National Science Foundation's
Experimental Program to Stimulate
Competitive Research (NSF EPSCoR)
Research Infrastructure Improvement (RII)
Award IIA-1301726

The Solar Energy-Water-Environment Nexus in Nevada

Application Package for **BOTH**:

Summer 2017 AND Academic Year 2017-2018
Undergraduate Research Opportunity Program (UROP)
Request for Proposals

Announcement for:
Full-time undergraduate students attending
College of Southern Nevada; Great Basin College; Nevada State College;
Truckee Meadows Community College; University of Nevada, Las Vegas;
University of Nevada, Reno; and Western Nevada College

Submission Deadline: Friday, March 3, 2017
**Application materials and faculty recommendations must be submitted no later than
5:00 PM PST of the submission deadline date.**

IMPORTANT: Undergraduate students enrolled full time at any NSHE institution are encouraged to apply to this opportunity. Applicants selected for this award may receive ONE undergraduate research scholarship for either Summer 2017 or Academic Year 2017-2018. You may apply for the Summer, the Academic year, OR if you have no strong preference, indicate both programs and if selected you will be assigned to either the Summer or Academic Year program. Applications will be ranked on quality of the proposal, regardless of program preference.

Eligibility:
The NSF mission includes support for all fields of fundamental science, technology, engineering and mathematics (STEM) <u>except for medical sciences</u>. Proposed research (STEM or otherwise) related to solar energy, water and/or environmental research are of special interest.

      a. Applicants must be U.S. citizens, permanent residents of the United States, or non-U.S. citizen students with a valid visa.
      b. Applicants must be enrolled full-time at any NSHE institution during the time they are conducting their research. For the purposes of this scholarship, full-time during fall/spring is a minimum of 12 credits, and full-time during summer is a minimum of 1-3 credits.
      c. A grade point average of 3.0 is recommended on the applicant's most recent transcript.
      d. UROP student research must be supervised by a NSHE faculty mentor.
      e. UROP awardees must maintain their undergraduate status throughout the entire program.
      f. Students having received a UROP scholarship under the current NSF EPSCoR Track 1 award are <u>NOT</u> eligible to apply.

Women and members of underrepresented groups are especially encouraged to apply. NSF defines underrepresented groups as Alaska Natives, Native Americans, Blacks or African Americans, Hispanics, Native Hawaiians and other Pacific Islanders, and Persons with Disabilities. Applicants who are first generation college-going (neither of their parents graduated from college) and/or geographically isolated (separated by geographic barriers or distance) are also of special interest.

Research areas: Students working in areas of science, technology, engineering or math (STEM) are eligible. Fields related to solar energy, water and/or environmental research are of special interest. These include (but are not limited to): Biology, Civil & Environmental Engineering, Climatology, Computer Science, Ecology, Economics, Education, Environmental Studies, Geography, Hydrology, Journalism, Natural Resources, and Political Science. Students with research tied to medical sciences are encouraged to apply for the National Institutes of Health IDeA Network for Biomedical Research Excellence (NIH INBRE). For more information, visit http://www.unr.edu/inbre.

Deadline: Friday, March 3, 2017

Scholarship amount: $4,000 for students and $750 for faculty mentors. Past recipients of a NSF-EPSCoR undergraduate research scholarship under the current Nexus award are <u>not</u> eligible to apply.

Award Periods: Summer Program: June 1, 2017 – August 11, 2017
Academic Year Program: September 1, 2017 – May 31, 2018

Sponsored by: National Science Foundation's Experimental Programs to Stimulate Competitive Research (NSF EPSCoR), NSF EPSCoR Solar Energy-Water-Environment Nexus in Nevada program (#IIA-1301726). For more on the Nexus project, visit **http://nvsolarnexus.org/** .

I. INTRODUCTION

The Nevada System of Higher Education (NSHE) received a Research Infrastructure Improvement (RII) Award from the National Science Foundation's Experimental Programs to Stimulate Competitive Research (NSF EPSCoR). The *Solar Energy-Water-Environment Nexus in Nevada* project's mission is to advance knowledge and discovery through research on solar energy generation, its environmental impacts, and the associated water issues, and to accelerate this research by developing new capabilities in cyberinfrastructure in Nevada. Four goals will support this mission. Development and expansion of cyberinfrastructure and long-term sustainability are embedded in each goal to promote project integration.

Goal 1) Solar Energy-Water-Environment Nexus Research and Cyberinfrastructure: Advance new knowledge and discoveries in solar energy, water and the environment. Expand the cyber connectivity network to incorporate Nexus data within the Nevada Research and Data Center (NRDC).

Goal 2) Diversity: Develop a comprehensive approach that leads to an increase in the number of underrepresented students who graduate with STEM degrees.

Goal 3) Workforce Development: Develop a sustainable STEM workforce by creating a pipeline of STEM-trained students, educators, and workers while increasing public understanding of solar energy, water, and the environment.

Goal 4) External Engagement: Enable Nevada scientists to collaborate and develop relationships with industry, institutions, and the public to strengthen research that will support the economic development of Nevada.

