

UC DAVIS

BIOPHYSICS

Graduate Group

Biophysics Student Handbook

&

Welcome Packet

2023-2024

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Greetings, Biophysicists!

We would like to congratulate you on your admission and welcome you to the BPH program at UC Davis. We received your Statement of Intent to Register (SIR) and look forward to seeing you in the fall at UC Davis!

Please read the following pages carefully as they contain a lot of important information to help you get prepared before the fall quarter begins. We have included information about setting up computing accounts, [orientations](#) and trainings, enrolling in classes, laboratory rotations, finding housing, and other helpful resources. Soon, you will be assigned an academic advisor and graduate student mentor. If you are an international student, you will receive additional information about your student visa application and work closely with [Services for International Students and Scholars](#).

Graduate Studies requires you to provide them with final transcripts including proof of graduation. Information regarding where to send your transcripts can be found on the following website: gradstudies.ucdavis.edu/official-transcripts. If you are a domestic student, but not a California resident, you should begin the process of establishing residency as soon as you arrive in Davis. It takes one full year to establish residency and to be eligible for resident tuition rates.

If you have any questions, please contact Najwa Marrush nmmarrush@ucdavis.edu.

We are excited that you selected the BPH program at UC Davis. We will be in touch!

Best,
Biophysics Graduate Group

IMPORTANT DATES and DEADLINES

*Required

September

**Required*

September 1	*Last day to register for Orientation for New Teaching Assistants *Register for Classes
September 4-15	Open Registration
September ??	Graduate Student Resources Fair (Date TBD)
September 25	*Orientation for New Teaching Assistants
September 26	*Biophysics Graduate Student Orientation *CBS Graduate Group Fall Welcome Reception
September 27	Instruction Begins
Week of October 2nd (stay tuned!)	Student Chapter of the Biophysical Society Fall Mixer

THE FIRST-YEAR CHECKLIST

Summer 2023

- Find Housing As Soon As Possible (*Information on Page 6*)
- Setup Computing Account (*Information on Page 7*)
- Get AggieCard (*Information on Page 8*)
- Register for Fall Classes by September 1st (*Information on Page 9*)
 - You will have the option to change your course registration after this date.
- Health Insurance Waiver
 - If you would like to opt out of the UC SHIP (Student Health Insurance Plan) and qualify for the waiver, the [form](#) must be completed by September 1st. (*information on page 7*)
- Setup First Lab Rotation by September 8th (*Information on Pages 11-13*)
 - Helpful information from the BPH graduate students on choosing rotations and potential PIs can be found in the "Navigating Interview with Potential PIs" document at the end of this document.
- Attend Graduate Student Orientations (*Information on Page 10*)
- Meet with Assigned Academic Advisor, Tonya Kuhl
 - Set up a meeting before the school year begins to discuss elective course decisions, laboratory rotations and any other academic concerns. It is recommended that you meet with your advisor multiple times during your first year as needed.
- Complete the FAFSA (if you have not already submitted one). All domestic students are required to file the Free Application for Federal Student Aid (FAFSA) in order to be eligible for fellowships, work-study, and Federal Financial Aid. This is just a formality and a requirement from the Office of Graduate Studies (OGS). Per OGS, any student receiving funding from the University needs to complete the form.

The FAFSA is available online at <http://fafsa.ed.gov>

- Please complete the Statement of Legal Residence before the start of Fall Quarter: <https://registrar.ucdavis.edu/tuition/residence/processes/slr-basics.cfm> (*information on Page 8*)

Fall Quarter 2023

- Explore Faculty Research Labs and Meet with Potential PIs
- Setup Second Lab Rotation
- Present First Rotation Project at Weekly Seminar (Dates TBD)
- Setup Third Lab Rotation
- Register for Winter Classes starting October 31
- Present Second Rotation Project at Weekly Seminar (Dates TBD)

Winter Quarter 2024

- Setup Fourth Lab Rotation
- Register for Spring Classes starting February 6, 2024
- Present Third Rotation Project at Weekly Seminar (Dates TBD)
- Choose Research Advisor and Complete Mentoring Contract
- Discuss and Finalize Spring Quarter Funding Situation With PI
 - Begin looking for teaching assistantship early in the quarter if necessary
- Present Fourth Rotation Project at Weekly Seminar (Dates TBD)

Spring Quarter 2024

- Register for Fall 2024 Classes
- Begin First Research Project Chosen With PI
- Apply for Fellowships, Grants, and Travel Awards
- Complete myIDP Assessment and Student Progress Report with Academic Advisor and/or Research Advisor (PI, Major Professor)

HOUSING and TRANSPORTATION

The [Graduate Student Guide](#) contains useful information concerning transportation and housing. Once you have a UC Davis email address, you will be placed on the student listservs and you are welcome to send an email message to the program coordinator if you are interested in finding a roommate/house-mate within the program/college.

Housing in Davis fills up very quickly, so it is important to start looking as soon as you can. As a friendly reminder: many rentals require the first and last month's rent and/or a security deposit when you sign your lease. Information to obtain California Residency can be found [here](#). It takes one year to obtain California residency so it is important to start this process soon after arriving in the Davis area.

