# The Memory Modulation Lab

General Lab Manual

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# 1. Introduction

Welcome to the Memory Modulation Lab manual. This manual was developed by me, Maureen Ritchey. It is intended to represent my vision for how the lab should function and to complement existing Boston College policies (which take precedence). Upon joining the lab, all lab members are required to read the lab manual and sign a **form** indicating that they have done so. I expect that more information will be added and some sections will be revised as the lab grows and develops. If you have any comments or suggestions regarding the contents of this manual, please tell me.

The MemoLab manual was inspired by other similar works. In some places, I have adapted or reproduced content from the Peelle lab manual. This work is licensed under a CC Attribution 4.0 license.

# 2. Lab member expectations & responsibilities

# 2.1 Everyone

# Big picture

- Do work that you are proud of. Do work that others will care about.
- Double-check your work. Being a little obsessive is essential to good science.
- Be supportive of your labmates. We are a team.
- Work independently when you can, ask for help when you need it.
- Share your knowledge. Mentorship can take many forms.
- Respect each others' strengths, weaknesses, differences, and beliefs.
- Science is a marathon, not a sprint. Take personal time/ vacation when you need it and cultivate a life outside of the lab. Respect that other lab members also have a life outside of lab.
- Communicate openly and respectfully with other members of the lab.

- If you have an issue with another lab member that cannot be solved by talking with them about it, please talk with Maureen. If you have an issue with Maureen, please reach out to another member of the psychology department who can intervene (this can be the lab manager for smaller lab issues, or another faculty member or the department chair for more serious issues).
- Academia may feel different from other types of jobs, but it is still a job. You should treat coming into lab with the same respect that you would treat any other position. See section on Hours.

### Small picture

- Do not come into the lab if you are sick. Stay home and get healthy, and don't risk getting others sick.
- Notify the lab manager or me if you will be out, either due to illness or vacation. Make a note on
  the lab calendar when you have plans to be out. If you are sick and you had experiments or
  meetings scheduled that day, notify your participants or collaborators and reschedule. Please also
  update your Slack status.
- You are not expected to come into lab on staff holidays. If you are being paid, then you *are* expected to come into lab during university breaks (except for staff holidays or if you're taking your paid vacation time).
- Lock the doors to the lab if no one else is around, even if you're stepping out for a minute.
- Keep the lab tidy. Food messes should be cleaned up promptly, dirty dishes taken home with you, and common areas should be kept free of clutter. Items left unattended may be cleaned, reclaimed, or recycled. If you're using lab equipment, put it away when you're done.
- The dress code in academia is generally casual. My only request is that you look semi-professional when interacting with participants and when presenting your work. Jeans are fine, gym clothes and pajamas are not.
- Arrive to lab at least 15 minutes before you have any experiments scheduled, so that you will be there to greet the participants.

### 2.2 PI

All of the above, plus you can expect me to:

- Maintain a vision of where the lab is going
- Provide the funding necessary to keep the lab going
- Meet with you regularly to discuss your research projects. The definition of "regularly" may change over time or over the course of a project, but for now, I mean once a week or more often as needed.
- Give you my perspective on academia and issues related to professional development
- Support your career development by introducing you to other researchers in the field, writing recommendation letters for you, providing you with opportunities to attend conferences when possible, and promoting your work in talks
- Care about you as a person and not just a scientist

### 2.3 Postdocs

All of the above, plus you will be expected to:

- Develop your own independent line of research
- Mentor undergraduate and graduate students on their research projects, when asked or when appropriate
- Apply for external funding (e.g., NRSA, K99). I will hire postdocs only when there is funding available for at least a year; however, applying for external funding is a valuable experience and, if awarded, it will release those dedicated funds for other purposes.

- Apply for jobs (academic or industry) as soon as you are "ready" and/or by the beginning of your fourth year as a postdoc.
- If you are planning to pursue a non-academic career, treat your postdoctoral research as seriously as you might if you were pursuing an academic career. We can discuss ways of making sure that you are getting the training you need, while still doing excellent research.
- Remind me (the PI) that different scientific opinions can co-exist in the same lab!

