

### FY 2018 Scholarship Grant Awards

Institution	Amount	Title
Alabama A&M University	\$200,000	Alabama A&M University Nuclear Engineering Scholarship Program
Clemson University	\$126,613	Clemson University Nuclear Engineering and Radiological Sciences Scholarship Program
Louisiana State University	\$200,000	LSU Scholarship Program for the Expansion of Nuclear Power Engineering
Oregon State University	\$189,000	Oregon State Univ. Nuclear Science Scholarship Program
Rensselaer Polytechnic Institute	\$200,000	Enabling a Long-Term Growth: Nuclear Engineering Excellence Scholarships
Texas A&M University	\$197,236	Texas A&M University Undergraduate Scholarship Nuclear Program
Texas A&M University-Kingsville	\$186,306	Scholarship of Excellence in Nuclear Engineering at TAMUK
University Houston Downtown	\$195,080	UHD Developing Health Physics and Nuclear Science Concentration Majors Pathways for Biological and Physical Science Majors
University of Massachusetts - Lowell	\$199,995	Enhancement of Nuclear Engineering and Health Physics at UMass Lowell
University of Florida	\$200,000	2018 Undergraduate Scholarship Program at the University of Florida
University of Illinois at Urbana - Champaign	\$200,000	University of Illinois at Urbana - Champaign Nuclear Engineering Education Scholarship Program
University of Missouri S&T	\$200,000	Undergraduate Scholarships in NE at Missouri S&T 2018 - 2020

University of Nevada, Reno	\$199,999	The University of Nevada, Reno Scholarship Program In Nuclear Materials
University of Texas at Austin	\$100,000	Undergraduate Scholarship Program
University of Texas at El Paso	\$199,879	Scholarship (University of Texas at El Paso, UTEP)
University of Wisconsin - Madison	\$200,000	University of Wisconsin-Madison Undergraduate Scholarship Program in NE
Western Carolina University	\$200,000	Western Carolina University Scholarship Program for Nuclear Workforce Development
Worcester Polytechnic Institute	\$199,988	WPI Nuclear Science and Engineering Undergraduate Scholarship Program

## **Alabama A&M University Nuclear Engineering Scholarship Program**

### **Executive Summary:**

The *objective* of this scholarship program is to attract outstanding students to the *Nuclear Power* concentration in Electrical Engineering and the *Nuclear Systems* concentration in Mechanical Engineering at Alabama A&M University. The program will support United States citizens or permanent residents with tuition, fees, and other education costs. Extensive marketing will be used to recruit outstanding students internally from our engineering programs, and externally from other universities and community colleges. The graduates will acquire skills relevant to the development and operation of nuclear facilities, safe handling of nuclear materials, and nuclear regulation and security. Advising and mentoring will be provided to scholarship recipients in their academics, co-ops and internships, and professional development. An oversight committee will monitor the academic progress of the students and use assessment rubrics to evaluate the effectiveness of the program, and provide improvement feedbacks.

The *benefits* of this scholarship program include: 1) increase in the number and quality of graduates joining the workforce needed to sustain the United States nuclear industry, and 2) increased number of highly qualified underrepresented groups (African Americans and women) joining the United States nuclear workforce. The co-ops and internships activities the students will be mentored for and placed would benefit the United States nuclear enterprise.

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## **Clemson University Nuclear Engineering and Radiological Sciences Scholarship Program**

### **Executive Summary:**

Scholarships are requested to support up to 8 undergraduate students per semester at Clemson University. Scholarship students will be preferentially awarded to those actively pursuing the new Nuclear Engineering and Radiological Science (NERS) minor. Scholars will be encouraged to participate in a summer internship with an outside partner such as a national laboratory, utility, or regulatory agency. This will provide scholars with an opportunity both to interact with a practicing professional and to apply their academic knowledge in the nuclear sector. An evening networking event will be conducted annually in association with the career fair, which is sponsored by Clemson's nationally recognized career center. This networking event will allow our NERS scholars to interact informally with people employed in nuclear-related jobs.

