BIOrhythms

Washington University Biology Department Newsletter

April 2021

"Wherever the art of medicine is loved, there is also a love of humanity."

-Hippocrates

Featured in this issue:

Faculty Spotlight: Q&A with Jason Weber

Jason Weber is a professor at WashU School of Medicine, specializing in oncology. The goal of his laboratory is to understand the basic mechanisms behind tumor cell growth and proliferation. He has a broad background in molecular and cellular biology with an emphasis on tumor cell biology. He has recently expanded his research to understand the processes of cell growth signaling, ribosome biogenesis and mRNA translation in breast cancer.

He also teaches several courses including Bio 4715: Basic Cancer Biology, Bio 4716: Advanced Cancer Biology and Bio 4582 The Essential of Biomedical Scientific Reviewing, Writing and Presenting.

Dr. Weber spent most of his childhood in Edwardsville, IL, just across the river. He received a B.S. in Biotechnology from Bradley University and a PhD in Cell & Molecular Biology from Saint Louis University, followed by postdoctoral training at St. Jude Children's Research Hospital.

When he is not working or teaching, he loves spending time with his family. He and his wife are almost empty nesters, with two kids in college and one in high school, so they are starting to make bucket list vacations for just the two of them. He is also an avid reef

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Helpful Links

Biology Home Page
Biology Course Listings
Faculty Listings

BIOrhythms is a publication of the Washington University Biology Department for Undergraduate Majors

Contact Erin Gerrity to submit articles/info

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Congratulations to our 2021 BioSURF Award recipients!

The Washington University Biology Summer Undergraduate Research Fellowship Program (BioSURF) introduces WashU undergraduate students to research in the life-sciences under the guidance of WashU faculty mentors. BioSURF is competitive and modeled on the grant-seeking process, with faculty from the WashU Biology Department and Medical School reviewing applications. Sudents gain a sophisticated and practical knowledge of the research enterprise as they enter the research environment and network within the community of scientists. Students experience the process of research as a creative intellectual activity and gain a more realistic view of the opportunities and demands of a professional research career.

2021 BioSURF recipients

Julian Abt
Emma Anisman
Irene Antony
Kyrillos Ayoub
Audrey Bochi-Layec
Shria Bucha
William Carter
Celia Chang
Astoria Chao
Alan Chen
Devon Chen
Peter Chen
Siyu (Victoria) Chen
Sophia Chen
Kathleen Cheng
Ethan Cordes
Neha Damaraju
Brett Deng

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Faculty Spotlight Jason Weber cont'd—

aquarium enthusiast, and encourages people to stop by his office to check out the corals and fish!

Q&A with Jason Weber

Q: Was there an early life experience that sparked your interest in medicine and pointed you in the direction that led you where you are today?

A: I really had two influential moments in my life that showed me my path in the biological sciences. The first one came when I was a high school student. I was interested in science, but I had no idea what I wanted to do or study in college. My dad brought home a Scientific American magazine for me. He thought I might be interested in one of the articles inside that talked about the new field of genetic engineering and the ability to manipulate DNA in cells. I was hooked. The second moment came when I was a student in college. I was doing poorly in my physical chemistry class. I went to see the professor during open office hours to get help. Instead of helping me, he insisted that I would never have a successful career in science. That memory is etched in my mind and I revisit that moment whenever things get tough at work. It has always helped me push through the toughest of times.

Q: Was there something that attracted you to the Wash U community specifically?

A: I was amazed at the collegial environment and the willingness of the faculty to help make sure that everyone was successful. The interactions were genuine, and it was somewhere that I felt I would immediately fit in.

Q: Do you find it difficult to balance teaching, research, and the work you do treating patients?

A: The balance of research and teaching is a natural one; they go hand-in-hand. As a senior faculty member, my days of personal time at bench research are long gone. The biggest advantage of this transition is that I get to spend much of my time with the members of my lab or students in my classes (including medical, graduate, undergraduate, and high school students). I always look forward to listening to their ideas and watching them solve biological problems.

