduate

[COVID-19 Updates](#)

Admission

Transfer Students

Advising

Major/Minor

Course Info

Finish in 4

Office for Students with Disabilities (OSD)
Accommodation Information

Research

Career Exploration

Student Organizations

Student Opportunities & Resources

Student Success ↗



Undergraduate Studies

Important: For updated information regarding advising services and amended policies during this time of social distancing due to COVID-19, visit our [COVID-19 updates page](#).



Stay informed!

[Virtual Advising Center \(VAC\)](#) ↗

Have an advising question? Ask here!

[Majors & Minor](#)[Admissions](#)

Interested in pursuing a Biology major?

[Student Opportunities](#)

Learning outside the classroom

[Course Information](#)

Helpful course-related information

[Finish in 4](#)

Plan ahead to graduate on time!

[Study Abroad](#)

Add a global perspective to your undergraduate studies

How to find a research laboratory?

DIVISION OF BIOLOGICAL SCIENCES

UC San Diego

About Research Education Diversity Jobs Alumni Giving Administration Contact

Q +

HOME Research / Academic Sections

Research

Faculty

Academic Sections

Cell & Developmental Biology

Ecology, Behavior & Evolution

Molecular Biology

Neurobiology

Subtopics Overview

Select Publications

Initiatives and Units

Facilities and Resources

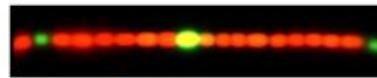
Academic Sections

Biological Sciences programs at UC San Diego cover a wide spectrum of research interests, including biochemistry and biophysics; cell biology and developmental biology; ecology, behavior, and evolution; genetics and molecular biology; immunology, virology, and cancer biology; neurobiology; and plant molecular biology.

Within the division, these subdisciplines are organized under four department-like Academic Sections:



[Cell & Developmental Biology](#)



[Molecular Biology](#)



[Ecology, Behavior & Evolution](#)



[Neurobiology](#)

Each of the sections has a Chair who reports to the Dean, and all share a centralized administrative support structure: IT, fiscal and human resources as well as the undergraduate and graduate programs which are administered at the Divisional level.

The strength and significance of the research conducted in our four sections has manifested itself in the recent National Research Council's comprehensive assessment of the quality of more than 5,000 doctoral programs in 62 fields at 212 U.S. research institutions. **UC San Diego's Biological Sciences graduate program has been ranked number one in the nation and ninth in the world.**

⚠ COVID-19 Updates

Due to the level of [COVID-19 cases on campus](#), masking is required in classrooms and campus-operated residential facilities. Learn more on the [Return to Learn website](#) and stay up to date with County and State guidelines as well as [CDC guidelines](#).

[LEARN MORE](#)

UC San Diego

Information For ▾

Handshake Login **Career Center**PLAN FOR YOUR
FUTURESUCCEED IN YOUR
SEARCHFIND JOBS AND
EXPERIENCEGET INTO GRAD
SCHOOL

EVENTS

ADVISING



Research develops your practical skills while providing you with the ideal venue to prove your mastery of what you've learned in class. Regardless of if you plan to attend graduate school, wish to become a doctor, or are transitioning directly to the workforce, engaging with research opportunities will enhance your resume and provide you with contacts who can write powerful letters of recommendation.

Similar to internships and full-time outcomes, students get selected when they can clearly explain what they will bring to the new role and how it will impact the organization. Have you set a meeting with your professor to learn about their lab? Where did your friends spend their summer research experience? Have you considered writing a short research report to highlight your interests?

Research is available on and off campus, in every field imaginable – from biology, chemistry, engineering and physics to sociology, music, economics and history. Check with each program for eligibility and hours requirements.

Below is a non-exhaustive list of some opportunities to gain this type of experience. Contact professionals and professors, and talk to your network of friends, family, and colleagues for insight on other ways to observe, volunteer, intern and train in your intended field.

- UC San Diego provides a wealth of opportunities for students to gain hands-on research experience on its [Research and Innovation page](#).
- The [Academic Enrichment Program \(AEP\)](#) offers a huge variety of opportunities to obtain research experience during the school year and during the summer under the guidance of UC San Diego faculty mentors and to present research findings at noted undergraduate research conferences in any academic major in preparation for pursuing a Ph.D., health or other advanced degree. For some programs, funding is available.
- The Career Center's online portal, [Handshake](#), has thousands of job and internship postings specifically for UC San Diego students, and many involve research. On campus academic departments, major UC San Diego labs, and local/state/national companies post paid and unpaid research positions daily. Check back often for one that's right for you.
- And don't overlook the [UC San Diego LinkedIn Alumni Network](#). Searching by keyword like lab research, PhD, etc. can provide the seeds for connections that may lead to research opportunities.