### 2.4 Graduate students

All of the above, plus you will be expected to:

- Develop a line of dissertation research. Ideally, your dissertation research will consist of at least 3 experiments that can be packaged into one thesis document.
- Apply for external funding (e.g., NSF GRFP or NRSA). If nothing else, this is an extremely valuable experience, and it will release you from your TA-ing responsibilities.
- Do some soul-searching as to what type of career you want to pursue, e.g., academic jobs that are research-focused or teaching-focused, non-academic jobs like data science or science writing. We can brainstorm ways of making sure you are getting the training that you need.
- Work with a team of undergraduate students. This will speed up data collection and give you some experience with managing and mentoring a team.
- Stay up-to-date (and keep me up-to-date) on any deadlines that you need to meet to fulfill departmental requirements.
- Prioritize time for research. It is easy to get caught up in coursework or TA-ing, but at the end of 5-ish years, you need to have completed a dissertation.

# 2.5 Lab managers

All of the above, plus you will be expected to:

- Maintain the lab IRB protocols and paperwork (e.g., archiving consent forms).
- Oversee the hiring, scheduling, and training of undergraduate research assistants.
- Maintain the lab internal website.
- Keep the lab manager manual up to date.
- Assist with participant recruitment and scheduling.
- Assist other lab members with data collection or analysis (typically you will be assigned to particular projects).
- Coordinate and take notes during weekly lab meetings.
- Help to maintain an atmosphere of professionalism within the lab.
- Work on your own research project.

### 2.6 Other full-time staff

All of the above, plus you will be expected to:

- Work on your own research project.
- Assist other lab members with data collection or analysis (typically you will be assigned to particular projects).
- Help to maintain an atmosphere of professionalism within the lab.
- Provide extra support to the lab manager.

# 2.7 Undergraduate students

All of the above, plus you will be expected to:

- Assist other lab members with data collection or analysis (typically you will be assigned to particular projects).
- Work with the lab manager and/or your research mentor to determine your weekly schedule. If you are not able to come in during your normal scheduled time, you must let the lab manager know.
- Provide extra support to the lab manager (this may include filing paperwork). If you are in lab and
  do not have a task to do, you should ask the lab manager or any other full-time lab member
  whether there is anything you can help out with.
- At the beginning of each semester, complete the start-of-semester form pinned to the #undergrads channel on Slack.
- At the end of each semester, complete the end-of-semester form pinned to the #undergrads channel on Slack.
- Undergraduates who work in the lab for a full semester may have the option to assist with an EEG project (when available) during the following semesters in the lab.
- Undergraduates who work in the lab for a full year may have the option to assist with an fMRI project (when available) during the following semesters in the lab.
- If you are earning course credit for research OR if you have been awarded an undergraduate research fellowship, you must additionally:
  - Attend at least one of our lab meetings or journal clubs per week.
  - Present at one meeting during the semester (or participate as requested).
  - Write a short paper on a research topic related to the "science of memory," to be edited
    and eventually posted on a <u>website</u> devoted to communicating the science of memory to
    the general public. Talk to Maureen for more details.
- For more information about undergraduate research positions, refer to the Undergraduate research section below.

# 3. Code of conduct

### 3.1 General

Many topics were covered already in the *Lab member expectations & responsibilities* section.

#### In addition:

All members of the lab, along with visitors, are expected to agree with the following code of conduct. We will enforce this code as needed. We expect cooperation from all members to help ensuring a safe environment for everybody. Please also see the Boston College Discriminatory Harassment Policy.

### The Quick Version

The lab is dedicated to providing a harassment-free experience for everyone, regardless of gender, gender identity and expression, age, sexual orientation, disability, physical appearance, body size, race, or religion (or lack thereof). We do not tolerate harassment of lab members in any form. Sexual language and imagery is generally not appropriate for any lab venue, including lab meetings, presentations, or discussions.

Harassment includes offensive verbal comments related to gender, gender identity and expression, age, sexual orientation, disability, physical appearance, body size, race, religion, sexual images in public spaces, deliberate intimidation, stalking, following, harassing photography or recording, sustained disruption of talks or other events, inappropriate physical contact, and unwelcome sexual attention.

Members asked to stop any harassing behavior are expected to comply immediately.

If you are being harassed, notice that someone else is being harassed, or have any other concerns, please contact Maureen Ritchey immediately. If Maureen is the cause of your concern, then please reach out to the department chair or another trusted departmental member who can assist.

We expect members to follow these guidelines at any lab-related event.

This section was adapted from: code of conduct. Original source and credit: http://2012.jsconf.us/#/about & The Ada Initiative. This work is licensed under a Creative Commons Attribution 3.0 Unported License.