Q: The Basic and Advanced Cancer Biology courses will now be offered through the Biology Department and count toward the bio major. Is there anything more in-depth you want undergrads to know about these courses?

A: The courses are geared towards students that want to learn a ton of information while also enjoying the topic. My teaching style provides students with a more holistic approach in how they learn the didactic material by providing them with numerous outside sources to complement my lectures. This gives the subject of cancer biology more real life meaning and aides in the retention of the course material.

To learn more about Jason Weber and his research, visit his website here.

Bio 500 Spotlight: Michelle Pollowitz on Penczykowski Lab

Many labs and research opportunities closed in March 2020 due to the COVID-19 pandemic, just as my research in plant disease ecology was beginning. In January 2020, I began research in the Penczykowski lab to study effects of temperature on fungal infection of common weedy plants in the genus Plantago.

I spent the first weeks of the semester learning skills and techniques that I would need in the lab-based data collection that would begin after spring break. Things went a little differently than planned. During spring break when all university activities were moved online, my in-person research plans were no longer feasible. For the rest of the semester, I gained a deeper understanding of the plant-fungus model system by reading literature and participating in lab meeting discussions, but it was difficult to feel like I was contributing to science in my work.

Over the summer, I was thrilled to get back into the field as a Tyson Research Center Undergraduate Fellow. Although the Tyson Undergraduate Fellows program shifted to an all-remote format, our Plant Disease Team was able to ask research questions that could be answered through safe, solo field surveys of plant populations in our own neighborhoods. With so many restrictions placed on other areas of life and research, I was thankful that my research mentor, Dr. Penczykowski, found a way for our team to continue to collect samples and propose new and interesting research questions about the ecology of plant diseases in urban ecosystems.

As a member of the Plant Disease Team, I conducted daily surveys of Plantago species in the neighborhoods around my apartment in University City, MO. In these surveys, we recorded the presence or absence of powdery mildew fungal infection, herbivory, and mowing damage on Plantago leaves. In addition, we noted whether the plants were growing in direct sunlight or in the shade, and whether they were flowering or not. I am currently analyzing these data to investigate how plant interactions with herbivores and fungal pathogens vary with habitat features (i.e., shading from trees) and human disturbance (i.e., lawn mowing) in cities. Studying anthropogenic influences on the spread of plant disease aligns well with my interest in One Health, an approach highlighting the interconnectedness of human health, animal health, and shared environmental health. (*https://www.cdc.gov/onehealth/basics/index.html*).

2021 BioSURF cont'd—

Elvin Ding
Dan Du
Samuel Fallon
Amanda Girardi
Miri Goodman
Akshay Govindan
Nathaniel Grabinski
Hannah Hahm
Kaitlyn Ho
Ritvik Illindala
Joseph Kim
Minseo Kim
Ashley King
Joanna Li
Ben Lieberman
Hudson Lin
Annie Liu
Jaclyn Liu
Michael Ly
James Ma
Kelly Ma
Rehan Mehta
Julia Miller
Shubhanjali Minhas
Shawn Mohammed
Walter Navid
Elizabeth Nordmark
Dharma Patel
Kenneth Peng
Namit Sambare
Eleanor Sams
Ellie Sapiro
Daniel Schefer
Katherine Shao
Isha Sharma
Aman Srivastava
Dylan Stoutenburg
Madhav Subramanian
Ishana Tata
Maya Tsingos
Medhavi Verma
Charlotte Weixel
Sophia Xiao
Alicia Yang
La Yow Yu
Justin Yun
Irene Zhou

Course Spotlight: Bio 4715: Basic Cancer Biology and Bio 4716: Advanced Cancer Biology

Bio 4715: Basic Cancer Biology, offered every fall semester

Over two-thirds of all people know someone who has cancer. This course provides students with a more extensive understanding of what cancer is and how it affects the human body. We will discuss the history of cancer research, the many different types of human cancers, and basic chemotherapeutics. The topics will be presented in a basic scientific nature with an emphasis on gaining a broad understanding of the subjects. Prerequisite: Biol 2960 or equivalent.

