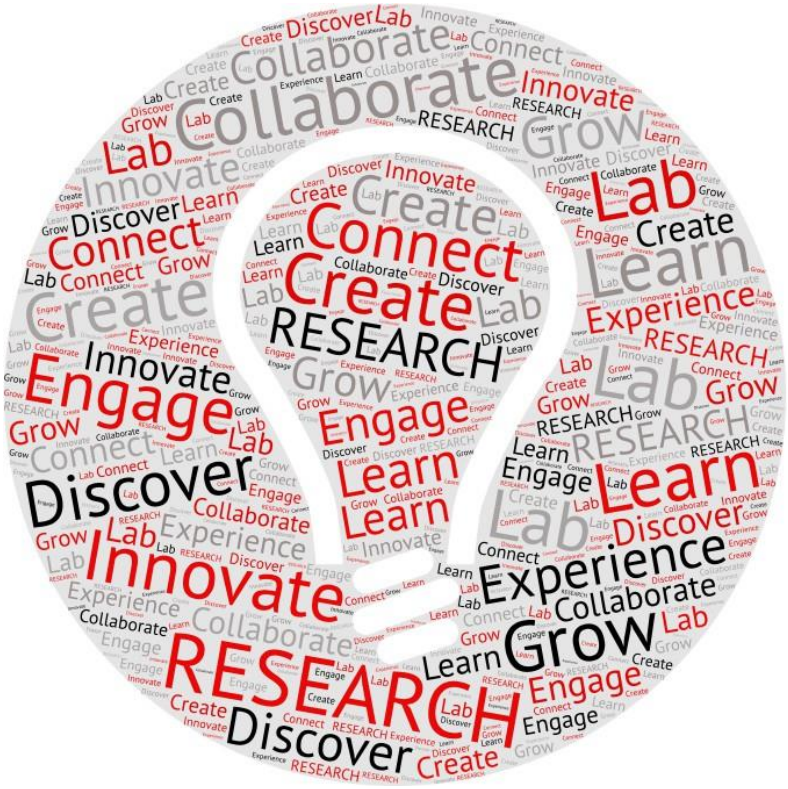
Dr. William W. Sullivan
Center for Academic
Enrichment and Outreach

UNLV | STUDENT AFFAIRS

AANAPISI STEM
Spring Semester Research Experience (SSRE) 2024

Program Handbook



University of Nevada, Las Vegas
The Dr. William W. Sullivan Center for Academic Enrichment & Outreach

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UNLV

Spring Semester Research Experience (SSRE)

Program Overview
Administered through UNLV's Dr. William W. Sullivan Center for Academic Enrichment and Outreach (CAEO), the AANAPISI STEM 2024 Spring Semester Research Experience (SSRE) offers eligible undergraduates in CAEO's AANAPISI STEM, project the opportunity to conduct research under the guidance of a faculty mentor. The SSRE program, lasting the duration of the entire Spring semester, provides students with a series of training activities and assignments designed to help students gain insight into research at UNLV. By participating in undergraduate research, students are exposed to the process of scholarly inquiry and will develop a host of skills related to critical thinking, academic writing, and presenting research.

Program Guidelines

1. There are no set hourly requirements for student-faculty research—each academic discipline lends itself to unique research hours. Hourly commitments are established through student-faculty agreements. However, if a SSRE student has concerns about the hours he or she is asked to commit to research work, the student should discuss the matter with Terri Bernstein, CAEO's Assistant Director for Undergraduate Research.
2. Each SSRE student will receive a stipend of **$2,800** to support research activities during the Spring semester. Stipends are disbursed by the UNLV Financial Aid and Scholarships Office in two equal payments ($1,400 each) to students' MyUNLV accounts. Payments are issued on 3/1/24 and 6/7/24(approx. dates). Students who have not completed the required assignments by the specified due dates may have their payments discontinued.
3. Each SSRE mentor will receive funds totaling $750 to support supplies and/or travel purchases relevant to their research. Note: These funds are transferred to a Nevada System of Higher Education (NSHE) account designated by faculty mentors. Only persons currently employed by the NSHE are eligible to receive funds for serving as a SSRE faculty mentor. While a SSRE student can be mentored by a non-NSHE faculty member, that faculty member will not receive incentive funds.

SSRE Student Expectations

1. Each student must prepare a **research poster*** to be presented at the Office of Undergraduate Research (OUR) undergraduate research symposium.
2. Each student must submit a one-page, **structured abstract*** detailing the research conducted during the Spring semester. The structured abstract must be approved by the student's faculty mentor.
3. Each student must complete the **training activities** and **assignments** specified in the *Program Handbook.*

SSRE Faculty Mentor Expectations

1. Faculty mentors are expected to meet regularly with their mentees to discuss their research projects.
2. Faculty mentors are expected to ensure that their mentees receive proper guidance and supervision to successfully meet the outcomes described in the students' application/project descriptions.

