

## JPL Origins and Habitability Lab (OHL) Internship Details

### If you are going to email us about internships, read this first!

This document describes the responsibilities and contains statements of mentors in the OHL, so that you can get an idea of what to expect by joining the group under a particular mentor. Please also read the [OHL Code of Conduct](#) for more information about group policies and expectations.

#### General info:

There are two JPL research scientist Principal Investigators (PI's) in the OHL who can serve as your primary intern mentor: Laurie Barge and Jessica Weber. As an intern you will have one of these scientists as your primary mentor; and you will also have a co-mentor, who may also be a postdoc within the group. Each mentor leads different grants / projects and has specialized research interests, and has different mentoring philosophies and styles. So on our end we choose interns that are in line with our plans and current funding; and on your end you should choose the mentor who is a best fit for your personality, work preferences, and science interests.

#### Here is how we want students to contact the OHL regarding an internship:

1. After reading through the OHL website, research the mentors individually (an online search of their names should reveal their JPL and other websites with more information about their research; as well as their publications that you can download). Also, finish reading this document that describes our individual mentoring philosophies / strategies.
2. Choose which mentor you wish to contact, and **email them individually with a customized email**. Please, do not email all of us with general internship requests.
  - a. If you want to contact one of the postdoc mentors, you must additionally contact either Laurie or Jessica (the same email is fine); since the PI's manage funding for the lab.
3. Tips for your email:
  - a. Introduce yourself and say where you are currently enrolled
  - b. Attach an up to date CV that demonstrates your interest in astrobiology / in the research you are contacting us about
  - c. Describe your interest in JPL, the OHL, and working with this specific mentor
    - i. Demonstrate that you have done due diligence searching the mentor online and reading their websites (e.g., you may refer to specific funded projects or papers).
    - ii. Don't forget to tell us why you want to be part of the OHL!
  - d. Describe what exactly you are looking for (summer internship, a MS or PhD committee member, a career conversation..)

Then, we will try to get back to you promptly. But if you don't hear back within 2 or 3 weeks, it is fine to email us again and give a nudge (it's not you, we are just very busy).

Please note however, at the OHL we are very oversubscribed with student requests, and **often choose our interns a year or more in advance**. So please do not be discouraged if we have no spots available in a given time frame, and feel free to reach out again next year. It is always good practice to also be reaching out to other scientists (at JPL and outside) at the same time as you are contacting us, to maximize your chances of connecting with someone who might have an opportunity for you. We are also generally happy to chat regarding career advice even if we don't have an internship opportunity at the moment.

### **Responsibilities of all OHL mentors:**

A mentor is the direct research supervisor of a student or postdoc; in the OHL there are various people who may serve as informal mentors but your primary mentor has certain responsibilities. These include: the mentor will make themselves reasonably available to advise the mentee and answer questions; the mentor will clearly relay their expectations for performance to the mentee and will inform the mentee if expectations aren't being met; and the mentor will act in the mentee's best interest and make reasonable effort to help them achieve their research and career goals. The mentor will also give the mentee our OHL new personnel checklist on their first day which will kick start the new person on various tasks including meeting with others in the group, taking lab trainings, and joining group and lab meeting.

However the details of mentoring style and philosophy will vary among mentors, so we advise reading the mentor details below, and asking more about this when you have your first conversation with your preferred mentor upon applying to the OHL.

**Individual mentor statements are on the following pages.**

## **Dr. Laurie Barge, JPL Research Scientist**

I value improving diversity and inclusivity of our profession as well as doing excellent scientific research. Thus, I welcome applications from students who are seeking their first astrobiology or NASA experience, as long as you are willing to work hard and contribute to the group. I try to maintain a mix of institutions and student levels / types in my intern cohort, because all students bring valuable perspectives and experiences. For example I seek a balance of undergrads / MS / PhD students; local / non-local institutions; R1, minority serving institutions (MSI), community colleges; summer vs. year round interns. In principle I do not offer unpaid or volunteer internships unless in special circumstances because I do not believe that research experience should be biased toward those that can afford to work for free.