The scholarship program is a means to advertise and attract Clemson's best and brightest undergraduate students into our developing NERS minor, which is built on almost forty years of experience in a graduate only Nuclear Environmental Engineering and Science academic program housed within the department of Environmental Engineering and Earth Sciences. The minor enriches engineering and science undergraduates with knowledge on nuclear specific topics, including introduction to nuclear engineering, environmental health physics, radioactive waste management, environmental risk assessment, the nuclear fuel cycle, radiation detection and measurement. The scholarship program is expected to attract the top students from: Chemical Engineering, Civil Engineering, Electrical Engineering, Environmental Engineering, Materials Science and Engineering, Mechanical Engineering, Chemistry, and Physics, for participation in the NERS minor. Continued growth of the NERS minor will lead to a larger and more competitive applicant pool for the NERS scholarship.

**Principal Investigator:** Timothy A. DeVol, [devol@clemson.edu](mailto:devol@clemson.edu)

## **LSU Scholarship Program for the Expansion of Nuclear Power Engineering**

### **Executive Summary:**

Louisiana State University (LSU) requests financial support of \$200,000 over two-years from the NRC Scholarship and Fellowship Education Grant program to expand the Nuclear Power Engineering (NPE) Scholarship started last year. This amount will be utilized to support 8 undergraduate students in the NPE minor each year (total of 16 over 2 years). Each student will be awarded scholarship of \$10,000 for one academic year if they maintain their eligibility. The main objective of the present proposal is to attract high quality undergraduate students by providing them incentives to join the NPE minor and prepare them for a career path in nuclear industry or academia to meet the regional and national nuclear workforce demand. During the last 2 years, 53 students opted for the Nuclear Power Engineering related classes. Two of the students joined the US Navy Nuclear Propulsion Program (one of them is a female student) and one student was offered a position at the Honeywell Uranium Hexafluoride Processing Facility, Illinois. Several of our students have also found co-ops and internship positions at nuclear-related industry such as CB&I, Entergy, ILD Inc. and Zachary Nuclear Engineering, Inc. The proposed scholarship program will provide the students with the knowledge and skill-sets needed to build a career in nuclear industry and academia. The proposed activities includes field trips to nuclear power plants such as River Bend (St. Francisville) and Waterford (Killona) in Louisiana and other nuclear laboratories such as Oak Ridge National Lab. Further, it will help us bringing guest speakers and advocates of nuclear work forces from the National Laboratories, government agencies, and nuclear industries to inspire the students to make a career in nuclear safety and security sectors.

**Principal Investigator:** Manas Ranjan Gartia, [mgartia@lsu.edu](mailto:mgartia@lsu.edu)

## **Oregon State University Nuclear Science Scholarship Program**

### **Executive Summary:**

Objective – The School of Nuclear Science and Engineering (NSE) seeks funding through the Nuclear Regulatory Commission (NRC) Scholarship program to annually award ten highly deserving undergraduate students attending Oregon State University (OSU) who are pursuing a Bachelor of Science in nuclear engineering or radiation health physics. The awards will be made over two academic years, starting September 1, 2018, and terminating June 30, 2020. This two-year program would support a total of twenty (20) educational scholarships during the grant period. The requested funds identified above provide fiscal support at an undergraduate level and significantly enhancing the mission of the NSE to most effectively educate students in the field of nuclear engineering and radiation health physics.

**Principal Investigator:** Camille Palmer, [camille.palmer@oregonstate.edu](mailto:camille.palmer@oregonstate.edu)

## **Enabling a Long-Term Growth: Nuclear Engineering Excellence Scholarships**

### **Executive Summary:**

The project will directly and greatly contribute to developing and maintaining the nuclear workforce by promoting two important goals. Firstly, it places emphasis on improving the interest and engineering thinking of students through innovative nuclear-related education and research. Secondly, it is committed to creating and supporting a community diverse in several ways: diversity students and students from various and different backgrounds. The Nuclear Engineering program and Rensselaer Polytechnic Institute are committed to utilizing this opportunity to power up the next generation nuclear workforce.