This project will create a center of research excellence on solar energy conversion to electricity within the context of minimizing its negative impacts on water usage and the environment. The proposed center will bring together faculty and staff from a broad range of relevant backgrounds; create a new facility: the Nevada Environment, Water, and Solar Testing and Research Facility (NEW-STAR); support associated instrumentation and new faculty positions to bridge existing gaps in research capabilities; and attract talented undergraduate and graduate students to this area of research.

For more information on Nevada's NSF EPSCoR Solar Energy-Water-Environment Nexus Program and involved faculty researchers, visit http://nvsolarnexus.org/.

Research Mentor:

Applicants must identify one or more faculty members to provide guidance and mentorship on their research project.

Having trouble identifying a research mentor?
Visit the Nevada STEM Mentor Network website to access
a searchable database and other valuable resources at
stemmentor.epscorspo.nevada.edu.

You may also contact a Nexus project component lead most closely associated to your proposed research (listed below). Students attending UNR or UNLV, may also contact the Centralized Offices of Undergraduate Research

University of Nevada Reno: http://www.unr.edu/undergradresearch
University of Nevada, Las Vegas: https://www.unlv.edu/our

Nexus Project Component Leads
Solar Energy: Dr. Robert Boehm, 702-895-4160, bob.boehm@unlv.edu

Water: Dr. JaciMaria Batista, 702-895-1585, jaci.batista@unlv.edu;

Environment: Dr. Markus Berli, 702-862-5452, Markus.Berli@dri.edu; Dr. Dale Devitt,   702-895-4699, dale.devitt@unlv.edu

Cyberinfrastructure: Dr. Sergiu Dascalu, 775-784-4613, dascalus@cse.unr.edu; Dr. Fred Harris, 775-784-6571, fredh@cse.unr.edu

Workforce/Education Development: Dr. Jacque Ewing-Taylor, 775-784-7787, Jacque@unr.edu; Michele Casella, 702-522-7076, michele_casella@nshe.nevada.edu

I. PROGRAM DESCRIPTION AND INSTRUCTIONS

A. Program Solicitation
The NSHE announces the Undergraduate Research Opportunity (UROP) scholarship program to promote undergraduate research in all NSHE institutions. The program is supported by funding from the Nevada NSF EPSCoR Solar Energy-Water-Environment Nexus program and the State of Nevada. Students working in STEM discipline or addressing STEM-related issues are eligible, but at least 50% of the proposals will be awarded to projects that support the Solar Energy-Water-Environment Nexus mission and goals listed above.

This solicitation is announcing two separate UROP scholarship opportunities:
- Summer 2017: June 1 – August 11, 2017
- Academic Year 2016-2017: September 1, 2017 – May 31, 2018

Applicants selected for this award may receive ONE undergraduate research scholarship for either Summer 2017 or Academic Year 2017-2018. You may apply for the Summer, the Academic year, OR if you do not have a strong preference, indicate both programs and, if selected, you will be assigned to either the Summer or Academic Year program. Applications will be ranked on quality of the proposal, regardless of program preference. Students must indicate on the UROP Cover Letter (Appendix B) whether they are applying for the Summer program, Academic Year program, or are willing to be assigned to either. Each UROP program will have two divisions: Lower Division, for students with 59 credits or less; and, Upper Division, for students with 60 credits or more.

Proposals must be original and written by the applicant. The research must be conducted during the research period for which they are funded, under the guidance of a NSHE faculty. Scholarships will provide $4,000 per student awardee and $750 to the faculty mentor overseeing the project to cover research expenses. Students are urged to carefully read the following guidance and supporting documents. Applications that do not follow the instructions provided will not be considered.

Receive UROP Application Writing Assistance!

Students applying for the NSF EPSCoR UROP scholarship are strongly encouraged to participate in the Application Writing Workshop. The workshop is presented in three sessions:

- **Session 1:** Learn more about the UROP application, eligibility, roles and responsibilities, connect with potential mentors/mentees, and begin focused writing on your research proposal/personal statement.
- **Session 2:** Work with experienced writing center staff to further draft and edit UROP applications, while learning proper writing techniques for future applications.
- **Session 3:** Finalize UROP applications through a peer-editing process led by experienced writing center staff.

NSHE faculty who have agreed to, or who are interested in being a, research mentor are invited to attend Session 1 of the workshop so as to learn more about the program, meet students and sign up to be listed in the Nevada STEM Mentor Network database.