# 3.2 Scientific integrity

### Reproducible research

Reproducible research is research that can be exactly reproduced. This is related to replicability, in that it has to do with your ability to get the same results again, but it refers specifically to getting the same results given the *same set of data*. I expect that all of our research will be, at minimum, reproducible (I hope that it will also be replicable).

Conducting reproducible research is more difficult than it sounds, because it requires that you are organized and possess sufficient foresight to document each step of your research process. There are two main things you can do to improve the reproducibility of your research: 1) extensive note-taking (i.e., as much as you can manage) and 2) programming workflows with version control.

Programming workflows help with reproducibility because they take some of the human element out, and in an ideal scenario, you are left with a script or series of scripts that takes data from raw form to final product. Programming alone is not enough, though, because people can easily forget which script changes they made and when. Therefore, all projects that involve programming of any kind (so basically, all projects) must use some form of version control. I strongly recommend git in combination with GitHub (see below), unless you have a pre-existing workflow. This is a hard requirement because a) it is the only way to definitively track the evolution of methods/files over time, b) it allows for easier detection of bugs, c) it facilitates code sharing, and d) it has nice side effects for workflow organization (e.g., thinking in terms of commits, branches, issues). Points a, b, and c are directly relevant to the mission of conducting reproducible research.

### Experiment pre-analysis plans

You are encouraged to file a pre-analysis plan for any new study that you are beginning. I am flexible about the format of such a plan. Some trainees have opted to publish their pre-analysis plans on AsPredicted.org; others have published them on the Open Science Framework. I do not require publishing these plans (except in particular circumstances that demand their use), but I do strongly encourage everyone to, at minimum, write one for your own personal reference. It is far too easy to forget what you planned to do at the start, before you saw any of the data, especially with fMRI studies.

### Authorship

We will follow APA guidelines with respect to authorship:

"Authorship credit should reflect the individual's contribution to the study. An author is considered anyone involved with initial research design, data collection and analysis, manuscript drafting, and final approval. However, the following do not necessarily qualify for authorship: providing funding or resources, mentorship, or contributing research but not helping with the publication itself. The primary author assumes responsibility for the publication, making sure that the data are accurate, that all deserving authors have been credited, that all authors have given their approval to the final draft; and handles responses to inquiries after the manuscript is published."

Authorship will be discussed prior to the beginning of a new project, so that expectations are clearly defined. However, changes to authorship may occur over the course of a project if a new person becomes involved or if someone is not fulfilling their planned role. In general, I expect that graduate students and postdocs will be first authors on publications on which they are the primary lead, and I will be the last author.

### Old projects

For projects that required significant lab resources (e.g., fMRI or EEG studies or any other study requiring a great deal of time, money, or lab effort): Project "ownership" expires 3 years after data collection has ended (or whenever the original primary lead relinquishes their rights to the study, whichever comes first). At that point, I reserve the right to re-assign the project (or not) as needed to expedite publication. This policy is intended to avoid situations in which a dataset languishes for a long period of time, while still giving publication priority to the original primary lead.

# 3.3 Human subjects research

Because we are engaged in human subjects research, it is of the *utmost importance* that we adhere to our approved IRB protocols. **All lab members, including undergraduates, must read and comply with the IRB consent form and research summary for any project that they are working on. This is an <b>absolute requirement.** Lab members must also complete the CITI training and be added to the research personnel list before they can work with human subjects. If there are any questions about the protocols, or if you're not sure whether we have IRB approval to run your study, please ask the lab manager or me for clarification. If necessary, the lab manager can file an amendment to an existing protocol or create a new protocol.

If you encounter any problems in the course of doing research that results in a negative outcome for the participant (e.g., if a participant becomes ill or upset, if there is an accident with the equipment, if there is a breach of confidentiality, etc), you should immediately seek assistance from me or the lab manager. If I am not around, **you must notify me within 24 hours**, preferably as soon as possible. In some cases, we may need to report this information to the IRB and/or our funding agencies.

# 4. Lab Resources

### Slack

Slack will be used as the primary means of lab communication, such as general lab announcements (#general), sharing links, sharing and/or discussing papers (#papers), and basically any message that can

be sent without email. There's also a channel for keeping notes from our lab meetings (#lab-meetings), as well as channels for methods tips (e.g., #fmri-methods) and specific projects.

Try to keep each channel on topic, so that people can subscribe only to the channels that concern them. For messages to one person or a small group of people, use the direct message channels. Because we pay per Slack user, part-time RAs will be invited as "guests" to the #undergrads channel; these users can also use direct messages.