If you are starting to look for housing, here are some helpful websites:

UCD Graduate Student Housing	https://housing.ucdavis.edu/graduate-and-professional-housing/
Davis Wiki – Renting	https://localwiki.org/davis/rental_housing_guide
Community Housing Listing	http://chl.ucdavis.edu/
Sacramento Area Craigslist	https://sacramento.craigslist.org/
UCD Grad and Professional Housing Facebook Group	https://www.facebook.com/groups/286762898448011/?ref=share
UCD Off-Campus Housing Facebook Group	https://www.facebook.com/groups/763250590497811/?ref=share
Davis Housing Facebook Group	https://www.facebook.com/groups/418689684823205/?ref=group_browse
UCD Sublease & Short Term Housing Facebook Group	https://www.facebook.com/groups/519626841396155/?ref=group_browse

Here are some other useful resources for transportation and furnishings:

UCD Go Club	https://goclub.ucdavis.edu/commuteoptions
UCD Transportation Options	https://taps.ucdavis.edu/transportation
UCD Bike Program	https://taps.ucdavis.edu/bicycle
Davis Wiki – Parking	https://localwiki.org/davis/Parking
Davis Area Rideshare Facebook Group	https://www.facebook.com/groups/243044995791686/?ref=group_browse
UC Davis Sale or Trade Facebook Group	https://www.facebook.com/groups/655874594426741/?ref=group_browse
UC Davis Free and For Sale Facebook Group	https://www.facebook.com/groups/418689691489871/?ref=group_browse
Davis Buy Nothing	Search on facebook - there are 5 groups in Davis, by geographical area

HEALTH INSURANCE

All UC Davis students are required to have health insurance. In order to satisfy this requirement, all registered students are automatically enrolled in the [University of California Student Health Insurance Plan \(UC SHIP\)](#). UC SHIP is automatically paid from your university account after your stipend has been dispersed but before direct deposit into your personal account, just like all other student fees. If you already have comparable insurance coverage, and do not wish to be enrolled in UC SHIP, you must apply for a UC SHIP waiver by the posted [waiver deadline date](#), September 1st, 2023.

Here is a link to the Student Health Services: <http://healthcenter.ucdavis.edu/>

Here is a link to your insurance information:
<http://healthcenter.ucdavis.edu/insurance/index.html>

Life Balance and Wellness information: <https://grad.ucdavis.edu/current-students/support-resources/graduate-student-resources>

Mental Health and Counseling information: <https://grad.ucdavis.edu/current-students/mental-health-counseling-services>

Leave Accommodation information: <https://grad.ucdavis.edu/resources/graduate-student-resources/student-employment/leave-accommodation>

Student Parents and Family information: <https://grad.ucdavis.edu/resources/graduate-student-resources/life-balance-and-wellness/student-parents-families>

Crisis Counseling:
<https://www.ucdavis.edu/news/uc-davis-promotes-texting-option-crisis-counseling>
<https://eachaggiematters.ucdavis.edu/here-are-some-options-immediate-crisis-support>

Additional Mental Health Resources can be found on Page 22

CREATE A COMPUTING ACCOUNT

All new students must establish a campus computing account and a UC Davis email account. Go to the [Information Technology website](#). Follow the instructions for establishing a computing account, Kerberos ID (your campus login ID) and password. It may take up to 48 hours after submitting the Statement of Intent to Register (SIR) before you are able to access this function. This must be completed before registration for orientation and trainings.

Click on "Get your UC Davis Computing Account," click begin and follow the directions. Once you have activated your account, please send Najwa Marrush (nmmarrush@ucdavis.edu) your UCD email address so she may add you to the Biophysics Graduate Student listserv and BPH Student Slack account. Once you have been added to the BPH Student listserv you should begin checking your UCD account regularly, as you will receive updates on upcoming events (e.g., orientation, registration, etc.) and other graduate group related information.

ORDER AGGIE CARD

You will need to order your AggieCard (the UC Davis identification card) in order to access certain services on campus. Go to the [AggieCard website](#) and follow the steps listed for a graduate student to obtain an AggieCard.

ACADEMIC ADVISOR

Your academic advisor is Dr. Tonya Kuhl (tkuhl@ucdavis.edu). The academic advisor ensures that academic requirements are on track, and advises students on how to design a program of study and navigate the coursework requirements, find a lab, and work with their major professor. Academic advisors are appointed by Graduate Studies, and their signature verifies that academic milestones have been met. Academic advisors review and approve petitions to join Designated Emphasis programs, QE applications, candidacy forms, progress reports, petitions to add or drop courses, etc. More information on Graduate Program Roles and Responsibilities can be found [here](#). Note that besides assisting students with course selection and administrative tasks, academic advisors can be a sounding board for major professor selection, and for handling delicate situations with faculty. It is expected that you meet regularly with your academic advisor. **Please email your academic advisor to schedule a one-on-one meeting to introduce yourself before the quarter starts.**

MENTORING GUIDELINES

The Biophysics Graduate Group adopts the Graduate Council's Mentoring Guidelines: https://academicssenate.ucdavis.edu/sites/g/files/dgvnsk3876/files/inline-files/mentoring_guidelines.pdf

ESTABLISHING CALIFORNIA RESIDENCY

Please complete the Statement of Legal Residence before the start of Fall Quarter: <https://registrar.ucdavis.edu/tuition/residence/processes/slr-basics.cfm>

If you are not a California resident, you should begin the process of establishing residency as soon as you arrive in Davis. It takes one full year to become a California resident, and at the end of your first year, you should file the appropriate paperwork with the Office of the University Registrar to make the transition from non-resident to resident. Here is a link with more information about how to establish residency: <https://registrar.ucdavis.edu/tuition/residence/processes/classification-instructions.cfm>

You should expect to complete the online petition by summer 2024.

REGISTERING FOR CLASSES

Registration will remain open until September 15th. You can build your Fall quarter schedule through [Schedule Builder](#) at any time without requiring a [specific appointment time](#). If you need to enroll in any undergraduate courses (numbered 1 to 199), be sure to enroll as early as possible because these classes become full very quickly. Complete instructions for using SISWEB will be included in the registration materials you will be receiving via email from the Registrar's Office mid-late July. If the system is saying that you are missing prerequisites, please do write a petition for exception, which will pop up when you attempt to register-this will save your spot in line.