Writing Workshop Dates/Locations:

Truckee Meadows Community College, Dandini Campus
Session 1: Monday, January 30, 2017, 4:30-6:00 PM, Vista Bldg., Room 204 (STEM Society meeting)
Session 2: Friday, February 3, 2017, 12:30-2:00PM, Tutoring & Learning Center in Library
Session 3: Friday, February 10, 2017 12:30-2:00 PM, Tutoring & Learning Center in Library
Michelle Montoya, Writing Center Coordinator, http://www.tmcc.edu/writingcenter/

University of Nevada, Las Vegas, Rogers Literature and Law Bldg., Room 101
(Each session will be held twice for scheduling convenience.)
Session 1: Wednesday, February 8, 2017 & Thursday, February 9, 2017, 3:00-4:30 PM
Session 2: Wednesday, February 22, 2017 & Thursday, February 23, 2017, 3:00-5:00 PM
Session 3: Wednesday, March 1, 2017 & Thursday, March 2, 2017, 3:00-5:00 PM
Gina Sully, Director of UNLV Writing Center, http://writingcenter.unlv.edu/

University of Nevada, Reno
Session 1: Friday, February 10, 2017, 1:00-3:00 PM in 104 MIKC
Session 2: Friday, February 17, 2017, 1:00-3:00 PM in 350 PSAC
Session 3: Friday, February 24, 2017, 1:00-3:00 PM in 350 PSAC
Maureen McBride, Director of UNR Writing Center, http://www.unr.edu/writing-center

Great Basin College, Academic Success Center (ASC) Elko Campus, Room EIT 214
Session 1: Friday, February 3, 2017, 2:00-3:30 PM (IAV Elko to Centers: Ely, Winnemucca, Battle Mountain, Pahrump)
Session 2: Friday, February 10, 2017, 12:00-1:30 PM at the ACS in Elko, Centers TBA
Session 3: Friday, February 24, 2017, 12:00-1:30 PM at the ASC in Elko, Centers TBA
Ping Wang, Director of the ASC http://www.gbcnv.edu/asc/english.html

Western Nevada College, Academic Skills Center, Carson Campus, Room BRIS 330
Session 1: Wednesday, February 1, 2017, 2:00-3:30 PM
Session 2: Tuesday, February 7, 2017, 11:00 AM-1:00PM
Session 3: Monday, February 13, 2017, 4:00-6:00 PM
Josh Fleming, Coordinator of the ASC   http://www.wnc.edu/academic-skills-center/

To attend the writing workshops, register at https://www.surveymonkey.com/r/2017uropwriting

B. Eligibility

The NSF mission includes support for all fields of fundamental science, technology, engineering and mathematics (STEM) <u>except for medical sciences</u>. Proposed research (STEM or otherwise) related to solar energy, water and/or environmental research are of special interest.

     a. Applicants must be U.S. citizens, permanent residents of the United States, or non-U.S. citizen students with a valid visa.
     b. Applicants must be enrolled full-time at any NSHE institution during the time they are conducting their research. For the purposes of this scholarship, full-time during fall/spring is a minimum of 12 credits, and full-time during summer is a minimum of 1-3 credits.
     c. A grade point average of 3.0 is recommended on the applicant's most recent transcript.
     d. UROP student research must be supervised by a NSHE faculty mentor.
     e. UROP awardees must maintain their undergraduate status throughout the entire program.
     f. Students having received a UROP scholarship under the current NSF EPSCoR Track 1 award are <u>NOT</u> eligible to apply.

Women and members of underrepresented groups are especially encouraged to apply. NSF defines underrepresented groups as Alaska Natives, Native Americans, Blacks or African Americans, Hispanics, Native Hawaiians and other Pacific Islanders, and Persons with Disabilities. Applicants who are first generation college-going (neither parent graduated from college) and/or geographically isolated (separated by geographic barriers or distance) are also of special interest.

C. Award Information

1. Students may apply for both the Summer 2017 and Academic Year 2017-2018 programs through this announcement but will only be allowed to participate in one of them.

2. These scholarship funds are awarded to encourage student engagement in undergraduate research and should be administered as a scholarship.

3. Since acceptance of this award may impact a student's income level to a degree that could affect eligibility for other scholarships, fellowships, and student loans, all students should consult with a campus financial aid advisor as part of the application process.

   *Students receiving the Governor Guinn Millennium Scholarship should consult with a financial aid counselor to determine the effect that this award may have on a student's need-based financial aid.

4. The NSHE does not provide tax advice. If you have questions about possible tax liabilities, you may refer to the IRS web sites: http://www.irs.ustreas.gov.

5. Participants are generally not allowed to engage in other research programs or have other work or employment. Special permission to have outside employment is only allowed if granted by the UROP Campus Leads, Dr. Scott Mensing (UNR) or Dr. Kurt Regner (UNLV). Requests should be made through Michele Casella, via email, at michele_casella@nshe.nevada.edu.

D. Program Guidelines

1. Research must be conducted under the direction of a NSHE faculty mentor who has agreed to supervise the research project. NSHE adjunct faculty may be identified as co-mentors.
2. Proposals are requested that involve the STEM disciplines, especially in areas related to solar energy, water and the environment. Students who are working outside of STEM disciplines (e.g. economics, education, journalism, policy) are welcome to apply but should propose projects that support the advancement of STEM-related research and education. Proposals on the education or communication of project-related topics are also welcomed.
3. It is acceptable for proposals from two or more students to be part of a larger research project; however, each proposal must be a unique effort by one student and will be reviewed on its own merit.
4. Awardees must be present during the entire program period, and the research is to be completed by the end dates as designated by the award.
5. Successful candidates are required to provide programmatic feedback for NSF evaluations through participation in surveys and questionnaires.
6. Each student **must** prepare and present a poster at the Nevada Undergraduate Research Symposium, held in the Fall and Spring of each year. The exact date and location will be provided to awardees accordingly. The poster should represent the research done over the course of the funded project period. Travel funding will be provided for out-of-town students to attend these meetings.
7. Each awardee will submit a signed obligation form, a digital headshot, and a summary of their proposed research to Michele Casella at the time they accept the scholarship. The summary and photo will be used to announce UROP awardees on NSHE publications and websites.
8. Each awardee will be strongly encouraged to participate in the Solar Energy-Water-Environment Nexus program during and after the end of their undergraduate research experience in one capacity or another (e.g. peer mentor, poster presenter, etc.). Opportunities for continued Nexus participation will be provided to awardees as they come available.