**Principal Investigator:** Li (Emily) Liu, [liue@rpi.edu](mailto:liue@rpi.edu)

## **Texas A&M University Undergraduate Scholarship Nuclear Program**

### **Executive Summary:**

The Texas A&M University Undergraduate Scholarship Nuclear Program will provide financial assistance to undergraduate students majoring in nuclear engineering and radiological health engineering at Texas A&M University. With 295 (excluding freshman year) undergraduate students, a diverse and quality student pool is available to select recipients from. The major impact of this program will be an increased and well-prepared engineering workforce for the nuclear sector.

Institutional support enables a comprehensive structure for the Undergraduate Scholarship Nuclear Program from the recruiting stage through the internal competition process and retention programs to the employment stage. The scholarship program will be implemented as an integrated element of a state plan to develop a larger nuclear workforce through the Nuclear Power Institute (NPI). Throughout the program, scholarship recipients will be mentored by faculty and receive academic and employment advising.

**Principal Investigator:** Jean Ragusa, [jean.ragusa@tamu.edu](mailto:jean.ragusa@tamu.edu)



## **Scholarship of Excellence in Nuclear Engineering at TAMUK**

### **Executive Summary:**

The proposed nuclear scholarship program will fund up to 16 qualified undergraduate students in the nuclear engineering minor program at Texas A&M University-Kingsville (TAMUK). The scholarship program is designed to attract and retain outstanding engineering students in the nuclear field. TAMUK nuclear minor program provides nuclear education to all engineering majors. The scholarship program will cultivate a group of fine engineering graduates of various majors with nuclear background to meet the diverse workforce needs from the nuclear industry. TAMUK is a notable Hispanic-Serving Institution (HSI) located in south Texas. The scholarship program at TAMUK will naturally involve a large number of Hispanic and other minority students, which will significantly increase the nuclear awareness among them and bring a number of qualified underrepresented minority students into nuclear field. The proposed scholarship program is well organized into advertisement, ranking and selection, student professional development, recipient tracking, and program assessment. The nuclear study of the awardees will not only be financially supported by the scholarship, but also be enhanced by various funded research and internship programs developed by the PIs. With the joint efforts from NRC and TAMUK, the proposed scholarship program will ultimately produce many talented and motivated STEM graduates with essential nuclear knowledge from south Texas to propel the state and the nation's nuclear society forward.

**Principal Investigator:** Xue Yang, [xue.yang@tamuk.edu](mailto:xue.yang@tamuk.edu)

## **UHD Developing Health Physics and Nuclear Science Concentration Pathways for Biological and Physical Science Majors**

### **Executive Summary:**

The University of Houston-Downtown (UHD) in cooperation with longtime and current partners at Texas A&M University (TAMU) Nuclear Engineering Department (NEUN), TAMU Nuclear Power Institute (NPI), the University of Texas-Houston Graduate School of Biomedical Sciences (UTH GSBS), the South Texas Project Nuclear Operating Company (STP NOC), and Comanche Peak Nuclear Power Plant (CP NPP) (long-time partners on several formerly active UHD NRC awards), **propose the development of two concentration tracks for the Biological and Physical Sciences (BPS) majors and tuition support for junior/senior BPS majors completing these concentration and entering graduate programs or workforce in these areas.** This project will target underrepresented undergraduates, primarily transfers, *demonstrating keen interest in health physics and/or nuclear sciences and who agree to take at least one NPI certification courses.* This program will *award juniors and seniors ready to graduate from UHD and who have already or concurrently will take a Nuclear Power Institute course entitled "Nuclear Power Plants-Fundamentals" offered by Texas A&M University Nuclear Engineering college and through an MOU with UHD, our undergraduates in STEM disciplines may directly apply for MS/PhD graduate school study.* Additionally, the NPI course will act as a preparatory nuclear graduate program/workforce interested UHD students. This project will support undergraduates in the following ways: UHD tuition, books, and mentored summer/academic year research. This project will support up to 18 BPS majors with one or both concentrations.