Fall 2023 Required Courses

BCB 211 (3 Units) – Macromolecular Structures and Interactions (CRN = 23589)

BPH 200LB (6 Units) – Laboratory Rotations (CRN = 24689)

BPH 293 (1 Unit) – Faculty Research ("Meet the Professors") (CRN = 24717)

BPH 290* (1 Unit) – Biophysics Seminar (CRN = 24690)

BPH 290* (1 Unit) – Navigating Graduate School (CRN = 24691)

First Year Recommended Courses

Grant Writing (ABG 202 in Fall 2019, but class name changes each semester)

BPH 298 Writing Course (CRN = 24724)

A full course-load is 12 units minimum (and 16 units maximum). You may complete your schedule by making up any deficiencies in your background or by taking courses in other areas. You will mostly be engaged in course work and rotations during the first three quarters. Typically, you will commence your thesis research in the spring quarter of your first year. **We expect that you will remain on campus to work and study during the summers following your first year and that you will remain solely employed as a graduate student during your Ph.D. studies. If you are an international student, make sure you are meeting all visa requirements before committing to summer work.**

ORIENTATIONS and TRAININGS

All details about campus graduate student orientations can be found on the [Office of Graduate Studies Orientation Page](#). Registration will open sometime in July.

1. **Graduate Studies Resource Fair**, September (TBD)
(encouraged but optional)
2. **Student Chapter of the Biophysical Society Fall Mixer**, (Date TBD)
(encouraged but optional)
 - i. The first ever Fall Mixer hosted by the Student Chapter of the Biophysical Society at UC Davis will include research poster presentations and networking with light refreshments. Everyone in the UC Davis biophysics community is welcome to attend. Register at
3. **Orientation for New Teaching Assistants**, September 25
(mandatory)
 - i. This orientation is required for all potential teaching assistants and is only offered once a year. You must complete the self-paced modules on UC Davis's learning management system, Canvas, before attending your assigned session. You can complete it here: <https://cee.ucdavis.edu/tao> For more information, contact: cee@ucdavis.edu or 530-752-6050.
4. **Biophysics Graduate Student Orientation**, September 26
(mandatory)
 - i. Introduction to program expectations and presentations from faculty seeking rotation students. You will also meet your graduate student mentors and review your welcome materials.
5. **CBS Graduate Group Fall Welcome**, September 26
(encouraged but optional)
 - i. Mixer for all the graduate groups in the College of Biological Sciences held at the Life Sciences/Green Hall Courtyard. Light refreshments provided.
6. **Sexual Violence Prevention Training (SVPT)**
(mandatory)
 - i. Register for SVPT at <https://grad.ucdavis.edu/orientation> after creating your computing account and ordering your AggieCard. SVPT is mandatory for all incoming graduate students. For more information on the training please send a message to the Sexual Violence Prevention program at SVPT@ucdavis.edu.
7. **Laboratory Safety Training**
(mandatory)
 - i. Complete your mandatory [online Laboratory Safety Training](#), preferably prior to arriving. The training takes 2-3 hours and includes testing. Be sure to save the certificate you receive, as it may need to be submitted at a later date.

LABORATORY ROTATIONS

1st rotation: Wednesday, September 27 – Friday, November 3; Rotation Talks date TBD

2nd rotation: Monday, November 5 – Friday, December 8; Rotation Talks date TBD

Fall Quarter instruction ends on December 10; finals are December 11-17.

3rd rotation: Monday, January 8 – Friday, February 9; Rotation Talks date TBD

4th rotation: Tuesday, February 13 – Friday, March 15; Rotation Talks date TBD

Winter Quarter instruction ends on March 15; finals are March 15-21.

What are laboratory rotations?

The purpose of laboratory rotations is to find a mentor for your PhD. Rotations are a wonderful thing. They are a period of time to try out hands-on experimental work in different laboratories. Two of the goals of your rotations are to “learn by doing” and to impress any professors with whom you might want to do a thesis. They are both a means of garnering new technical skills and a dating period to find a lab to commit to. The most important aspect of every rotation is to identify a major professor who can support your research ambitions intellectually, interpersonally, and financially.

What are rotation expectations?

Rotations are a once in a lifetime opportunity to sample different areas of physiology research and to demonstrate your potential to future mentors and supporters - take full advantage. You should try to be in your rotation lab whenever possible. Your funding support is contingent on you actively engaging with a laboratory. Make sure to let your rotation mentor know when you have class or need to prepare for class so they'll know you are serious about being in the lab whenever you can. Training you to work in any specific laboratory environment is a significant commitment and energy investment on the part of your host laboratory. While it's a tall order to get any significant science done in 5 weeks; focus, careful thinking, and hard work can enable discoveries during a rotation that turn into a thesis. However, this does not need to be your goal, nor should it be expected. Rotations should be focused on finding out for yourself whether each lab would be a good fit for you.

Where to rotate?

You can rotate with BPH affiliated faculty: <https://bph.ucdavis.edu/faculty> , and also with faculty who are willing to join the BPH group. We will also supply you with survey results from professors indicating whether they are interested in taking rotation students and supporting thesis student research. **Until you have a thesis laboratory confirmed, it is recommended to rotate only in labs that will be able to mentor and support your PhD research.** This list is a good place to start considering labs to contact, but do not restrict yourself to it. We encourage you to contact any UC Davis faculty member whose interest sparks your imagination. To commence the rotation the professor must first join BPH; this is a straightforward process, and how most professors join BPH. Contact Najwa Marrush nmmarrush@ucdavis.edu if you wish to do this.

You are responsible for setting up your own rotations. We advise you to begin setting up a first rotation immediately. Look at faculty web sites and read their publications. Contact professors you are interested in working with by email. If you get a response, great! If you do not, wait a week and try again. The first rule of emailing faculty is: a non-response means nothing. We are all incredibly busy. Write short informative messages with optional information attached or postscript. Make it easy for a professor to read and reply to your email in less than 2 minutes. Do not send this exact email, but feel free to use this template as a reference:

Dear Professor [Surname],

I am a first year student in the Biophysics graduate program. I have laboratory experience with A and B. My curriculum vitae and graduate application are attached. From your website and publications I've seen you are studying D, which I have a keen interest in. Might you have a moment to chat in person or by phone about the possibility of a laboratory rotation?