NOTE: IMPORTANT CHANGE TO APPLICATION PROCESS. While all NSHE students, except those with medical science research, are eligible to apply for a UROP scholarship, the application process is different for <u>lower division</u> students (those who have completed 59 or

fewer semester credits overall) and <u>upper division</u> students (those who have completed 60 or more semester credits overall). We anticipate awarding scholarships to both divisions in proportion to the number of applications that are received. Be sure to read the directions that follow carefully and fill out all required forms clearly and completely, as applications lacking any of the required information will not be considered.

E. Proposal Preparation Instructions for <u>Lower Division students</u> (59 or fewer semester credits completed)

Each proposal must be submitted as a **single pdf document in the order listed below**. Any applicant who does not receive confirmation that their proposal was received should contact Michele Casella, michele_casella@nshe.nevada.edu, to verify receipt of proposal by the NSHE Sponsored Programs Office. To further understand the UROP application process, refer to "The Application Process: Who does what?" (**Form C in Appendices**)

1. **UROP Application Checklist (Form A in Appendices)** Applicants will need to complete the form and obtain required signatures. Illegible forms will not be considered. Typewritten forms are strongly recommended. Be advised that you are required to consult with your financial aid office. An appointment may be necessary, so plan accordingly.
2. **Cover Page (Form B in Appendices):** Applicants will need to complete the form and obtain the required signatures. Illegible forms will not be considered. Typewritten forms are strongly recommended.
3. **Applicant's Statement:** Applicants should prepare a statement that answers the following questions:
   a. What are your educational goals? What are your career goals?
   b. How will participation in this program assist you in achieving your career goals?
   c. What relevant courses have you completed?
   d. Do you have any prior research or applicable work experience?
   e. What research are you interested in conducting with your mentor? Be as specific as you can about the research questions and methodologies you propose to use to conduct the work, to include a research timeline.
   This statement must be written solely by the undergraduate applicant and is limited to a total length of two pages. Statements must be single-spaced with 1" margins, in 12-pt. Times New Roman font. <u>Handwritten statements will not be accepted</u>. Students seeking writing assistance should register for one of the UROP Application Writing Workshops, referenced on pages 5-6.
4. **Scanned transcripts or downloaded "unofficial" pdf transcripts from your college website:** Transcripts of all college courses completed must be submitted, including a list of courses in which applicant is currently enrolled.
5. **Biographical Sketch or CV (Forms C and D in Appendices):** Submit one for the student applicant and one for the mentor; limited to two pages per person.
6. **Endorsement Letter(s)**: Each mentor must write a nomination letter in support of his/her student's application and commit to serve as a mentor. It is very important that the letter

describe the objectives/hypotheses and timeline for the student's proposed research project and be customized to highlight student's abilities and strengths for a successful research experience. Mentor letters for students with GPA below 3.0 should also specifically describe the student's readiness for a research experience. Each proposed mentor must "sign-off" on the proposal, noting approval and affirming that they have read the student's proposal and pledge to mentor the student throughout the project period.

F. Proposal Preparation Instructions for Upper Division students (60 or more semester credits completed)

Each proposal must be submitted as a **single pdf document**. If an applicant does not receive confirmation that their proposal was received, s/he should contact Michele Casella, (smichele_casella@nshe.nevada.edu to verify receipt of the proposal by the NSHE Sponsored Programs Office. To further understand the UROP application process, refer to "The Application Process: Who does what?" (**Form C in Appendices**)

1. **UROP Application Checklist (Form A in Appendices)** Applicants will need to complete the form and obtain required signatures. Illegible forms will not be considered. Typewritten forms are strongly recommended. Be advised that you are required to consult with your financial aid office. An appointment may be necessary, so plan accordingly.
2. **Cover Page (Form B in Appendices):** Applicants will need to complete the form and obtain required signatures. Illegible forms will not be considered. Typewritten forms are strongly recommended.
3. **Project Description (limit two pages, including all graphs or pictures):** The formulation of the research project may be a result of a collaborative effort by the applicant and mentor; however, the project description **must be written solely by the undergraduate applicant.** It should be a concise statement including clear hypotheses to be tested or questions to be asked. The project description must be written in a way that is understandable to reviewers whose background may be outside the applicant's specific field of research. The two-page project description should be single spaced with 1" margins, in 11-pt. Times New Roman font and must include the following sections:
   a. Abstract (50-100 words)
   b. Introduction
   c. Objectives
   d. Research hypotheses or questions
   e. Plans for research and/or creative work
   f. Timetable
   g. Plans for dissemination of results
   Students seeking writing assistance should register for one of the UROP Application Writing Workshops, referenced on page 5-6.
4. **References/citations (Form D in Appendices):** Not included in the two-page limit for the project description.

