Fletcher Jones Science Scholar

The Science Scholar fellowship is a highly competitive award that provides a total of $15,000 in support through the Junior and Senior years to students in the fields of Biochemistry, Biology, Chemistry, Environmental Science, Geology, Neuroscience and Physics. The Science Scholar program is supported by an endowment from the Fletcher Jones Foundation and a grant from the Kenneth T. and Eileen L. Norris Foundation.

This past winter Eugene Jang became the newest Norris Science Scholar and Brenton Yuen and Hyun Su Kim became the newest Fletcher Jones Science Scholars. The URC featured Jang and Yuen’s research in the Spring 2012 issue of the newsletter. Hyun Su Kim currently works with Prof. Renee Baran of the Biology department studying gene mutations in a microscopic worm species called *C. elegans*. Kim responded to several questions about his research project and experience being a science scholar:

**How would you describe your research to a person with a non-science background?**

Prof. Baran’s lab works with a *C. elegans* gene called *tba-1*. When there is a mutation in this gene, the worms display movement and neuronal defects. Some mutations in different genes can suppress this mutant phenotype. My research is focusing on this suppression of the *tba-1* mutation by a gene called *zer-1*. ZER-1 is involved in protein degradation and might be degrading key proteins that cause the neural defects in the *tba-1* mutant.

**What makes this project important?**

The *tba-1* gene has a human homologue called *TUBA1A*, which is required for normal brain development. Uncovering the mechanism by which the TBA-1 protein interacts with other proteins could provide insight into human brain development and aid in understanding neuron degeneration.

**How did you get involved with your research?**

I have always been interested in progressive neurodegenerative diseases. A lot of these neurodegenerative diseases have a genetic basis. The research in Prof. Baran’s lab focuses on synapse formation, axon transport, and neurodegeneration which was a perfect fit for my research interests. I contacted her to get involved in her research and join her lab group.

**What role had your faculty mentor had in your research?**

Prof. Baran has provided guidance during the progression of my research project. She aided me greatly in the development of my project and she serves as a great resource whenever I hit a roadblock.

**How has the research been going up to now?**

Currently I am in the process of constructing certain reagents for experiments and also preparing worm strains for the Western Blot analysis that I am about to perform. I am hoping to have some results pretty soon.

**How has the grant helped you thus far?**

The grant has helped me purchase the supplies to conduct my research. The grant will also cover the my travel expenses to attend the 19th International *C. elegans* Meeting in June 2013 at UCLA.

**What are your research goals for the this semester? And for your project in the long run?**

One of my goals for this semester is to perform western blots on all of the suppressor strains to test a potential target of ZER-1. The long term goal for my project is to discover the targets of ZER-1 and understand how these proteins affect microtubules and axon stability in the motor neurons of *C. elegans*.

**How will this research project impact your future (occupation, networking, classes, etc)?**

My plan is to get involved in clinical research as an MD. As I mentioned before, my interest is in genetics and neurodegenerative disorders. The research project that I am currently working on will provide me with a solid foundation for my future.
This year over 40 students from Occidental went to CSU Channel Islands for the annual Southern California Conference of Undergraduate research (SCCUR). “SCCUR’s cornerstone program is a one-day conference held each November on the campus of a college or university in the greater Los Angeles area. Its purpose is to provide a forum for the presentation and discussion of the best research, scholarship, and creative work of undergraduates in the region, and thus to encourage excellence in undergraduate achievement” (sccur.org). The conference is open to students in all fields.

“SCCUR was a great event because it provided me with an opportunity to break out of the Oxy bubble, present for people I did not know, and see what research looks like at other colleges and universities. It was fun meeting new people and seeing how these peers tackle their research questions,” said Evan Choate (Biochemistry, 2013).

“Presenting my research on bystander intervention in sexual assault at SCCUR was a great experience. It was really rewarding to have the opportunity to share my findings with so many people. I particularly enjoyed meeting other Sociology majors from such a wide variety of schools and it was quite a privilege to be there with such an intelligent and accomplished group. After my presentation, a student from Cal Poly Pomona who is currently conducting research on a similar topic approached me and asked for suggestions on how to go about getting accurate data for such a sensitive topic, so it was nice to be able to use my own research process to assist someone else.” said Carly Mee (Sociology, 2013).