**Principal Investigator:** Mary Jo Parker, [parkerm@uhd.edu](mailto:parkerm@uhd.edu)

## **Enhancement of Nuclear Engineering and Health Physics at UMass Lowell**

### **Executive Summary:**

The University of Massachusetts Lowell is requesting scholarship grants from the U.S. Nuclear Regulatory Commission (NRC) to continue the growth of its Nuclear Engineering and the Radiological Sciences (healthy physics) programs. UMass Lowell is a nationally ranked tier - 1 research university with over \$60 million in funded research conducted each year across six colleges. UMass Lowell is a Princeton Review "Best Value College" and the only public institution of higher education in the New England states to offer ABET accredited Nuclear Engineering (NE) and Radiological Sciences (RS) degrees. In Fall 2017: three new faculty members joined the nuclear engineering and science programs this is in addition to three new hires in nuclear engineering between 2012-2017 and five more in nuclear sciences during this time frame. The enrollments in chemical engineering (parent department for nuclear engineering program) has grown from 299 (2012) to 451 (2016). The students enrolled in the nuclear engineering option are 19 (2012) to 37 (2016). We propose to distribute up to 5 scholarships at the sophomore/junior level, and as many as 4 scholarships at the junior/senior level each year. A student will get a maximum of \$20,000 over two years if they maintain their eligibility. We plan to distribute our scholarship awards in both programs to gain maximum visibility and to recruit the best students from both these programs. We plan to give up to 2 scholarships to transfer students to UMass Lowell nuclear programs from 2-year community colleges.

**Principal Investigator:** Sukesh Aghara, [Sukesh\\_Aghara@uml.edu](mailto:Sukesh_Aghara@uml.edu)

## **2018 Undergraduate Scholarship Program at the University of Florida**

The objective of the 2018 University of Florida Nuclear Engineering Undergraduate Scholarship Program is to produce high quality engineers who benefit the various sectors of the nuclear industry. The goal of this proposal is to provide 10-15 scholarships of up to \$10,000 to undergraduates in the nuclear engineering program each year for two years, pursuing either a B.S. degree in nuclear engineering, or a degree in a related engineering discipline with a minor in nuclear engineering. The program will be administered and managed by Dr. James E. Baciak, Director of the Nuclear Engineering Program. He will coordinate different functions, including advertisement, recruitment, review of scholarship applications, and selection of recipients. The selection process will be conducted using a set of parameters with appropriate weighting for consistency and transparency, and use a committee to select the fellowship recipients. The committee will meet annually to select (or renew) scholarship recipients from the pool of new applicants and existing recipients. The committee, with assistance from the coordinator within the Department's Academic Services Office, will monitor the educational program of each scholarship recipient, and prepare and submit an annual report to the NRC Project Manager electronically.

**Principal Investigator:** James E. Baciak, [jebaciak@mse.ufl.edu](mailto:jebaciak@mse.ufl.edu)

## **University of Illinois at Urbana-Champaign Nuclear Engineering Education Scholarship Program**

### **Executive Summary:**

The objectives of this program are to attract and retain superior undergraduate students to educate in nuclear engineering. This will be accomplished with financial resources from the NRC and academic and administrative resources from the Department of Nuclear, Plasma, and Radiological Engineering (NPRE) at the University of Illinois at Urbana-Champaign (UIUC). This program will ensure that the best and brightest students will join the nuclear workforce following a very strong, competitive education in nuclear engineering. The specific goals are to support at least fifteen (15) undergraduate students each year under this program.

