2014-15 Science Scholars

Science Scholars awards provide research and scholarship opportunities to Occidental’s best students in the fields of Biochemistry, Biology, Chemistry, Environmental Science, Geology, Neuroscience and Physics.

These highly competitive awards provide a total of $15,000 in support through the Junior and Senior years. 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.

Application is open to students who are juniors and who will be participating in research projects with supervision from Occidental College faculty in these disciplines.

Katherine Yanagi, a biology major, was awarded a Fletcher Jones Science Scholar award to conduct research with Professor Kerry Thompson on “Effects of Sedative-Hypnotics on Learning and Memory in the Developing Brain.” She will be using a model of Fetal Alcohol Spectrum Disorders to examine patterns in neurodegeneration in the developing brain and the impact it has on learning, memory and behavior. She became interested in biology during high school because of “a particularly awesome AP Biology class where we did all sorts of experiments and we even had the opportunity to breed rabbits!” With her passion for Biology, Yanagi has been researching under Professor Thompson with support from an ASP grant from the URC. How to be like Yanagi? She advises underclassmen to find a subject and design a project that you are passionate about: “Research becomes so much easier if you enjoy what you are doing.”

A chemistry major, Christopher Discolo received a Norris Science Scholar award for a project working on a total synthesis of the antidepressant Cymbalta® with Professor Donald Deardorff: “I like to think of total synthesis as molecular architecture. We start with a cheap simple starting material and systematically build more complicated functionality onto the molecule.” Discolo advises students who wish to apply to be a science scholar next year to “make sure that you know every aspect of your project when you step into the interview room. You need to put in the hours in your project and know it well enough that you can advance the project significantly. The committee is not interested in work that has already been done by students before you. They are interested in the contribution that you have made. The committee will exploit any discrepancy in your knowledge of the project so be prepared.”
Anton Molina, a chemistry and physics double major, received a Norris Science Scholar award to work with Professor Eileen Spain to exploit particle-stabilized emulsion coalescence to produce nanostructured thin films of magnetite nanoparticles. The thin films will then be used in experiments to test how film structure affects the ferroelectric behavior of the material. Molina became interested in physics because, “it gives you the broadest set of tools to understand the world and its technology. As I continued working on the project, I realized the deep connection between being able to synthesize materials (chemistry) and what those materials will do (physics) and so I decided to keep taking chemistry classes and pick up a double major.” Molina intends to attend graduate school for a Ph.D. in materials science or physical chemistry where he hopes to continue conducting research with nanomaterials.

Christopher Hino, a biochemistry major, received a Fletcher Jones Science Scholar award to compare enzymatic activity and immune recognition of mutant and wildtype Phospholipase D as an approach to develop a *C. pseudotuberculosis* vaccine under the guidance of Professor Roberta Pollock. Hino’s interest in research began because he enjoys discovering how things work: “in biochemistry we learn about the structures, mechanisms, and chemical processes behind biological functions. It also provides important insights and practical applications in medicine, agriculture, nutrition, and industry.” He hopes to ultimately use what he has learned through research to help those who are less fortunate than him. His advice to future Science Scholar applicants: “Find research you enjoy. Good research often leaves you with more questions than answers.”

Benjamin Clark, a chemistry major, was awarded a Fletcher Jones Science Scholar award to conduct research with Professor Eileen Spain to determine whether improvements in the performance of TiO2 based Dye-Sensitized Solar Cells (DSSCs) can be achieved through the incorporation of the gold nanostructures: “Basically, I’ll be making cheap solar panels and testing whether optically addressable gold nanostructures can be used to increase efficiency in systems that convert solar energy into electrical energy.” Clark became interested in researching DSSCs during a lab for his General Chemistry 120 class in which students made DSSCs. Says Clark, “That’s when I first began to understand the scale to which technology and the way we live is directly related to chemistry. Sustainability and our ability to survive on Earth are as chemical, if not more, in nature as they are socio-political.”
The Richter-ASP program was established to provide funding for short term travel for student projects to interview a particular population, observe natural or cultural events, or consult a specialized archive during winter break. Junior Eleni Duret used her funding to travel to Haiti to research how to make global aid generate positive and sustainable change for Haitians in need and how not to give aid in a way that harms the recipients by studying a small aid project. She first became interested in researching this topic when she looked into TOMS as an organization: “I began to look into TOMS financial trail as well as other organizations that claim to ‘do good’ in Haiti in order to understand how global service to a developing country could possibly be involved in corrupt transactions or if the organization could actually have unintended detrimental effects to Haitians.”