Sincerely,
[Your Name]

Your top priority is arranging a first rotation. Contact professors, rank order who you think you would most like to work with and starting with #1, ask if they might be willing to mentor your first rotation. Resist the temptation to commit to further rotations before you arrive. You will learn much more by meeting face to face and seeing their lab. When you have committed to a rotation please inform Najwa Marrush.

Once you arrive in Davis, your goal is to find at least three more professors with whom you could rotate. You will be enrolled in a course requiring faculty meetings to facilitate and encourage this process. **Meet and talk with as many professors as possible as early as possible.** This should be an active selection process. Approach faculty in whose research you are interested. Ask them if they could recommend specific papers about their current research. You can also ask them if they are open to taking rotation students in the winter and whether they are open to taking a thesis student this year. Do not necessarily commit to a rotation at the first meeting, take time to reflect and consider your options before signing on. Before agreeing to a rotation, do some investigating into what spending precious years in their lab might be like. **Talk to people in their labs.** Talk to their lab members privately and see if you could foresee happily spending forty plus hours a week in their company. Ask them in confidence whether they think you could be a good fit in the lab.

Ask the professor how they could financially support you through your thesis. Once rotations are over, your tuition and stipend need to come from somewhere. While you can work as a teaching assistant to support yourself, this will take time away from research. Some but not all students are awarded fellowships. Laboratory supplies are expensive. Think about how much certainty is in a laboratory's funding situation, and how you would feel if their uncertainties became your uncertainties. Four rotations may seem like a plethora of options, but choose wisely.

Devote your time to laboratories you would be excited to join. Make these rotations a rich slice of life!

Suggestions for starting a rotation

- Ask the professor with whom you are rotating for background papers to read. The Professor may give you reprints from his/her own lab, may give you a list of references or may just give you some names or topics to search in PubMed or Google Scholar.
- Read the papers and **ask questions** about things you don't understand. Find out when lab meetings are held and go to them. Learn about the general area of your rotation lab's research beyond your individual project.
- Discuss and agree on a project outline with your professor. Make sure you can define the specific problem being addressed and the hypothesis being tested. Don't be satisfied with just doing tasks in the lab.
- Start your rotation early, if possible. Eagerness to engage in research never fails to impress.
- **Please complete the mandatory online training course entitled "UC Laboratory Safety Fundamentals" before you start your Fall quarter rotation.** You will need your UC login ID and passphrase. Ask your rotation mentor which safety courses are relevant to your research project, and complete them ASAP. Many of these courses are available online. <http://safetyservices.ucdavis.edu/training/uc-laboratory-safety-fundamentals>
- If you rotate in a lab in the Shriners Hospital in Sacramento, there are extensive background checks that need to be completed before you can rotate. Talk to the professor ASAP to start the process so your rotation starts on time.

How to rotate

Let your enthusiasm for research be palpable. Show up in the lab whenever you can. Take written notes on everything anyone in the lab tells you. Research the subject matter of your notes and come back with further questions. Read, read, read. Think, think, think. Understand what you are doing, what the reagents are, how the instrument works. Plan carefully for experiments. Treat equipment with the utmost care. Nothing will impress as much as experiments carried out thoughtfully and carefully. First impressions make deep imprints. Give these rotations 100% attention and you will be rewarded with an auspicious start to a graduate thesis. Try to speak with current students of the lab about the mentor style of the PI; do they expect to meet daily/weekly/monthly? How hands on or hands off are they in designing experiments and experiments?

Timing

If you find a good match with a lab that has funding for you to do a research project, you may stay there for a second rotation, or join their lab permanently. If you find yourself in a rotation that is obviously not a good match, contact one of us. We may encourage you to move on to a new rotation early. Keep an open mind about what labs would be interesting. Graduate school is a time to broaden your interests and experience. Make the best use of this valuable time, learn passionately!

Navigating Interviews with Potential Major Professors

To the New Biophysics Students:

As you've been informed throughout your interview, recruitment, and orientation process, choosing your major professor for your thesis is one of the most important decisions you will make in grad school. You will be working for and with this individual for the next 4-6 years. They will play a critical role in your development as a scientist and shaping your early career pursuits.

Picking a major professor can be a daunting process but we hope this guide will help you navigate conversations with potential advisors and highlight some important factors to consider when making your selection. This set is not meant to be followed to the letter, as a good major professor-student relationship depends primarily on your personal needs, but it is reflective of the experiences of many of our current graduate students and what we found useful or wish we had known when we were in your shoes.

Important Topics to Cover

1. Rotations and Potential Projects
2. Funding
3. Expectations
 - a. Academic background
 - b. Available Now and Potential Future Projects
 - c. Time commitment/Working style in lab
 - d. Time to finish, publications expectations, career mentorship
4. Mentoring Style
5. Mentoring Agreement

1. Rotations and Potential Research Projects

It can be daunting to try to decide on a research area and rotation. There is a broad array of biophysics research going on at UC Davis. The best advice is to choose a rotation that you find interesting in an area that you are thinking about for your graduate research. The project should suit your career goals, and fit well with your skills and talents. For example, if you love working hands-on in a "wet" lab, a purely theoretical or computational research project may not be well suited for you. However, if you're not sure, rotations are a great way to explore new areas. Beyond broad brush strokes of figuring out a dry or wet lab, there isn't one choice that is best for your academic and research success, rather there are different options to work with different possible major professors that lead to different opportunities. The first place to start is with faculty websites. Does their general research area interest you? What approaches do they use? Note: websites by their very nature are out of date. The papers that came out are likely from work that was accomplished 6 months to a year ago and the group could have moved into

a different but aligned research area. Still, doing a “web of science” search of the most recent work of the professor is a great first step. Once you narrow your potential faculty down to five or so, take the time to talk to students and postdocs in their group to see what is currently happening in the lab. Still interested? See if the faculty member is taking rotation students, has funded research projects, and test the waters.