Opportunities

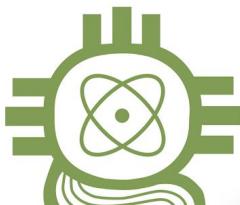


The Academic Enrichment Programs at UCSD aims to provide opportunities for funded research to undergraduates from various disciplines. CAMP and McNair programs target ethnically underrepresented minority and first-generation students. Annual conferences sponsored by the AEP office give scholars the opportunity to present the fruits of their studies. The office also offers scholarships and funds study-abroad opportunities. Be sure to check out their website for details on the services they offer.

Link to google doc with info on
HOW TO GET STARTED IN RESEARCH



The Annual Biomedical Research Conference for Minority Students (ABRCMS) brings together STEM students from all backgrounds to share in the beauty of STEM research. ABRCMS displays the stellar work being done by scientists from marginalized backgrounds in an effort to demonstrate to its attendees that everyone has a place in STEM. Plenary talks and professional development seminars provide useful skills and ways of thinking for success in science.



SACNAS is the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science. SACNAS supports scientists at all stages in their scientific career - from students to professors. Chapters are dispersed across the globe - and there is an active one at our very own UCSD. The SACNAS UCSD Chapter offers a community for marginalized scientists on campus, as well as opportunities to conduct year-round on-campus research. Moreover, each year, UCSD chapter members



How to email a research professor?

Your email should:

- have an informative subject line
- be concise
- be formal: Dear Dr. Smith; Sincerely, Your Name
- not use Mrs. or Ms.
- NOT have slang, abbreviations, or emoticons
- if applying for an opening:
 - address any qualifications the professor is looking for
 - demonstrate your experience
- if asking for a research opportunity:
 - state specifically your interest in that research group (you need to read the professor's website)
 - explain why research is important for your goals
 - ask to schedule a meeting or say that you will be coming to office hours

How to email a research professor?

General email to a STEM professor

Subject: Meeting to discuss undergraduate research opportunities in **topic**

Dear Dr. Professor,

I am a **year** student at **university** majoring in **major**. How you found out about the professor's research. Expression of interest in specific paper or topic. I would appreciate the chance to talk with you about your research in **topic of interest** and about possible undergraduate opportunities in your lab.

My experience in **research experience or class**, confirmed my intention to develop my research skills and **goal**. I know you are very busy. We could schedule an appointment or I can drop by your office hours on **day and time**.

I have attached my resume and unofficial transcript. Please let me know if there is any other information I can provide. I look forward to talking to you soon.

Best,

Name

Student Internships

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An internship is one of the best ways to gain experience while you're still in school, as well as network with peers and potential employers. Find resources for many types of internships through various offices at UC San Diego.

Internship guidance & info

UC San Diego's [Career Center](#) is an excellent internship resource. They'll help you find an internship that's right for your interests, skills, and availability.

- Learn about [career options for undergrads](#) at the Career Center.
 - Visit the Career Center's internship page or talk to a Career Center advisor for more information.

Handshake

Handshake is UC San Diego's database of off-campus jobs, internships, volunteer opportunities, and on-campus jobs (including work-study). Register or log in to use the [Handshake job and internship listings](#).

Departments

- Career Center
- Academic Internship Program
- Research Experience & Applied Learning (REAL) Portal

See also

Handshake

Campus internship opportunities include

Academic Internship Program (AIP)

The [Academic Internship Program](#) is actually a cluster of programs/ academic courses that offer you an opportunity to apply academic knowledge and analytical skills in professional internship and community settings while earning academic credit.

Campus Community Centers

Applications are due in January for internships that will begin in fall that same year (the start of the following academic year). Look for announcements and information sessions each year from November through January, visit [Handshake](#), and/or visit the following websites to sign up for alerts and more info:

- [Cross-Cultural Center](#)
 - [Black Resource Center](#)
 - [LGBT Center](#)
 - [Office for Students with Disabilities](#)
 - [Raza Resource Centro](#)
 - [SPACES](#)
 - [Undocumented Student Services](#)
 - [Women's Center](#)

Internships abroad

UC San Diego's [Study Abroad](#) office can help you find internship opportunities around the world. Some help you gain work experience, and others may provide academic credit.

Research Experience & Applied Learning (REAL) Portal

Visit the [REAL portal](#) to find internships, research opportunities, service and global experiences. Create a profile so faculty and employers can contact you.