5. **Scanned transcripts or downloaded "unofficial" pdf transcripts from your college website:** Transcripts of all college courses completed must be submitted, including a list of courses in which applicant is currently enrolled.
6. **Biographical Sketch or CV (Forms E and F in Appendices):** One each from student applicant and mentor, limited to two pages per person.
7. **Endorsement letter(s):** Letters are to be written by supervising faculty mentor(s) indicating their approval of the proposal and describing their level of involvement in the project. It is very important that the letter describe the objectives/hypotheses and timeline for the student's proposed research project and be customized to highlight student's abilities and strengths for a successful research experience. <u>Mentor letters for students with a GPA below 3.0 should also specifically describe the student's readiness for a research experience.</u> Each proposed mentor must "sign-off" on the proposal, noting approval and affirming that they have read the student's proposal and pledge to mentor the student throughout the project period.

G. Roles and Responsibilities of Faculty Mentors

1. Each mentor agrees to arrange recurring meeting times to discuss the research project. The mentor agrees to ensure the student has proper guidance/training and supervision on a daily basis.
2. Each mentor or co-mentor should respect the student and provide advice, support, and encouragement as described in *Mentoring as the "Giving and Receiving of Wisdom" among Faculty and Students* (http://www.csun.edu/eop/htdocs/fmp%20manual.pdf).

For additional resources for research mentors and to post research opportunities, visit **stemmentor.epscorspo.nevada.edu.**

H. Projects Involving Human Subjects or Vertebrate Animals

Prior approval by the Institutional Review Board (IRB) for human subjects and/or the Institutional Animal Care and Use Committee (IACUC) for animal subjects is not required for proposal submission. However, students chosen to receive a scholarship under this program who anticipate the use of human or animal subjects in their research must receive approval of their research protocols by the appropriate review board prior to the beginning of research and release of funds.

1. Human Subjects: If this proposed project involves the collection of information from human beings through interaction or observation, include an attachment (not included in the two-page limit) that provides sufficient information to enable reviewers to evaluate potential risks to subjects. Include information concerning the subject population, type(s) of information to be gathered, and measures to be taken to protect privacy and reduce risks.

2. Vertebrate Subjects: If this proposed project involves living vertebrate animals in any way, include an attachment (not included in the two page limit) that provides sufficient information to enable reviewers to evaluate the choice of species, number of animals to be used, and any exposure of animals to discomfort, pain, or injury.

III. PROPOSAL REVIEW PROCESS AND EVALUATION CRITERIA

Applications will be reviewed by a panel of faculty from throughout the NSHE system. There will be separate panels for upper and lower division proposals. Awardees are eligible to participate in only one of the two divisions. Proposals will be selected based on a statewide, merit-based review. Eligible STEM-related research topics are welcome; however, at least 50% of all awards will be granted to those whose research is related to solar energy, and its impacts on water and the environment The selection process will include a review committee that will focus on the following review criteria:

1. Has the "Applicant's Statement" (lower-division student) or "Project Description" (upper-division student) identified an important research topic and clearly articulated its relevance to science / society?
2. Have the activities / methods been described in sufficient detail to assess the likelihood that the student will have a successful experience? Is there sufficient access to equipment/resources? Is the timeline achievable?
3. Has the applicant demonstrated a level of academic preparation and excellence, as reflected by his/her appropriate coursework and/or other measures, which would predict success in a research experience? Does the applicant have other background experience and/or extracurricular activities which would help predict success in a research experience?
4. Are the applicant's recommendation letters supportive of his/her participation in the program, including specific reference to his/her potential for success in this program?

IV. PROPOSAL SUBMISSION, AWARD NOTIFICATION AND TIMELINE

A. Submission of Proposals

All required documentation *listed in this announcement under **E. and F. Proposal Preparation*** should be scanned into the completed proposal in the order outlined and then converted into one pdf file for submission. It is the responsibility of the applicants to obtain and submit all required documentation for their proposal via email to **urop@nshe.nevada.edu.**

The email subject line and the pdf application document should be specific to each applicant and read:

Last Name_First Name_Institution_UROP17-18
***Example:* (Jones_Tom_UNR_UROP17-18)**

NOTE: Application deadline for both programs:
Friday, March 3, 2017, 5:00 PM PST

Incomplete or illegible applications will not be accepted.

B. Notification

Letters of award, as well as letters of regret, will be sent to all applicants after a statewide review has been conducted.

C. Obligation to the Government

Applicants for the award will be considered without regard to race, creed, color, sex, age, national origin and/or physical impairment.

D. Contacts

Potential applicants with questions regarding this program are strongly encouraged to contact a Program Leader.