2. Funding

One of the biggest (unnecessary) stressors for graduate students is where their funding is coming from. There are several ways to be funded throughout your graduate career. The primary forms of funding are TAships, grants your major professor earns, and grants/fellowships you earn as an individual. When conversing with a potential PI, it is extremely important that they understand that they are responsible for helping you find funding and/or providing you with funding. It may feel weird, but absolutely ask forthright “Do you have funding to support me?” Furthermore, do they have funding to support you throughout the majority of or your whole PhD? Will they help you look for and apply for personal grants, fellowships, etc.? Do they expect you to TA, and if so, will they help you find a position and how frequently are you expected to TA? In the biophysics graduate group you are required to TA at least one quarter, and student experiences range from just one quarter to once a year to every quarter. Know which one you are okay with, and communicate that with your potential PI. For example, if a major professor tells you that you will have to TA every quarter, consider whether that will impede your ability to complete your research in a timely manner, and ask whether it will be up to you to find these teaching positions. Some students love teaching and are frequently enthusiastic, while others are not; neither preference is right or wrong, but being on the same page is important. Also ask them if they would be willing to help you apply for fellowships, and whether the lab currently has funding.

3. Expectations

a. Academic background

The Biophysics Graduate Group is highly interdisciplinary, an attribute we take great pride in. Our professors span a broad range of research interests; one could argue that almost any science professor on campus could be considered doing biophysics research. Our students also come into the program with a broad range of backgrounds, and picking the right topic to study can be challenging. You should consider whether you want to stay fairly close to what you have experience with or whether you want to learn new topics and techniques. You will want to communicate these expectations with potential advisors, especially if their field is fairly new to you. As you are entering graduate school with a minimum of a bachelor’s degree, you are expected to have a fair handle on the fundamentals of the science you will be studying. Gaps in knowledge are okay, but your major professor should know where these gaps lie. When talking to a potential advisor, inquire what knowledge you are expected to start with, and whether they are willing to teach you or wait for you to learn what you are lacking (eg. If you join a computationally focused lab, are you expected to already have programming experience, or can you learn it as you progress with your studies?). Some professors are more supportive of students pursuing new tracks than others, and it will be an immense source of stress for you if your major professor is expecting you to produce results faster than your starting knowledge

allows. Graduate school is supposed to be a learning experience, so if a professor is expecting you to already be an expert, be sure that you really want to do that research.

b. Available Now and Potential Future Projects

Some projects in a lab may already be funded and a major professor is actively looking for students to work on these projects. Other times, the major professor has submitted a grant application and is anticipating project funding but cannot immediately commit to having available funding. This is an important conversation to have with a PI. Are you willing to wait for confirmation and possible need to TA in the meantime with the potential for funding later? Or are you uncomfortable with the uncertainty? Additionally, laboratories are restricted by the projects they have funding for. If you are mainly interested in working on a specific, currently-unfunded project, would you be still happy in that lab if you could only work on a different project and the one you want never gets funding or fails to show promise during collection of preliminary results? Whatever the project and its funding-status, it's important to discuss with your potential major professor the specific aims of the project and what the expected timeline is. What are the component parts? What are the main goals? What knowledge and skills will/may you need to complete the project? How long should each part take? What are possible roadblocks to a timely completion? What happens if the project takes much longer than expected? How might this affect your graduation? You and your major professor may not be able to answer all these questions right away. However, they are important to keep in mind and can help guide your questions of students currently in the lab and their experience with past projects.

c. Time commitment/Working style in lab

Every graduate student works differently and every major professor has different expectations for how you work in the lab. Do they expect a 40, 50, or 60 hour work week, or do they just expect you to keep up with your research? Do they expect you to work exclusively in the lab, or can you work from home if your research topic allows it? Are they supportive of taking vacation time? Know what environment you work best in and communicate that with the PIs you talk to.

d. Time to finish, publications expectations, career mentorship

Graduate school is a stepping stone to a career in or adjacent to science, and should be treated as such. Ask a potential major professor on average how many years their students take to complete their degree. If they already have an established research group this is a great question to ask current students who know some of the history. How many publications do students typically produce during their degree? Does the major professor support students pursuing non-academic jobs such as industry, education, science policy, or science communication? This question is especially important if you are unsure of what you want to do after graduating. If a major professor won't support your career goals, working for them may be fruitless when you need them for a reference or a contact as you enter the professional world. Ask your potential advisor what steps they take throughout a student's degree to mentor them toward finding a career. Do they encourage students attending and presenting at conferences? Do they encourage participation in extracurricular career events and workshops on campus? Do they meet regularly with their students to discuss progress and goals?

4. Mentoring style

Ask your potential advisors about their mentoring style (this may sound redundant—the theme is present in the above sections). Are they hands on, designing experiments for or with you, assisting in writing, choosing projects, etc.? Or are they hands off, touching base every month or so but largely letting you direct your research? The answer is probably somewhere in between, but it is important to select a major professor whose mentoring style matches your learning needs. If you need more guidance and communication from your PI, make that clear. If you prefer to figure things out on your own, pick a major professor who will give you the freedom to do that. One of the biggest day-to-day struggles for a graduate student occurs when a PI's mentoring and the student's needs don't match up, so it is important to be upfront about expectations for this dynamic, and to communicate throughout your degree if your styles aren't meshing well. A simple aspect can be how often they hold group meetings and whether you can have a separate meeting with them and how frequently. Many advisors are willing to meet individual student needs, but only if you communicate what your needs are!

5. Mentoring Agreement

The form which will be presented to you after you join a lab, is meant to be used for check-ins or updates with your future major professor to make sure you are each on the same page. It can be used formally or informally—you can share this with your major professor and fill it out together or merely use it to guide your own questions. It can also be adapted as a guideline for interviewing a potential PI. Feel free to modify as necessary to meet your individual needs. Keep in mind that your goals or needs might change throughout your graduate school career so semi-regular check-ins or updates of this agreement are beneficial.