Full-time lab members should install Slack to their computers and/or phones. Part-time lab members should check Slack regularly. I get Slack updates on my phone and have do-not-disturb mode enabled for evening and night hours (meaning I will not get your messages then); I encourage you to do the same.

#### Internal lab website

The <u>internal lab website</u> will be used as a repository for lab knowledge, particularly as it pertains to research methods and documentation of lab procedures/ management. If you learn something new, share it on the website. If you're trying to find out how to do something, search first on the website. The lab manager is responsible for keeping the internal lab website up to date, but all lab members should pitch in.

#### GitHub

All projects that involve programming of any kind must use some form of version control. We have a <u>GitHub organization</u> set up with unlimited private repositories, allowing you to sync your code to the cloud and share it easily with other lab members. We will also use GitHub for sharing script examples and hosting lab toolboxes for general use.

### Google Drive

The MemoLab **shared drive** on Google Drive is used to store documents and files for general lab use (e.g., IRB documents, stimuli, pdfs, etc). It can also be used for some forms of non-identifiable data. Note that we used to use a regular Google Drive folder, but we now use the shared drive to ensure that the lab will maintain owner access over the files even after individual team members have left.

### Google Calendar

Google Calendar is used to host a general lab calendar (MemoLab), as well as calendars for the in-lab testing rooms.

#### Email

When it's necessary to forward or send emails to the entire lab, we have a list for that: memolab-list@bc.edu (registered users only). We also have a lab email account that goes to only me and the lab manager: thememolab@bc.edu. And finally, we have a list for full-time lab members only: memolab-core-ggroup@bc.edu.

# 5. General policies

### 5.1 Hours

One of the benefits of a career in academic research is that it is typically more flexible than other kinds of jobs. However, you should still treat it like a job. If you are employed for 40 hours a week, you should be working 40 hours a week. This applies to lab staff members (the lab manager and other research assistants) and postdocs. You are not required to work over-time. For graduate students, I recognize that

you have other demands on your time like classes and TA-ing but still expect to see you in lab, doing research, often.

Lab staff members are expected to keep regular office hours (e.g., somewhere in the ballpark of 9-5). Graduate students and postdocs have more flexibility. However, in order to encourage lab interaction, I expect that all lab members will be in the lab, at minimum, most weekdays between 11am and 3pm or so.

#### PL office hours

In addition to poking my head into the lab regularly, I will be working on campus and available for meetings most days of the week. If my door is open, feel free to pop in. Because I am easily distracted, I ask that if my door is closed, send me a message or try me later rather than knock. I'm also happy to set ad-hoc meetings to discuss anything over and above our weekly lab and individual meetings.

# 5.2 Meetings

### Weekly lab meetings

Weekly lab meetings will be focused on project presentations and going over new data or methods. Lab meetings will last no longer than 1.5 hours. If at the end of 1.5 hours, we need more time to discuss something, we will schedule another meeting. Lab meeting plans and notes will be maintained in the #lab-meetings channel on Slack; there is also a doc for lab meeting minutes. All full-time lab members are expected to attend the weekly lab meeting. All part-time lab members (including undergraduates) are welcome to attend but attendance is not required, except for thesis students, URF students, and students earning course credit.

# Individual meetings

At the beginning of each semester, I will set a schedule to meet with each full-time lab member for one hour a week. If we do not have anything to discuss in a given week, that's fine- we can just say hi or cancel it. Before each meeting, update your meeting <u>agenda</u>; this will also be a place where we document next steps.

# Journal clubs & joint lab meetings

We will alternate between having a biweekly joint lab meeting with the CAN lab and a biweekly journal club. Joint lab meeting topics will include project presentations, article discussions, and practice talks. The journal club will be focused on discussing new and/or important research articles. Some weeks, we'll discuss a single article that everyone has read; other weeks, we'll each read a paper on a specific theme and do mini-presentations on each paper. Journal club topics will be set in the #papers channel on Slack. As with our internal lab meetings, all full-time lab members are expected to attend, and part-time lab members are invited but not required to attend. *Note that we are not currently doing these meetings but may resume in the future.* 

### 5.3 Deadlines

If you need something from me by a particular deadline, please inform me as soon as you are aware of the deadline so that I can allocate my time as efficiently as possible. I will expect at least one week's notice, but I greatly prefer two weeks' notice. I will *require* two weeks' notice for letters of

recommendation. If you do not adhere to these guidelines, I may not be able to meet your deadline. Please note that this applies to reading/ commenting on abstracts, papers, and manuscripts, in addition to filling out paperwork, etc. Reminder messages are appreciated.