University of Nevada, Reno:	University of Nevada, Las Vegas:
Dr. Scott Mensing;	Dr. Kurt Regner;
Email: smensing@unr.edu	Email: kurt.regner@unlv.edu

APPENDICES

Forms A-E

FORM A

<div align="center">

Undergraduate Research Opportunity Program
Application Checklist (to be submitted with your application)

</div>

For which program are you applying? (Check 1)

☐ Summer 2017   ☐ Academic Year 17-18   ☐ Both Summer and Academic Year

To which division do you belong? (Check 1)

☐ Lower Division (59 credits or less)   ☐ Upper Division (more than 60 credits)

Name: _____

Institution: _____

Project Title: _____

Check All Completed Items:

☐ Attended UROP Application Writing Workshop (not required but strongly recommended)

☐ Contacted campus financial aid office

☐ Completed all tasks under "Proposal Preparation" Section E

☐ Referenced/completed all forms in the Appendices A-E (typewritten documents preferred)

☐ Scanned all required documents into one pdf, named accordingly:

    Last Name_First Name_Institution_UROP17-18
    Jones_Tom_UNR_UROP17-18

☐ Letter of endorsement from mentor is included in this packet

☐ Letter of endorsement sent separately by mentor to urop@nshe.nevada.edu

☐ Completed pdf packet is emailed to urop@nshe.nevada.edu by Friday, March 3, 2017.

FORM B

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Cover Page:
NSF EPSCoR R II Award IIA-1301726
"Solar Energy-Water-Environment Nexus in Nevada"

Undergraduate Research Opportunity Program (UROP)
SUMMER & ACADEMIC YEAR PROGRAMS 2017-2018

</div>

Name of Project:_____

This project involves human or vertebrate animal subjects: YES__ NO__

WHAT IS YOUR PROGRAM PREFERENCE? (Check One)

☐ Summer 2017   ☐ Academic Year 2017-2018   ☐ Either Program (no preference)

TO WHICH DIVISION DO YOU BELONG?

☐ Upper Division   ☐ Lower Division

Student Information:

_____   _____
Student name   Student signature   Date

_____   _____
Student's educational Institution   Student's Declared Major

_____
Student's Street Address   City   State   Zip Code

Student Phone:_____   E-mail:_____

Broadening Participation for Greater Diversity

The Solar Energy, Water and Environment Nexus in Nevada program is a National Science Foundation Experimental Program to Stimulate Competitive Research (NSF-EPSCoR) project administered by the Nevada System of Higher Education. The NSF-EPSCoR has a strong commitment to broadening participation (http://www.nsf.gov/od/broadeningparticipation/bp.jsp). Groups underrepresented in science, technology, engineering and mathematics (STEM) include women, underrepresented minorities (African Americans, American Indians including Native Alaskans, Hispanics and Native Pacific Islanders), and persons with disabilities.

Checking the underrepresented groups box(es) on the application is optional and will not influence the determination of funding.

☐Male   ☐Female   ☐Do not wish to disclose

☐First generation college student   ☐Live in and/or attending a NSHE institution in a rural area

Ethnicity (choose one):
☐Hispanic or Latino
☐Not Hispanic or Latino
☐Do not wish to disclose

Citizenship (choose one):
☐U.S. Citizen
☐Permanent Resident (Green Card holder)
☐Dual citizenship with U.S. passport

Race (select one or more):
☐American Indian or Alaskan Native
☐Asian
☐Black or African American
☐Native Hawaiian or Pacific Islander
☐White
☐Do not wish to disclose

College Access Program Participation (check all that apply):
☐Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP)
☐ Louis Stokes Alliance for Minority Participation (LSAMP)
☐TRIO (indicate which TRIO program you were in) ☐Upward Bound ☐McNair Scholars
  ☐Other _____
☐UNR's Dean's Future Scholars
☐Other College Access Programs _____

Previous undergraduate research funding (check all that apply):
☐National Science Foundation   ☐IDeA Network of Biomedical Research (INBRE)
☐TRIO McNair Scholars Program   ☐National Aeronautics and Space Administration (NASA)
                                        Space Grant
☐Other scholarship funding _____

If you attended the UROP Application Writing Workshop, check all sessions in which you participated:

☐ Great Basin College
    ☐ Session 1 (2/3/17)   ☐ Session 2 (2/12/17)   ☐ Session 3 (2/24/17)
☐ Truckee Meadows Community College
    ☐ Session 1 (1/30/17)   ☐ Session 2 (2/3/17)   ☐ Session 3 (2/24/17)
☐ University of Nevada, Las Vegas
    ☐ Session 1 (2/8/17 or 2/9/17)   ☐ Session 2 (2/22/17 or 2/23/17)   ☐ Session 3 (3/1/17 or 3/2/17)
☐ University of Nevada, Reno
    ☐Session 1 (2/10/17)   ☐ Session 2 (2/17/17)   ☐ Session 3 (2/24/17)
☐ Western Nevada College
    ☐ Session 1 (2/1/17)   ☐ Session 2 (2/7/17)   ☐ Session 3 (2/13/17)

Faculty Mentor Information:

<u>How did you find your mentor?</u>

☐ Nevada STEM Mentor Network ☐ Mentor is/was your instructor ☐ Referred by a classmate/other faculty

Lead Mentor Information

_____   _____
Mentor name   Mentor signature   Date

_____   _____
Mentor's Institution   Mentor's Department

Mentor Phone: _____   E-mail:_____

CO-Mentor Information (if applicable):

_____   _____
Mentor name   Mentor signature   Date

_____   _____
Mentor's Institution   Mentor's Department

Mentor Phone: _____   E-mail:_____

Projects not involving the solar energy-water-environment nexus are eligible.