Program Support
In addition to faculty mentors, the following staff are available to provide support for students involved in research:

CAEO Undergraduate Research
Terri Bernstein *Asst. Director for Undergraduate Research* **Contact:**terri.bernstein@unlv.edu **Hours:** Available by appointment

*Upon completion of the research and structured abstract, students' final assignments may be posted in UNLV's Digital Scholarship Repository with permission from all authors involved with the project. To learn more, visit. https://digitalscholarship.unlv.edu/

Spring Semester Research Experience (SSRE)
Timeline & Activities**

	Training Activities	Assignments
January	**SSRE Orientation Meetings**	**Participant Confirmation** (due by 1/16/24)
February	**Introduction to Library Databases** Dr. Xan Goodman Date: Friday, February 2 Time: 4:30 pm to 5:15 pm Location: Virtual Zoom Link **Meet your Subject Librarian** *Library Database Meeting* **How to Create a Structured Abstract** Dr. Rafael Oganesyan Date:Thursday, February 15 Time: 1 pm to 2 pm Location:Virtual	**Subject Librarian Form** (If necessary, due 2/26/24.) **Structured Abstract** Draft I: *Introduction & Objectives Resource* (due by 2/23/24)
March	**Mandatory Check-in Meeting** *(Schedule meeting with Terri by end of March)* **Mentor Interview** *Research Questions & Methods* **Making a Research Poster** Use the link below to find the dates this topic will be offered: Link	**Mentor Interview Form** (due by 3/18/24) Mentor Interview.docx.pdf **Structured Abstract** Draft II: *Methods* (due by 3/29/24)

April	**Mandatory Check-in Meeting** *(Schedule meeting with Terri by end of April)* **Making a Research Poster** Use the link below to find the dates this topic will be offered: Link	**Structured Abstract** Draft III: *Results & Conclusion* (due by 4/19/24) **Poster Presentation** *Poster Rough Draft* (due by 4/26/24)
May	**Must Attend THREE Workshops conducted by UNLV's Office of Undergraduate Research*****	**Final Poster & Structured Abstract** (both due by 5/17/24) **Post-survey** (due by 5/17/24)

Assignments should be emailed to terri.bernstein@unlv.edu by 11:59 pm of the due date.

Select and attend **three workshops** conducted by UNLV's Office of Undergraduate Research during the Spring 2024 semester. For each workshop attended, verify your attendance by completing this google form.

View the workshop calendar here.

Example of a Structured Abstract***

Crystal Wu

Earth and Environmental Science

David Kreamer, Ph.D., Professor, Department of Geoscience

Review of the Ecological Impacts of Selenium in the Grand Canyon

Introduction

The Grand Canyon supplies water to over six million visitors annually. The springs are a natural habitat and water source for aquatic and avian organisms in the southwestern United States (Walters et al. 2015). However, the Grand Canyon is contaminated by various chemicals. Selenium, a chemical element, and nutrient to all living organisms is toxic in high levels (Tan and Nancharaiah 2016). The contaminant has been traced throughout the food web (Walters et al. 2015). Although the water in the Grand Canyon has been studied and sampled for decades, no current, comprehensive database stores the information in one location. The lack of a database hinders the ability to analyze the water quality accurately. The development of a compiled database can provide a comprehensive source of water quality samples, verified data sources, and a uniformed format. The database is significant since it supplies information to study the impact of various chemicals to the ecosystem, mining contamination, and sustainability of native tribes.

Objective

The primary objective is to compile data on the water quality of the Grand Canyon into one comprehensive database.

Methods

We are composing collected data from different agencies such as the U.S. Geological Survey, EPA's Storage and Retrieval system, Natural Park Service, and Arizona Department of Environmental Quality into a comprehensive database. We also included data from published books, peer-reviewed scientific journal articles, and verified field notebooks. The database we are composing divides the different contaminants sampled from springs, creeks, and rivers. Various chemicals and water measurements have already been tested and documented in the field. Chemical elements such as Selenium, Uranium, and Arsenic are incorporated in the database. Also, turbidity, pH, and the temperature are included in the hydrologic measurements. After entering all of the data, we will be creating different graphs, data trends, and comparisons to analyze chemical concentrations, data gaps, and comparing maximum contaminant levels.

Preliminary Findings

Within the Grand Canyon, there are water quality regulations to preserve the environment. The maximum contaminant level (MCL) determines the allowed amount of contaminants in the water. Various chemicals have exceeded the maximum contaminant level in the Grand Canyon. Selenium with a maximum contaminant level of 50ug/L has been surpassed in approximately seven springs. The maximum contaminant level for freshwater organisms is 5ug/L. The high levels of Selenium have a potential to impact the ecosystem of different springs (Luoma and Presser 2009). Also, Selenium has only been analyzed 8.3% of the time. Each time the chemical has been tested, it exceeded the MCL standard.

Discussion and Implications

Since contaminants have surpassed the maximum contaminant level in various locations in the Grand Canyon, monitoring and remediation are necessary. There is a need for further fish and wildlife sampling to determine the negative implications to the food web. Ecosystems can be permanently altered with high levels of contaminants (Walters et al. 2015). With a comprehensive database, areas with high Selenium levels can be identified and adequately treated. The database will be a critical device to facilitate research.

***Note: Your structured abstract does not have to strictly follow this example. Consult with your mentor to determine the appropriate headers and writing style for your structured abstract. Also, many SSRE projects follow timelines that are significantly longer than the Spring semester. If your project is in progress (i.e., no results), it is acceptable to remove the "Results" header and provide a larger "Discussion" section—**the final structured abstract is a reflection of the progress you have made during the Spring semester**. Also, citations are required within your structured abstract.

Examples of Research Posters