UNIVERSITY OF Redlands

APPLICATION FOR THE YEAR 2024
SUMMER UNDERGRADUATE RESEARCH PROGRAM
June 1, 2024 - August 17, 2024
APPLICATION DEADLINE: Friday, February 23, 2024 to Dr. Eric Hill, AHN 127

REQUIREMENTS: 1. Participation in weekly seminar/lunches, including giving one presentation.
2. Final poster report.

Name: _____ Student I.D. # _____
(Please Print Legibly)

Local Address: _____ Current Local/Cell Telephone #:

_____ _____

_____

Email Address (that is checked regularly) _____

Cumulative GPA: _____ Major: _____ Minor: _____

Status: ☐ First Year ☐ Sophomore ☐ Junior

Below are signatures from at least one and up to four faculty whom you have talked to, whom you would consider working with this summer, and that you match their qualifications if applicable. Once your application has been submitted, the faculty will decide, based on interest, skills, and finances, which students to accept. You should rank your choices with most preferred being #1. (Remember the FACULTY must have signed this form.)

Your ranking

_____ _____ ☐
Print Name Signature of faculty

_____ _____ ☐
Print Name Signature of faculty

_____ _____ ☐
Print Name Signature of faculty

_____ _____ ☐
Print Name Signature of faculty

Required Final Report: All research students must submit a poster presentation of the work accomplished. Guide sheets are available from the Office of the Director, Center for Science and Mathematics. The faculty advisor may require an additional written report as a more formal record of the work completed. A poster presentation summarizing your work and results will be posted in the glass cases in Hedco Hall by **Wednesday, September 25, 2024**.

Please answer these questions to the best of your ability, either written legibly or typed.

1. In what way would a summer research project fit into your college learning goals and/or post college plans? What do you hope to get out of a summer research project?

2. List courses you have taken that would be useful to the research in your chosen topics and your GPA in these courses only.

3. Describe any previous experience that you think is applicable to summer research. For example: (a) a previous research experience that you have had, (b) a course you took and how it prepared or inspired you to do research, or (c) skills you have developed that could be useful to research.

NOTE: You will be notified when the final selection process is complete. At that time you MUST meet with your faculty advisor to complete a "Terms of Agreement" and "Acceptance Form".

SUMMER RESEARCH FACULTY 2024

This list contains the Science Center faculty who may take students this summer. You will see their names, a very general description of their research, and any qualifications they expect of students who apply to work with them. Please go talk to any of them who interest you before filling out the application form.

Note: Some research plans and availability may depend on pandemic conditions.

BIOLOGY

- [These biology faculty will **NOT** be taking students this summer: *Aronson, Ben; Blauth, Jim; Blauth, Sue; Silveira, Linda; Vanoverbeke, Dustin*]

Aronson, Ben……. The complement system of the immune system is capable of killing some microorganisms but not others. The cell wall seems to be the key feature that distinguishes susceptible from resistant microorganisms. Students on this project will examine whether perturbations to the cell wall of resistant microbes can lead to susceptibility.

Forristall, Caryl…… Using Xenopus embryos to investigate hormonal pollutants.

Olson, Lisa…….. Studying the impact of melatonin-containing lotion on humans. Students must have completed BIOL 201. Since Dr. Olson is on sabbatical, please arrange to speak with her virtually by emailing her at lisa_olson@redlands.edu

Stelle, Lei Lani…… Marine Mammal Behavioral Ecology, (will only consider students who have prior experience studying marine mammals (e.g. have volunteered on my project; students can begin volunteering during this Spring)

Ryan, Bryce…… Studying the impacts of environmental pollutants on the physiology and behavior of mice

- Biomedical research at Loma Linda is possible for three to four students. Those interested in applying should talk to Bryce Ryan

CHEMISTRY

- [These chemistry faculty will **NOT** be taking students this summer*: Longin, Teri; Lyons, Rebecca; Soulsby, David*]

Ferracane, Michael…… Synthesis and evaluation of opioid cyclic tetrapeptides for treatment of pain and addiction. Students need to have taken Chem 232. Synthesis of glycopeptide-based ligands of the bacterial glycoprotease enzyme StcE. Students need to have taken CHEM 232.

Schrum, David……Studying enzyme reactions via electrophoretically mediated microanalysis (EMMA): An application of Capillary Electrophoresis. Students need to have taken CHEM 330.

Environmental Science

- [These environmental science faculty will **NOT** be taking students this summer*: McIntyre, Wendy, Rountree, Valerie*]

Jenkins, Hillary…….

Installation of piezometers and monitoring of subsurface hydrology in montane meadows in the San Bernardino National Forest, ongoing rare plant monitoring and mapping, offloading and analysis of groundwater data from 52 piezometers across a suite of meadows in the region. Dendroclimatology (tree ring) projects also available – including analyzing relationships between tree growth, climate and air pollution in the Inland Empire. Juniors may use this work as the foundation of their senior capstone projects. Students with experience in GIS will be given priority. Willingness to work outside, participate in manual labor (piezometer installation) projects, work with peers on field data collection, and conduct independent lab work is particularly important. Must have taken at least one course with H. Jenkins in order to apply.

MATH/CS

- [These mathematics/computer science faculty will **NOT** be taking students this summer:
  Bieri, Joanna; Bieri, Joanna; Chakrapani, Pani; Beery, Janet; Bentley, Jim; Cornez, Rick; Cornez, Trish]

Morics, Steve…… Come by, and we'll talk.

PHYSICS

[These physics faculty will **NOT** be taking students this summer: *DeWeerd, Alan; Hoecker-Martinez, Martin*]

Eric Hill…… I'm open to exploring your interests, but a few projects on my docket are changing the STM's scanning head (technical & experimental), comparing different models of the magnetic field for a solenoid (theoretical), and working with the astronomy deck (technical and possibly experimental).