We hope these conversation topics have provided you with some factors to consider when talking to and selecting your future advisor. Your major professor is supposed to be your biggest confidant, supporter, and guide throughout grad school, and the easiest way to ensure a good relationship is to communicate expectations early and often. Additional resources can be found on the University of California Davis Graduate Studies website here: <https://grad.ucdavis.edu/resources/mentoring/mentoring-resources>. A recommended post to read from the "Tenure, She Wrote" blog on toxic academic mentorship can be found here: <https://tenureshewrote.wordpress.com/2013/08/12/toxic-academic-mentors>. If you have any questions or concerns, don't hesitate to contact your fellow BPH graduate students.

Good luck with your search!

Best,
Biophysics Graduate Students
University of California Davis

PHD Program Requirements

The full degree requirements can be found here: <https://programs.gs.ucdavis.edu/api/doc/4150>

Dissertation Plan B

This plan requires a three member (minimum) dissertation committee and an exit seminar.

Course Requirements (47 units)

If there are deficiencies in background, appropriate remedial undergraduate courses will be recommended; they must be completed with a grade of B or better prior to the qualifying exam.

Core Courses (16 units):

- BCB 211 Macromolecular Structure & Interactions (3 units)
- BPH 241 Membrane Biology (3 units)
- BPH 200, A and B (Biophysics techniques) (6 units)
- Upper division or graduate level course in statistics (minimum 4 units), for example:
 - STA 100 (4 units)
 - STA 130A or STA 131A
 - STA 200A: Introduction to Probability Theory (4 units)
 - STA 200B: Introduction to Mathematical Statistics (4 units)
 - STA 206: Statistical Methods for Research 1 (4 units)
 - STA 207: Statistical Methods for Research 2 (4 units)
 - PLS 205: Experimental Design and Analysis (5 units)
 - EBS 265: Design and Analysis of Engineering Experiments (5 units)
 - BIM 283: Advanced Design of Experiments for Biomedical Engineers (4 units)
 - CLH 244: Introduction to Medical Statistics (4 units)

Required lab rotation (12 units) and seminar courses (10 units):

- BPH 200LA-LB – (for a total of 12 units) Biophysics Laboratory Rotations. Two 5-week rotations per quarter, taken in both the fall and winter for a total of 6 units per quarter. At the beginning of each rotation, student and faculty write a rotation plan that indicates agreed activities and expectations. At the end of each rotation, students give short presentations on their rotation projects to other first-year students, the instructor in charge and any other faculty and students who wish to attend. In addition, each student and faculty fill out a rotation evaluation and a short written report.
- BPH 293 Meet the Faculty (1 unit)
- BPH 290 Navigating Graduate School (1 unit)
- BPH 290 Biophysics seminar (1 unit per quarter, for the first 6 quarters)
- Science Integrity: GGG 296 (2 units) or UC Davis Office of Research Responsible Conduct of Research certificate series

Elective Courses (minimum 9 units):

- Three additional graduate courses in the area of specialization (such as structural biology, membrane dynamics, electron transfer, computational biology, theory, cellular regulation, and imaging).

Recommended Electives

Molecular and Cellular Biophysics:

- BPH 271: Optical Methods in Biophysics (4 units)
- BPH 288: Living Matter: Physical Biology of the Cell (3 units)
- BIM 202: Cell & Molecular Biology for Engineers (4 units)
- BCB 212: Cell Biology (3 units)
- BCB 214: Molecular Biology (3 units)
- BIM 262: Cell and Molecular Biophysics for Bioengineers (4 units)
- ECH 254: Colloid & Surface Phenomena (4 units)
- ECH 265: Emulsions, Microemulsions & Bilayers (3 units)
- PTX 215: Electrophysiology techniques and applications (3 units)
- MCP 210A: Advanced Physiology (5 units)

Structural Biophysics

- BIM 252: Computational Methods in Biomedical Imaging (4 units)
- BPH 271: Optical Methods in Biophysics (4 units)
- CHE 218: Macromolecules: Physical Principles (3 units)
- CHE 210C: Quantum Chemistry: Molecular Spectroscopy (3 units)
- CHE 216: NMR (3 units)
- CHE 217: X-ray Structure Determination (3 units)
- CHE 241E/BPH 255: Nanotechnology and Imaging (3 units)
- CHE 241B: Laser & X-ray Spectroscopy (3 units)
- CHE 233: Physical-Organic Chemistry (3 units)
- PHA 207: Drug Discovery & Development (3 units)

Computational Biophysics

- MAE 216: Advanced Thermodynamics (4 units)
- BIM 254: Statistical Methods in Genomics (4 units)
- ECH 261: Molecular Modelling of Soft & Biological Matter (4 units)
- ECS 124: Theory & Practice of Bioinformatics (4 units)
- ECS 129: Computational Structural Bioinformatics (4 units)
- ECS 221: Computational Methods in Systems & Synthetic Biology (4 units)
- ECS 229: Advanced Computational Structural Bioinformatics (4 units)
- CHE 245: Mechanistic Enzymology (3 units)
- HPH 234/PHA 234: Advances in Computational Physics and Pharmacology (2 units)
- STA 243: Computational Statistics (4 units)

General Recommended Electives

- EBS 200: Research Methods in Biological Systems Engineering (2 units)

Total Minimum Unit and Seminar Requirement:

A minimum of 47 units are required: 16 core coursework units, 12 units of laboratory rotations, 9 units of electives, and 10 seminar units.

Students must enroll for 12 units per quarter inclusive of research (BPH 299), academic and seminar units. Courses that fulfill any of the course requirements may not be taken S/U unless the course is normally graded S/U. Per UC regulations students should not ordinarily enroll in more than 12 units of graduate level courses (200) or more than 16 units of combined

undergraduate and graduate level (100, 200, 300) courses per quarter.

Students must maintain a GPA of 3.0. If the GPA falls below 3.0, the student is placed on academic probation. If a student is on academic probation for more than three consecutive quarters, the student is subject to disqualification upon recommendation of the Biophysics Executive Committee to the Dean of Graduate Studies.

Teaching Assistantship: Students are required to TA one graduate advisor-approved undergraduate course prior to their qualifying exam.