### 5.4 Presentations

I encourage you to seek out opportunities to present your research to the department, research community, or general public. If you are going to give a presentation (including posters and talks), please be prepared to give a practice presentation to the lab at least one week ahead of time. Not only will this help you feel comfortable with the presentation, it will give you time to implement any feedback. I care about practice presentations because a) presenting your work is a huge part of being successful in science and it's important that you practice those skills as often as possible, and b) you are going to be representing not only yourself but also the rest of the lab.

There is a lab template for posters that you are free to modify as you see fit, but the header and general aesthetic should stay similar. If you have ideas for how to improve the poster template, please show the lab so we can decide whether to implement them as a group. This will help increase the visibility of our lab at conferences. (Don't believe me? Check out the various lab "walls" at the next conference you attend.) There is no template for talks, and I encourage you to use your own style of presentation as long as it is polished and clear.

#### A note on colors

The PRC is red, the PHC is blue. All other colors are up to you.

#### 5.5 Lab travel

The lab will typically pay for full-time lab members to present their work at major conferences (e.g., SFN, CNS, CEMS). In general, the work should be "new" in that it has not been presented previously, and it should be appropriate for the conference. This will usually result in one conference per year. When I set our grant budgets, I estimate \$1500 per trip, so your reimbursable costs should be around that amount or less. Meal costs will be reimbursed for people who are presenting work from the lab. The lab will also pay for new grad students and postdocs to attend one conference in their first year in lab (i.e., without presenting). If you wish to attend any other conference outside of these guidelines, under some circumstances I may be willing to have the lab reimburse you for the registration fee. If travel expenses are being paid off of a grant, additional restrictions may apply (talk to me). All of these guidelines, of course, depend on the availability of funds. Lab members are required to apply for other sources of funding available to them (e.g., departmental funds for grad students, BC postdoc travel awards).

#### 5.6 Recommendation letters

Letters of recommendation are one of the many benefits of working in a research lab. I will write a letter for any student or lab member who has spent at least one year in the lab. Letters will be provided for shorter-term lab members in exceptional circumstances (e.g., new graduate students or postdocs applying for fellowships). I maintain this policy because I do not think that I can adequately evaluate someone who has been around for less than a year.

To request a letter of recommendation, please adhere to the deadline requirements described above. Send me your current CV and any relevant instructions for the contents of the letter. If you are applying

for a grant, send me your specific aims or a short summary of the grant. In some but not all cases, I may ask you to draft a letter, which I will then revise to be consistent with my evaluation. This will ensure that I do not miss any details about your work that you think are relevant to the position you're applying for, and it will also help me complete the letter in a timely fashion. You are advised to send me a reminder message close to the letter deadline.

# 5.7 Data management

### Storing active datasets

In general, data will be stored in one of three places:

### • Lab folder on secure departmental server

• Data to store here: consent forms, keys to subject IDs (identifiable data ok)

### Google Drive

- Data to store here: behavioral data (no identifiable data!!!)
- All BC account holders have unlimited storage on Google Drive
- All data files should be saved under the MemoLab shared drive so that the lab retains ownership of the files

#### Linux cluster

• Data to store here: MRI and EEG data (identifiable data ok)

All three of these locations are approved on our IRB protocol. They are all backed up regularly, which make them particularly appealing options for data storage. In general, you should not store data locally on your computer unless it is being synced with your Google Drive folder (de-identified data only).

### Data organization

My project folders typically look something like this:

#### • ProjectName/Data

- contains a folder for raw data always keep a copy of the raw (i.e., unprocessed) data & keep it separate from the copy that you're using in your pipeline
- subject folders s01, s02, etc for processed data
- o this folder also contains a file documenting demographic & other summary info
- ProjectName/Analysis
  - o contains folders for each type of analysis, e.g., AnalysisOne, AnalysisTwo etc
- ProjectName/Task
  - contains folders for stimuli & presentation scripts, as well as any piloting info/data
- ProjectName/Resources
  - o contains miscellaneous resources relevant to a project, e.g., ROIs, papers that are direct references for particular methods
- ProjectName/Scripts
  - contains subfolders for different kinds of scripts, e.g., behav, preproc, helper, model, mvpa, etc
  - the Scripts folder is git-tracked & contains a README.md file that describes as much info as possible about the study
  - if you are using both git & Google Drive, make sure that you are not syncing the Scripts folder to Google Drive because that will mess up git. Conversely, don't sync stimuli & data

files to git because that will blow up your repo over time. Use symbolic links to tie everything together.