By the faculty mentor signing above, he/she certifies the accuracy of the information in this proposal, and certifies that he/she is a faculty member of the NSHE during the period covered in the attached proposal. If a second mentor is participating in this research, please provide his/her name and contact information.

FORM C

*Register for one of the UROP Application Writing Workshop sessions listed on pages 5-6
to learn more about the application process and to receive application writing
assistance.*

The Application Process: Who Does What?

Activity/Responsibility	Student	Faculty Mentor
Review UROP program Request for Proposals (RFP)	The student should carefully read the UROP RFP, paying close attention to eligibility and preparation and submission guidelines. The student should forward a copy of the program guidelines to the faculty mentor. If the student does not have a faculty mentor, utilize the resources on page 3 of the RFP or contact one of the UROP Campus Leads for assistance. Both UNR and UNLV have Offices of Undergraduate Research who can also assist. All students are strongly encouraged to attend the UROP Application Writing Workshops listed on pages 5-6 for writing assistance and assistance with the RFP.	Faculty mentors should identify and encourage outstanding students to apply for UROP. The faculty mentor should review program guidelines to understand the role of the faculty mentor in advising the student throughout all phases of the UROP application process. Mentors are encouraged to attend Session 1 of the UROP Application Writing Workshops listed on pages 5-6 to learn more about the RFP.
Develop the idea for a Research project	Students can find ideas for projects from a variety of sources such as courses they have taken, the scholarly interests of a faculty member, or ideas of their own that they would like to explore further. Students may work within or outside of their major field of study.	A faculty member with a general area of interest may encourage a student to pursue a project in that area, but the formulation of the project itself should be primarily the student's responsibility. The faculty member may provide feedback and constructive criticism during the formulation of the project and proposal.
Collaboration	The discussion between student and faculty mentor should lead to an agreement on the nature and scope of the project, the method of inquiry or creative activity, and expected outcomes. Discussions should also include a proposed budget and timeline for completing the project. Students and their faculty mentors should expect to meet more than once during the application process.	
Complete the application	The student completes the UROP Checklist and Cover Sheet (Forms A-B) and all elements of the proposal described in Section E: Proposal Preparation Instructions in the RFP. The proposal components should be combined into a single pdf document for submission. Student should provide mentor with a final copy of the application.	The faculty mentor reviews a draft of the proposal, which includes the cover sheet, project description, timeline, resume(s), and budget to ensure that the proposed work can be performed and supervised within the space, time frame, or level of support indicated.

| Submit the application | The student sends the application portfolio materials in a single pdf document to Michele Casella via email at urop@nshe.nevada.edu. The email subject line and the application document should be titled

LAST NAME_FIRST NAME_INSTITUTION_UROP17-18

Example: Jones_Tom_UNR_UROP17-18

The application should be submitted no later than 5:00 PM PST Friday, March 3, 2017. **Late or incomplete proposals will not be reviewed.**

If the student does not receive a confirmation of receipt, within 1 day of submitting, it is his/her responsibility to follow up via email, michele_casella@nshe.nevada.edu. | Student mentors are invited to submit letters of recommendation and support separate of the student application package to urop@nshe.nevada.edu but must submit prior to the deadline date of Friday, March 3, 2017, 5:00 PM PST. Faculty mentors will be copied on the email of receipt by the EPSCoR Administrator. They will also be copied on student notification of award or decline. |

FORM D

References Cited
Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. If the document is available electronically, the website address also should be identified. Proposers must be especially careful to follow accepted scholarly practices in providing citations for source materials relied upon when preparing any section of the proposal. While there is no established page limitation for the references, this section must include bibliographic citations only and must not be used to provide parenthetical information outside of the Project Description.

Biographical Sketch(es) (FOR MENTOR USE ONLY)
A biographical sketch (limited to two pages) should be included with your solicitation. The following information must be provided in the order and format specified below:

(a) Professional Preparation
A list of the individual's undergraduate and graduate education and postdoctoral training as indicated below:

Undergraduate Institution(s)	Major	Degree & Year
Graduate Institution(s)	Major	Degree & Year
Postdoctoral Institution(s)	Area	Inclusive Dates (years)

(b) Appointments
In reverse chronological order, list all of the individual's academic/professional appointments beginning with the current appointment.

(c) Products
A list of: (i) up to five products most closely related to the proposed project; and (ii) up to five other significant products, whether or not related to the proposed project. Acceptable products must be citable and accessible including but not limited to publications, data sets, software, patents, and copyrights. Unacceptable products are unpublished documents not yet submitted for publication, invited lectures, and additional lists of products. Only the list of 10 will be used in the review of the proposal.