Requirements for a Ph.D. include successful completion of a Qualifying Examination, dissertation research, and completion of a written Ph.D. dissertation and oral exit seminar.

Qualifying Examination

The QE should be taken by the beginning of the seventh quarter after admission to the Ph.D. program. The Academic Advisor will verify the candidate's eligibility to take the QE. The examination must be scheduled only after the student has completed all courses and other program degree requirements, including the TA requirement.

QE Committee: Each student, in consultation with their Academic Advisor and Major professor, will suggest to the chair of the Committee on Educational Policy and Advising 8 proposed faculty members of the QE committee, and will indicate any faculty member they wish to exclude, and will identify the area(s) of research specialization. Three areas of specialization are proposed by the student in consultation with their Major Professor to reflect the subspecialties of the broader research track that are most relevant for the student dissertation work, and are approved by the Academic Advisor. Neither the Academic Advisor or Major Professor may serve on the QE Committee. The Chair of the Committee must be a member of the BPH program. Guided by the candidates' lists, the Committee on Educational Policy and Advising will then forward their nomination of five faculty (one from outside the program membership) to serve on the committee to Graduate Studies for formal appointment in accordance with Graduate Council policy.

QE Requirements:

- a. **Dissertation Prospectus:** The written component consists of a research proposal similar to an NIH grant proposal that describes the dissertation work to be undertaken (typically 5-7 single-spaced pages with 1-inch margins, not including references). This prospectus should be submitted to the QE Committee no later than two weeks prior to the examination date.
- b. **Oral Examination:** The oral portion of the qualifying exam is intended to demonstrate the student's critical thinking ability, synthesis, and broad knowledge of the field of study. It consists of a three-hour oral exam with the five committee members present. Students typically begin the exam with a brief summary of the research proposal (prospectus) and the committee then questions them on the details. Then the questioning is opened up to three previously agreed upon areas of specialization within biophysics that have been approved by the Committee on Educational Policy and Advising.
 - Part 1. Research Presentation - the student makes a 15–20-minute presentation using a maximum of 10 slides where they
 1. present sufficient background to motivate their project
 2. present the hypotheses/aims of their project

3. present their approach to testing/meeting the hypotheses/aims
4. present potential limitations and challenges as well as potential alternatives

The QE committee asks questions throughout the presentation on the material presented.

Part 2: Subject Area question period (“breadth component”)

1. The three subject areas designated by the student, after consultation with the Major Professor, are approved by the Academic Advisor, and are probed through questions by the QE committee.
2. The QE committee asks any additional general questions in Biophysics to ensure sufficient breadth of foundational knowledge.

The committee will evaluate the student's general qualifications for a respected position as an educator or industry leader as well as the student's preparation in a special area of study based upon relevant portions of the student's previous academic record, performance on specific parts of the examination, and the student's potential for scholarly research as indicated during the examination.

Advancement to Candidacy: After passing the qualifying exam, students must submit paperwork with Graduate Studies in order to advance to candidacy. In consultation with the Major Professor and Graduate Adviser, students will nominate a minimum of three faculty to serve as the **Dissertation Committee**. In consultation with the Major Professor and Academic Advisor, students will nominate a minimum of three faculty to serve as the Dissertation Committee. The Major Professor will serve as Chair. The composition of the dissertation committee is entered on the Advancement to Candidacy Form and submitted to Graduate Studies for formal appointment in accordance with Graduate Council policy. The role of the Dissertation Committee is to advise the doctoral student on the research topic and methods, and then to review the final completed dissertation for acceptance. Students are expected to meet with the Chair of their dissertation committee regularly (at least monthly), and with the whole committee at least once a year. Dissertation committee members are required to read and comment on a dissertation within four weeks from its submission. This time limit policy does not apply to summer periods for faculty holding nine-month appointments. The student and dissertation committee will coordinate a timeline for the student to present the document to the dissertation committee. This timeline must allow all dissertation committee members enough time to fulfill their responsibilities within the four-week deadline.

Exit Seminar

All students must present a PhD Dissertation Research Seminar prior to filing their dissertation. This requirement must be verified by the Dissertation Committee when the dissertation is signed by the Committee.

Typical Time Line and Sequence of Events

Year 1

<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
<i>BPH 200 LA/LB (6)</i>	<i>BPH 200 LA/LB (6)</i>	<i>BPH 241 (3)</i>
<i>BCB 211 (3)</i>	<i>BPH 200A (3)</i>	<i>BPH 200B (3)</i>

BPH 293 (1)
BPH 290 (2)

BPH 290 (3)

Statistics* (4)
BPH 290 (1)
BPH 299 (1)

*Note: BPH 200LA (3 units) is available, if only 1 rotation will be done. *Approved Statistics courses are in paragraph 3a. If students have prerequisite deficiencies, the required prerequisite courses must be taken within the first year. Elective and statistics courses may be taken in the second year.*

Year 2

<u>Fall</u>	<u>Winter</u>	<u>Spring</u>
BPH 299 (6)	BPH 299 (8)	BPH 299 (8)
Elective I (3)	Elective II (3)	Elective III (3)
BPH 290 (1)	BPH 290 (1)	BPH 290 (1)
GGG 296 (2)		QE Exam

Note: It is expected that the students devote time to their QE preparation in the Winter and Spring quarter. The Major Professor should take this into account when evaluating research progress.

Year 3

*Advance to Candidacy
Dissertation Research*

Years 4-5

Dissertation Research and completion.