Junior Rebecca Rich used her funding to travel to Cameroon for two weeks with a nonprofit organization, Prevention International No Cervical Cancer (PINCC). Rich went as a volunteer to support the doctors and nurses who went to Cameroon to train local doctors and nurses in a simple, low-cost screening technique for cervical cancer. She interviewed patients on their medical history, conducted patient outreach and education, and other administrative tasks. While in Cameroon, she also conducted a research project to understand the barriers and challenges local doctors and nurses faced in preventing cervical cancer and whether or not they felt comfortable to being their own screening program. Rich says, “It was powerful to be among so many people that were joined by the desire to learn and teach so women could stop dying from a preventable cancer.”

The Richter Fellows

Where They Are Going

The Science Scholar awards from the Fletcher Jones Foundation and the Kenneth T. and Eileen L. Norris Foundation are very prestigious and generous awards. Science Scholars continue on to successful research and industry careers after graduating and attend top graduate schools. Last year, three students were given the prestigious fellowship: Anne Fendick, a Geology major who was awarded the Fletcher Jones Science Scholarship researched the strike-slip motion of the fault of the Garlock fault in South Eastern California; and Kristina Geiger, a Biochemistry major awarded the Norris Science Scholarship researched pigeon fever, caused by the bacterium *C. pseudotuberculosis* and helped create a mouse model for the disease. So where are they going?

After graduating, Fendick will start a summer internship with the Occidental Petroleum Corporation for 12 weeks at Long Beach, CA. Generally, this internship is awarded to graduate students, but because she has completed two years of research experience funded through the Science Scholar program, she was accepted: “the recruiters felt I had enough experience to put me on the same level as the graduate students.” After her internship, she will pursue graduate school. Though at the moment she is undecided between pursuing a masters or PhD, she is leaning towards the latter.

Meanwhile, Geiger plans to obtain a PhD in immunology. She says, “being a science scholar was absolutely essential to receiving invitations from four of the world’s leading research universities involved in immunology. It gave me the confidence and the exposure to leaders in the field that have prepared me to take the next step and become a world-class scientist.”

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Announcements!

New Play Festival

The annual Occidental College New Play Festival was held on campus over the weekend of February 22-23, 2014.

The URC was able to offer financial support through our Academic Student Project (ASP) Program to five student playwrights: Emily Bragg ’15, Nina Carlin ’15, Sarah Martellaro ’14, Reza Vojdani ’14, and Griffin Wynne ’17. Bragg wrote Conference, a play about two high school friends re-uniting after long years and hard experiences had separated them.

Carlin wrote Jack Courage in the Land of Olives, a play which sends characters from a classic Spaghetti Western roaming through a Judean desert.

Martellaro wrote In the Garden of Eden, a campy, silly, tightly wrought, and funny play inspired by the game Clue.

Vojdani wrote Fire, Brimstone and 401k a comedic play of a job offer for an unemployed Don from Satan. Satan offers Don a job of a lifetime- or of many lifetimes- where he must confront his past crimes, triumphs, losses and loves.

Wynne wrote Face Time, a play set in a future dystopia where we’ve become so attached to our devices that the government mandates us to spend actual “face time” with one another.

Visit our website to learn more about ASP funding.

SRP update

The URC received almost 130 applications for the annual on-campus summer research program including Keck, City of Hope and other related programs. We have processed all applications and they are now under review by a faculty committee. We wish all applicants good luck in being accepted to the program of their choice. Additionally, some Oxy students chose to apply directly to faculty members with grant-supported research positions or to programs at other schools. We wish all of those applicants luck as well. To those who want to apply for SRP next year, it is never too early to begin thinking about it and figuring out the application process. The earlier you start, the easier it is.

Upcoming Deadlines

SRP Fellowships Announced

March 7

NCUR, Univ. of Kentucky

April 3-5

Summer Research Program

May 26 - August 2

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