Bio 4716: Advanced Cancer Biology, offered every spring semester

This advanced course provides students with a more in-depth understanding of the molecular mechanisms of cancer. We will discuss tumor suppressors, oncogenes, signaling pathways, animal models in cancer, and novel targeted cancer therapies being developed by biotechnology and pharmaceutical companies. Prerequisite: Basic Cancer Biology.

Undergraduate Awards

Congratulations to biology undergraduates Sophie Tomatz of Haswell Lab and Lauren Johnson, incoming EEPB student on the NSF GRFP Award!

The NSF GRFP recognizes and supports outstanding graduate students in NSF-supported STEM disciplines who are pursuing research-based master's and doctoral degrees at accredited US institutions. The five-year fellowship includes three years of financial support including an annual stipend of $34,000 and a cost of education allowance of $12,000 to the institution.

Congratulations to biology undergraduates Zi'Onay Walker and Mirian Silberman, both of the Bose Lab on the MARC uSTAR fellowship!

This program builds the next generation of biomedical science leaders. MARC U-STAR trainees participate in a variety of training activities (such as seminars, workshops and meetings), conduct biomedical research in laboratories through a summer research training experience and learn about various science careers as they prepare to enter graduate school to pursue a research doctorate (Ph.D.) or combined dual degree research doctorate such as an M.D.-Ph.D. The program provides MARC students with an annual stipend plus partial undergraduate tuition and fees.

Spring 2021 Celebration of Undergraduate Research

The Office of Undergraduate Research (OUR) is excited to host a Celebration of Undergraduate Research at WashU, including our annual Spring Undergraduate Research Symposium, which serves as a venue for students to present their research to the greater WashU community. This year's posters and pre-recorded talks highlight the diverse range of impressive research projects completed by WashU undergraduates.

Throughout the month of April, the Symposium will be running concurrently with Departmental events showcasing undergraduate research. We are particularly excited to partner with Departments to congratulate Senior researchers completing theses, capstones, and other culminating projects.

Join the Event

Give a Live Oral Talk: Organize a panel of oral talks with fellow undergraduate researchers. We recommend individual student talks of 7-10 minutes and a max running time of 1.5 hours with Q&A for the panel overall. A complete proposal includes Panel Title, Panel Description, Presenter Names, Presenter Talk Tiles & Abstracts, and Faculty Mentor Names.

Present a Poster or Pre-Recorded Talk: Share your research at this at this year's virtual Spring Undergraduate Research Symposium. Details on how to create and submit content can be found below. Registration deadline is April 14.

Biology Department Calendar

Links to General Calendars and Regular Events:

Washington University Source Calendar

Biology Department Seminars, Mondays, 4:00pm, check the website for Zoom info, topics/schedule:

Evolution, Ecology, & Population Biology/Living Earth Collaborative Seminars, Thursdays, 4:00pm, check the website for Youtube links, topics/schedule

History & Philosophy of Science Seminar Series

Plant & Microbial Biosciences Seminar Series: most Fridays 9:00-10:00am, cehck the website for Zoom info

Donald Danforth Plant Science Center (DDPSC), Weekly Seminar Series—check the website for event details and topics

Division of Biology and Biomedical Sciences (DBBS), check the website for seminar info

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April 2021

- 12th — Wellness Day, no classes
- 20th — Registration begins for fall 2021

May 2021

- 4th — Last Day of Classes
- 7th — Final Exams Begin
- 19th — Latin Honors, Research Emphasis in Biology, Stalker Award, Quatrano Prize and Spector Prize Ceremony
- 20th — Arts & Sciences Recognition Ceremony
- 21st — University-wide COMMENCEMENT