Sample Checklist for Degree Progress

Biophysics Degree Requirement Checklist						
NEW Requirements for >= 2022 - 2023						
Core Courses (units)	Fall	Winter	Spring	Fall	Winter	Spring
BCB 211 (4)						
BPH 200LA (12)						
BPH 200A (3)						
BPH 200B (3)						
BPH 241 (3)						
Statics upper div or grad (4)						
Seminar Requirement (10)	Meet the Professors 293 (1), Nav Grad School 290 (1), GGG 296 (2), and BPH seminar 290 (1) six times					
Grad Elective Courses (9)	Should be in an area of specialization					
Course 1						
Course 2						
Course 3						
TA Requirement						QE spr
Undergraduate preparation requirements						
1 year of vector calculus						
1 year of physics						
1 year general chemistry						
1 qtr statistics						
1 qtr Biochem/Biophys						

Student Participation in Committees

The BPH Graduate Group benefits immensely from the engagement and leadership of the BPH students. The Biophysics Graduate Group requires student participation in committee as defined above. The Chair, upon recommendation of the Group's graduate student organization, appoints student representatives to the following committees:

- Executive Committee
- Educational Policy and Advising Committee
- Admissions Committee
- Recruitment and Outreach Committee
- Seminar and Colloquium Committee (a student representative chairs this committee)

In addition, students can serve the Graduate Group by participating in the following initiatives:

BPH-MCIP WISE (Wellbeing, Inclusion, and Social Equity) was created with the purpose of promoting diversity, equity, and inclusion (DEI) among graduate students at BPH and MCIP. WISE organizes a monthly newsletter featuring a range of events and resources that are designed to enhance the experience of our student community. This newsletter serves as a valuable tool for all students, and we encourage everyone to take advantage of the opportunities it presents, and to suggest new content. BPH WISE leadership: Diego Lopez Mateos

UC Davis Student Chapter of the Biophysical Society:

<https://bpsstudentsatdavis.weebly.com/>

We are the first Biophysical Society Student Chapter on the West Coast—working to connect students and researchers in biophysics across the Davis community! Joining us is an excellent opportunity to expand and enrich the biophysics community on campus, engage in networking and collaboration, increase visibility of your research and get leadership experience! Our BPS Student Chapter provides a platform for encouraging students to continue working in the field and elevating the reach of our research through active participation in the Biophysical Society.

Additional Information

Planned Educational Leave Program (PELP)

The University offers students the option of taking a break in their education for a valid reason. You can PELP for a minimum of one and a maximum of three consecutive quarters. During your PELP period, you are not a registered student, but you retain some student privileges such as using the library and the recreational facilities (only if you purchase the necessary cards for each of those). For more information regarding the PELP, please contact the Office of Graduate Studies (752-0650).

Sexual Violence Prevention and Response and Title IX

One of UC Davis' highest priorities is the safety of its students and all members of its community. UC Davis prohibits all forms of sexual harassment and sexual violence, including sexual assault, dating and domestic violence, and stalking. Such conduct violates University policy and may violate California law.

More information: <https://sexualviolence.ucdavis.edu/>

Title IX information: http://compliance.ucdavis.edu/compliance_program/title_ix.html

Tax Information

Refer to Internal Revenue Service Publication 970

(<http://www.irs.gov/publications/p970/index.html>). Fellowships and scholarships are taxable, except for the amount paid for tuition, required fees, books and course-related expenses. The university neither withholds taxes, nor reports such payments to the IRS or State Franchise Tax Board for U.S. citizens and permanent residents. Individuals are required to report this income themselves and to make arrangements with the federal and state tax services to make estimated quarterly tax payments on fellowship income. Information on tax reporting is available in the Government Documents section of the University library (<http://www.lib.ucdavis.edu>), or you may contact the campus tax accountant at (530) 757-8936.

International Students – Refer to the Internal Revenue Service Publication 519. Fellowships are paid through the payroll office and taxes are withheld and reported to the Internal Revenue Service (IRS) and the State of California, Franchise Tax Board. Certain individuals from countries with which the United States has a tax treaty may be exempted from federal withholding (<http://www.ucop.edu/ucophome/cao/paycoord/taxstate.html>). More information is available from Services for International Students and Scholars (SISS) at <http://siss.ucdavis.edu/taxation.cfm>.

The graduate group is not allowed to give out tax advice. Please refer to the following links for Student Accounting and tax information: <https://studentaccounting.ucdavis.edu/tax>
Contact information for Student Accounting: <https://studentaccounting.ucdavis.edu/contact>

MENTAL HEALTH RESOURCES

Our program is working to support the efforts of UC Davis to create a culture of student mental health beyond the clinical setting that includes all members of the campus community who regularly interact with and support students. The Graduate Student Association has compiled a comprehensive list of mental health resources available to students that can be found [here](#). Additionally, Each Aggie Matters is a mental health movement on campus and provides a calendar of all mental health related activities [here](#). You can find a summary of the state of mental health on-campus and the Mental Health Task Force recommendations [here](#) and the full report [here](#). Mental health is an intersectional issue and there are many non-mental health centered student groups who touch on mental health that focus on traditionally marginalized student populations. Below we highlight several of these resources and student interest groups:

Student Health and Counseling Services	https://shcs.ucdavis.edu	SHCS offers two major types of mental health resources: Counseling Services and Psychiatric Services. Counseling Services provides issue focused, short term care, typically eight sessions or less. Within this time, the therapist and student will determine whether a referral to an outside provider is necessary. Psychiatric services include psychiatric assessment, medication management, and medication monitoring.
24-Hour Phone and e-Messaging Hotline	530-752-2349	This phone line and e-messaging service can provide both crisis assessment and counseling services.
LGBTQIA Resource Center	https://lgbtqia.ucdavis.edu	The LGBTQIA Resource Center promotes education as well as space for self-exploration about all sexes, genders and sexualities and their intersections with other identities. The center provides a wide range of resources and support.
Student Disability Center	https://sdc.ucdavis.edu/	The SDC is staffed by a team of professionals who have expertise in the education of students with disabilities. SDC Specialists approve services and coordinate accommodations to ensure equal access to the University's educational programs.
Graduate Diversity Resources	https://grad.ucdavis.edu/about-us/priorities-initiatives/diversity	UC Davis values a diversity of viewpoints, backgrounds, and experiences among its graduate student population and remains committed to facilitating a campus atmosphere well suited to this diversity. As part of this commitment UC Davis offers numerous services, workshops and training, as well as key faculty, staff, and students situated to promote and address the needs of diverse students and those allied in this mission.