Students' work should focus on the process of science such as doing lab work / being part of a lab group, learning how to use the scientific method to solve research questions, and learning how to write papers and give presentations. The focus is on students getting to co-author or first-author papers about their work, as well as getting the student closer to their particular career goals. I want to customize each intern's experience to give them the skills and connections they will need to seek the career they desire, so it is best to be open with me about your goals. It is the mentor's responsibility to fund the work; I will not ask you to write proposals, though you can learn about proposals during your internship if you wish.

My students generally do chemistry projects that are lab and literature review focused. This usually means about half time is running experiments, and the other half is data analysis / writing. Students will spend time also managing one instrument as their "lab role" and helping with lab management. Typically, incoming students will be trained by me and/or another OHL'er on lab techniques, and then it is up to you to manage your experiment schedule (we will discuss how to work this around your classes). We will meet around once every two weeks in person and/or virtually; students make slides for our meetings showing me their plans, questions, data, etc. I ask that my students practice giving presentations e.g. at our group meeting, and when their work gets to a certain point I would like them to attend / present at a conference. I tend to mesh well with students who are independently motivated, have initiative and problem solving skills, are responsible with deadlines and action items, and who interact positively with others in the group to help maintain a collaborative and welcoming environment for all.

My students work on projects about various aspects of origin of life and / or habitability; the specific research topics I have funded at any given point are detailed on my website. Students are welcome to find a specific interest within my published work or funded grants, or I have many ideas and can suggest projects. But the most important thing is that I need to be able to help you with whatever the research is. This means I will favor projects that are in my expertise and that are in the realm of what I know I can support with my grants, since it is my responsibility to make sure your research can ultimately be publishable. So for best results in finding a mutually agreeable project, I suggest that students be willing to join what I already have funded and what I'm interested in, and if you bring an independent idea be open to some modification. In recent years my students have published seven intern first-author papers and over a dozen intern co-author papers, with more in prep; and these have greatly strengthened their resumes for grad school and postdoc applications.

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## **Dr. Jessica Weber, JPL Research Scientist**

Mentoring philosophy: For me, it is critical that all interns have a safe and enjoyable experience at the OHL. I think that in order to achieve this, communication is critical. I work closely with my interns to develop laboratory procedures and experimental set ups for their projects. For this reason, I think being open to feedback about my mentoring and continuing to evolve my mentorship style and process is important to creating the best lab environment I can. I was head safety officer in my PhD and manage many of the safety practices in the OHL so this is something I am passionate about. However, this safety goes beyond just lab safety – students should feel personally comfortable within the lab group. I value a diverse lab group and believe that a diverse and inclusive research group comes up with the most unique ideas and research. I also believe the internships should be customized to the student and their goals within my research portfolio. Overall, I have a high focus on publishing as this is beneficial to a variety of science careers. My responsibility as a mentor includes making sure the research is publishable and meets the students’ goals. Securing research funding is also my responsibility as a mentor and, while students can be involved with helping prepare research proposals, they will never be asked to write proposals on their own.

What to Expect: My background is in experimental chemistry research and the majority of projects I lead have a strong laboratory component researching different topics related to the origin of life, prebiotic chemistry, and habitability. As such, there is a heavy focus on chemical experimentation, reaction and reactor development, and use of different spectroscopic techniques. Often, this work requires part time access to JPL, however some of the work (literature searches, data analysis, writing) can be done remotely.

I have either weekly or biweekly meetings with my interns where we discuss research progress and planning, future directions, data analysis, and career advice. I am additionally, working in lab often myself. When I am on lab, I keep my office door open and try to be available for questions. In addition, it is important to me that students feel ownership over their projects within a collaborative environment. Students should expect to participate in presenting at group meeting and literature club.

The lab space is shared and is very collaborative. Everyone is expected to work together to maintain a safe and clean space for us to work. Students are expected to manage one instrument as their “lab role”, and helping with general lab management (e.g., leading a service visit for instruments, participating in lab cleanup and inventory).

Project Choice: Students are welcome to find a specific interest within my published work or funded grants, or I have many ideas and can suggest projects based on your goals / interests. I am very open to discussions about research and to providing project advice and input. However, for this research to move forward successfully I need to be able to advise your research project. I will choose projects that the OHL can facilitate and I have expertise in. I also heavily prioritize publishable work, which will benefit the lab and the intern. Overall, I am open to discussing new projects and can be very flexible in research topic and recommend interested interns have the same attitude.

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