Technology

- Student in need of access to laptop? Students can request a loaner laptop: <https://eforms.ucsd.edu/view.php?id=490887>
- Computer labs: <https://lablookup.ucsd.edu/>
- Guidance on technology for students, including Zoom and Canvas, trouble-shooting and resources for internet access:
<https://digitallearning.ucsd.edu/learners/learning-remotely/tools.html>

Learning Support and Strategies

- Student struggling finding strategies to learn remotely?
<https://digitallearning.ucsd.edu/learners/learning-remotely/strategies.html#Stay-engaged>
- Students needing extra content support in specific courses?
 - Content tutoring, for students needing extra support in specific course, including BIBC 102, BICD 100, BILD 1 and 3, BIMM 100.: <https://aah.ucsd.edu/content-tutoring/online-tutoring.html>
 - Supplemental Instruction and Study Groups, including BILD 1, BILD 2, and BIMM 100:
<https://aah.ucsd.edu/supplemental-instruction-study-group/index.html>
- Students struggling with writing? Writing Support for undergraduate students
<https://writinghub.ucsd.edu/for-undergrads/index.html> and for graduate students
<https://writinghub.ucsd.edu/for-grad-students/index.html>

Student Mental Health

- Student counseling and mental health resources? <https://wellness.ucsd.edu/CAPS/Pages/default.aspx>
- Faculty concerned about the well-being of a student or students in immediate crisis?
<https://wellness.ucsd.edu/CAPS/crisis/Pages/default.aspx>

Financial Guidance

- Student in need of financial guidance or have questions about their financial aid? <https://fas.ucsd.edu/>
Email questions to finaid@ucsd.edu.
Virtual Counseling for students Monday through Friday 9AM TO 2PM, and Tuesday and Thursday 4:30PM to 6:30PM via Zoom at UCSD.ZOOM.US/MY/FASZOOM1.
- Students in need of emergency loan? <https://basicneeds.ucsd.edu/financial-wellness/index.html>

Resources for Student Experiencing Housing and/or Food Insecurity

- Students struggling meeting basic needs, such as food, hygiene products, or housing insecurity?
<https://basicneeds.ucsd.edu/>
- Application forms for Calfresh and Basic Needs Assistance: <https://basicneeds.ucsd.edu/forms/index.html>

Other Resources, Including Community Centers (Online Offerings Differ)

- Office for the Prevention of Harassment & Discrimination (OPHD): provides assistance to students with concerns about bias, harassment, and discrimination. UCSD is committed to upholding policies regarding nondiscrimination, sexual violence and sexual harassment. Students have options for reporting incidents of sexual violence (e.g. sexual assault, dating violence, domestic violence, and stalking) and sexual harassment. Information about reporting options may be obtained at OPHD at (858) 534-8298, ophd@ucsd.edu, or <http://ophd.ucsd.edu>. Students may also receive confidential assistance at the Sexual Assault Resource Center at (858) 534-5793, sarc@ucsd.edu, or <http://care.ucsd.edu>.
- Office for Students with Disabilities (OSD) works with students who have documented disabilities to provide reasonable accommodations. See [Office for Students with Disabilities \(ucsd.edu\)](#), or [Disability Resources \(ucsd.edu\)](#); call 858.534.4382 and/or email osd@ucsd.edu. Students in need of disability accommodations for a UCSD course must provide their instructor with a current Authorization for Accommodation (AFA) letter issued by OSD.
- OASIS: Office of Academic Support and Instructional Services also offers tutoring, writing and mentoring – see <https://oasis.ucsd.edu/>
- Black Resource Center: a campus community center that serves everyone at UC San Diego while emphasizing the Black experience. Promotes scholarship, fosters leadership, and cultivates community through the committed, collaborative effort and support of faculty, staff, and the broader UC San Diego community. <http://brc.ucsd.edu/>
- Cross-Cultural Center: strives for meaningful dialogues and context across all cultures, particularly those of underrepresented or underprivileged backgrounds. Offers supportive and educational services through art, social and educational programs, workshops, and outreach. Welcomes creative venues for enhancing social consciousness and equity.
<http://ccc.ucsd.edu/>
- LGBT Resource Center: provides a visible presence on campus and enhances a sense of connection and community among LGBT faculty, staff, students, alumni and the UC San Diego Community. <http://lgbt.ucsd.edu>

- Raza Resource Centro: a lively space where students study, meet, write, get tutoring, and most importantly are in community. It is a space where Latina/Chicano organizations hold meetings, events and where culture, arte, and academics interconnect. <http://raza.ucsd.edu/>
- Student Veterans Resource Center (SVRC): supports military-affiliated students in making the transition to campus life and facilitating their progress toward degree completion. The Center also provides opportunities for peer-to-peer support, mentoring and social networking. See <https://students.ucsd.edu/sponsor/veterans/>
- Women's Center: serves as a resource for the entire campus community while placing the experiences of diverse women at the center through the resources provided, the programming and learning opportunities facilitated, and the dynamic community space created. <https://women.ucsd.edu/>