I encourage you to use an organization scheme like this one. When you archive the dataset, you will be required to format it like this (or something similarly transparent in its organization), so might as well start that way. For neuroimaging datasets, you should additionally consult the BIDS framework.

# Archiving inactive datasets

Before you leave the lab, you will be required to document and archive any dataset that you have collected. I will review the dataset with you before you leave. [To add: information about where to archive data]

### Data sharing

Not only is data-sharing the right thing to do, we are actually required to do so for any dataset that was funded by the NIH. We will make these datasets publicly available within a year of publishing the first paper from the dataset. You should also be prepared to share any scripts that you used in your published processing & analysis pipeline. Currently, the best option for sharing smaller datasets seems to be the Open Science Framework, the best option for sharing MRI datasets is OpenFMRI, and I don't yet know what is the best option for sharing EEG datasets.

# 6. Funding

Funding for the lab comes from:

- my start-up package from Boston College
- National Institute of Mental Health (grant number **R00MH103401**) 2016-2020
- The Brain and Behavior Research Foundation NARSAD Young Investigator Grant 2019-2020

# Allocation of expenses

I will oversee all aspects of the financial management of our funding sources. However, it is important to me to be transparent about where research money comes from and how it's spent. I have included some notes below but please do not hesitate to ask if you want to know more details.

- **Start-up**: I do not think I'm technically allowed to disclose the terms of my job offer. However, we have money and it's enough to keep us going for awhile. Start-up funds are flexible in that they can be used for any justifiable purpose.
- **R00**: The R00 has a budget of approximately \$250,000 per year for 3 years plus an extension year. After indirects are taken out (i.e., money that BC charges to keep the lights on), this amounts to approximately \$170,000 per year. All expenses that are consistent with the R00 budget/ aims should be charged to the R00 grant. Because NIH funds are more restricted than start-up funds and because they expire more quickly, we should use them whenever allowable and save start-up funds for other purposes.
- **NARSAD**: The NARSAD has a budget of approximately \$35,000 per year for 2019 and 2020. These funds are available for the emotion regulation project (and associated costs) only.
- **Other funds:** Sometimes the lab receives small amounts of unrestricted funds from the university; these can be spent in the same way as start-up.

# Other funding notes

All research funded by the NIH *must* acknowledge the grant number upon publication. This is essential for documenting that we are turning their money into research findings. We must also submit a yearly progress report describing what we have accomplished. Lab members involved in the research will be asked to contribute to the progress report.

Research funded by other grants (e.g., NARSAD) must also acknowledge the source of funding.

# 7. Undergraduate research

Undergraduate research assistants play an important role in our lab, and we have a few opportunities for them to earn money or credit for their contributions. Because these opportunities require a certain degree of commitment from both the student and the lab, we generally reserve them for students who have already spent at least one semester volunteering in lab. If you are eligible for work-study, I will make exceptions to this policy; we want all students to be able to pursue their research interests.

In addition to volunteering in lab, other research opportunities include:

- If you want to work in lab and earn course credit, you can sign up for independent study or undergraduate research (link to info). We will have to fill out a syllabus contract at the beginning of the semester. Typically you would be in lab for at least 10 hours a week, and you would also be required to attend lab meetings, present at one of them, and write a short paper about the science of memory.
  - a. Note that this option is available only to students who have spent at least one semester in lab already.
  - b. You can enroll in research courses multiple times.
- 2. If you want to work in lab and earn money, you can apply for an **undergraduate research fellowship**. Candidates are expected to be academically strong (typically, GPA of 3.4 or above), and you would be expected to work 12-15 hours per week. Because these fellowships are intended to support your academic development, URF students will be required to participate in lab meetings.
  - a. Note that this option is available only to students who have spent at least one semester in lab already.
  - b. This option is also available during the summer. If you are interested in working in lab over the summer, talk to me about it as far in advance as you can.
- 3. If you want to work in lab, earn money, and are eligible for **work-study**, there may be other paid research opportunities available.

If you're an undergraduate student and you want to pursue any of these options, talk to me or the lab manager. Note that if you have another BC job, you're not allowed to work more than 20 hours per week during the academic year, and that includes paid lab or URF hours.