SCCUR 2012 offered a unique opportunity for students to share their work, influence others, meet people with similar and disparate interests, ask questions, and think about the role their research will play in their futures here at Oxy and beyond.
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ASP Grants for Students of All Interests

Sophie Mallet ‘13- Sociology
Mentor: Prof. Dolores Trevizo
Access to Continual Healthcare for Treatment of Type II Diabetes for Migrant Farmworkers: A New Clinical Model

Sophie started college intending to major in Kinesiology and Pre-Med. However, she soon realized that she could help underserved populations just as well, if not better through a dedication to Sociology. She is now a senior Sociology major. In October she completed a trip to Oregon with support from the ASP fund. For her senior comps she is studying the healthcare plan for migrant farm workers at the Virginia Garcia clinics in Oregon. Unlike other health clinics in the US, Virginia Garcia gears its care towards migrant workers and has a system in place (electronic medical records, Spanish-speaking doctors and nurses, education, long-term contact, etc.) to offer the best care possible to that population. Sophie plans to assess the Virginia Garcia model of care and compare it to other clinics and the overall American clinical model. Though Sophie’s short term goal is to present this research in her comps, in the future she hopes to apply her findings to improve the way clinics care for migrant workers. Sophie’s comps advisor, Prof. Dolores Trevizo of the Sociology department, has been integral in Sophie’s ambition and success. She has aided Sophie in directing the scope of her research and pushes her to get distinction and hopefully publish her work. According to Sophie, Prof. Truvizo is “a total star.”

Margaret Gallagher ‘13- Studio Art
Mentor: Prof. Mary Beth Heffernan
A Series of Illustrations of a Quasi-Fantastical Los Angeles

“I started formulating this idea [for senior comps] over the summer during the Summer Research Program when I was biking around LA and making maps of what I saw. I’m turning this into a fantasy piece which ties into my hope of being a graphic novelist. Each image connects into the next even though there isn’t a specific narrative.”

“For me, being an artist is learning to create things that I want to look at, making something that I’m drawn to. This is the first time in my life when I feel I’ve had the skill to do it.”

“Prof. Heffernan has a great balance of pushing me and being kind and supportive at the same time. She tells us that it is a privilege to be able to work so hard on something you love doing.”

Elise Augenstern ‘13- Studio Art
Mentor: Prof. Mary Beth Heffernan
Art Installation with Recycled Packaging

Elise’s senior comps project is made of repurposed colored cardboard packaging that she cut into shapes and pinned to the gallery wall. “I think it’s important that people who view my project recognize the materials and think about how their role as consumers has contributed to the art.” She notes, “The spontaneous, organic aspect of its creation has been my favorite part.”

When discussing the future of the project she said, “Mostly, I want to end up with a final piece that I’m proud of and that I know I put a ton of effort into. If other people appreciate my effort and think my art’s cool, that would feel really great too.”
The 2013 National Conference on Undergraduate Research (NCUR) will be held April 11-13, 2013 at the University of Wisconsin La Crosse. Undergraduate student researchers are encouraged to speak with their research mentors about presenting the results of their original research, scholarly activities, or creative endeavors at NCUR. The URC will provide partial funding for travel to the conference and registration fees. Unfortunately, the URC will not be arranging group travel. Students will have to make their own travel arrangements to and from the conference. Abstracts are due by Tuesday, December 4th, and information about submitting them is available via the website at https://www.cur.org/ncur_2013/account/.

Students will be notified by January 22, 2013 if they have been selected to present. At that time, you should prepare an ASP Conference Travel application. Applications are due on Friday, February 1, 2013 by 5 pm. If you have any questions feel free to stop by the URC or e-mail us at urc@oxy.edu. Please visit the NCUR 2013 website for more information and deadlines at http://www.cur.org/ncur_2013/.