Each product must include full citation information including (where applicable and practicable) names of all authors, date of publication or release, title, title of enclosing work such as journal or book, volume, issue, pages, website and Uniform Resource Locator (URL) or other Persistent Identifier.

(d) Synergistic Activities
A list of up to five examples that demonstrate the broader impact of the individual's professional and scholarly activities that focuses on the integration and transfer of knowledge as well as its creation. Examples could include, among others: innovations in teaching and training (e.g., development of curricular materials and pedagogical methods); contributions to the science of learning; development and/or refinement of research tools; computation methodologies, and algorithms for problem-solving; development of databases to support research and education; broadening the participation of groups

underrepresented in science, mathematics, engineering and technology; and service to the scientific and engineering community outside of the individual's immediate organization.

(e) Collaborators & Other Affiliations
- **Collaborators and Co-Editors.** A list of all persons in alphabetical order (including their current organizational affiliations) who are currently, or who have been collaborators or co-authors with the individual on a project, book, article, report, abstract or paper during the 48 months preceding the submission of this proposal. Also include those individuals who are currently or have been co-editors of a journal, compendium, or conference proceedings during the 24 months preceding the submission of the proposal. If there are no collaborators or co-editors to report, this should be so indicated.
- **Graduate and Postdoctoral Advisors.** A list of the names of the individual's own graduate advisor(s) and principal postdoctoral sponsor(s), and their current organizational affiliations.
- **Thesis Advisor and Postgraduate-Scholar Sponsor.** A list of all persons (including their organizational affiliations), with whom the individual has had an association as thesis advisor, or with whom the individual has had an association within the last five years as a postgraduate-scholar sponsor. The total number of graduate students advised and postdoctoral scholars sponsored also must be identified.

STUDENT CURRICULUM VITAE (CV) BUILDER

What is a Curriculum Vitae?

A Curriculum Vitae ("CV" or "vitae") is a comprehensive, biographical statement emphasizing your professional qualifications and activities. In general, curricula vitae are three or more pages in length. Because a CV is similar to a resume, you may find the "Resume and Cover Letter Construction" guide helpful. An advantage to the C.V. format is the significant freedom to choose the headings and categories for your information and the strength reflected in their arrangement.

When Is a Curriculum Vitae Appropriate?

A CV should **only** be used when specifically requested. This might occur in the following instances:

- Applications for admission to Graduate or Professional Schools
- Independent consulting in a variety of settings
- Providing information related to professional activities (e.g., applications for professional memberships and leadership positions, and presentations at professional conferences)
- Proposals for fellowships or grants
- Applications for positions in academia, including:
- School administration, (e.g., elementary or secondary school principals, superintendents, deans of schools)
- Institutional research and consulting
- Higher Education positions in teaching, research, and administration

Possible Sections to Include In Your C.V.

Heading	Name, address(es), and phone number(s), including area code(s)
Education	Listing of academic degrees beginning with the degree in progress or most recently earned. Include name of institution, city and state, degree type (B.A., B.S., M.A., etc.), area of concentration, month and year degree was (will be) received. Note: You may wish to include the title (using the format appropriate to your particular academic field) of your thesis. If you are an undergraduate and your GPA is 3.5 or higher, it is appropriate to include it. You may also include "Relevant Coursework" under this heading.
Honors and Awards	Receipt of competitive scholarships, fellowships, and assistantships; names of scholastic honors; teaching or research awards.

Relevant Experience	Listing of positions (part-time, full-time, volunteer, temporary and permanent) related to the work sought. Include: department, firm, agency, or organization; complete name; city and state; job/position title; dates; also include a brief description of your activities/duties, using strong action verbs. List these in reverse chronological order.
Other Experience	Groupings of other experiences (including volunteer work and/or internships) can enhance your C.V. Your experience can also be broken into other categories such as: Teaching, Counseling, Administration, Volunteer, Community, Internship, etc. Entries within each section should be in reverse chronological order.
Professional Associations	Memberships in national, regional, state, and local professional organizations should be listed. Also list significant appointments to positions or committees in these associations. Student memberships in professional associations are appropriate.
Publications	Give bibliographic citations (using the format appropriate to your particular academic discipline) for articles, pamphlets, chapters in books, research reports, or any other publications that you have authored or co-authored. In the fine arts, this can include descriptions of recitals and art exhibits.
Presentations	Give titles of professional presentations (using the format appropriate to your particular academic discipline); name of conference or event; dates and location; if appropriate in your discipline, also include a brief description. Presentations should be listed in reverse chronological order.
Recent/Current Research	Description of research projects recently conducted or in progress. Include the type of research and a brief description of the purpose.
Community Involvement	Appropriate and relevant volunteer work, church work, community service organizations, etc.
References	Optional to end vitae with statement "Available upon Request." If you are responding to an advertisement that asks for references, include those requested on a separate addendum sheet.
Qualifications or Skills	A summary of particular or relevant strengths or skills which you want to highlight. (Typically, this is not included as a separate section, but addressed in other sections. Occasionally, however, it may be appropriate to list special computing or language skills.)
Personal Information	Do not include marital status, age, ethnicity, race, religion, place of birth or citizenship