**Principal Investigator:** Rizwan Uddin, [rizwan@illinois.edu](mailto:rizwan@illinois.edu)

## **Undergraduate Scholarships in Nuclear Engineering at Missouri S&T (2018-2020)**

### **Executive Summary:**

Missouri University of Science & Technology (Missouri S&T) is pleased to submit this proposal for scholarships for undergraduate students pursuing B.S. degrees in Nuclear Engineering. Dr. Hyoung Lee, Associate Professor and Program Chair of Nuclear Engineering will administer the scholarship program. The requested NRC funding will provide undergraduate scholarships to defray the cost of fees for 26 full-time students each year for two years. Twenty-six (26) high quality students with a minimum GPA of 3.0/4.0 will be selected from a pool of 90 students who are expected to be in the next year's Juniors and Seniors. The selection criteria will primarily be academic merit (GPA) with consideration given to financial need. The NRC scholarship grant will assist in providing a significant fraction (~4%) of the nation's approximately 620 expected graduates with a B.S. degree in Nuclear Engineering each year who would be capable of supporting the design, construction, operation and regulation of nuclear facilities and the safe handling of nuclear materials, and benefit nuclear safety and security sector. Success of the NRC grant is assured based on the outcome of our previous scholarship grants from NRC (2012-2014; 2014-2016; 2015-2017; 2016-2018; 2017-2019) which have helped 117 students obtain scholarships ranging from \$1,000 to \$3,300 per semester for students having GPA greater than 3.0. Sixty-seven of them graduated with a B.S. degree in Nuclear Engineering. Five of them received an M.S. degree in Nuclear Engineering at Missouri S&T. Among the 67 graduates, 22 were employed in the nuclear industry, 20 students are continuing in graduate school, and the rest are employed in fields related to the nuclear industry or seeking employment.

**Principal Investigator:** Hyoung K. Lee, [leehk@mst.edu](mailto:leehk@mst.edu)

## **The University of Nevada, Reno Scholarship Program in Nuclear Materials**

### **Executive Summary:**

University of Nevada, Reno (UNR) has been involved in externally-funded research on the performance and reliability of materials in advanced nuclear power applications for over 20 years and has had strong graduates from the graduate program. Only recently UNR has initiated a Nuclear Materials emphasis in the Materials Science and Engineering degree program. The proposed grant will initiate a Scholarship Program in Nuclear Materials to attract, retain, support and recognize outstanding undergraduate students pursuing the nuclear materials emphasis degree at UNR. Twelve scholarships will be offered each year and a total of 24 scholarships will be offered over the 2-year period. The goal is to increase the number and quality of students earning BS degree at UNR who are able to support the design, construction, operation, and regulation of nuclear facilities, and the safe handling of nuclear materials. Scholarships recipients will be encouraged to conduct an internship in an area of nuclear power in order to develop professional contacts that will help them find an appropriate nuclear related professional placement after graduation.

**Principal Investigator:** Dev Chidambaram, [dcc@unr.edu](mailto:dcc@unr.edu)

## **Undergraduate Scholarship Program**

### **Executive Summary:**

A nuclear option at The University of Texas at Austin has been in existence for fifty years. The earliest known course was Nuclear Reactor Operation and Maintenance and was first offered in 1957. Throughout its long history, the nuclear program has had a commitment to educating the brightest students in the United States: a commitment that grows stronger as the program continues to expand to encompass, research reactor beam port experiments, nuclear fuel cycle, nuclear instrumentation, robotics in extreme environments, nuclear forensics, nuclear security, reactor and computational nuclear engineering, and reactor training for research and senior reactor operators.

The scholarships supported by this grant will recruit top undergraduate students into The University of Texas at Austin Nuclear Certificate Technical Option (four Nuclear and Radiation Engineering courses) in the Department of Mechanical Engineering and the Radiation Physics Technical Option (six Nuclear and Radiation Engineering courses) in the Department Physics. Recruiting for the program will utilize resources in the Cockrell School of Engineering Scholarship Program office and the Equal Opportunity in Engineering (EOE) Program. Five scholarships will be awarded each year that cover the cost of tuition. It is important to note that scholarship recipients will be eligible to apply for out-of-state tuition waivers. This is of great consequence to out-of-state student due to the roughly \$26,000 difference between in-state and out-of-state tuition rates. Previous successes with the NRC Scholarship program have shown that financial support for undergraduate students has greatly benefitted students at the University of Texas to enter the nuclear workforce.

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## **UTEP's Nuclear Science Program for Highly Achieving Undergraduate Physics and Materials Science Students**

The University of Texas at El Paso (UTEP), a Hispanic-Serving Institution, proposes to create a scholarship program that will expose undergraduate Hispanic students to formative research and professional experiences in nuclear science and engineering, and ultimately help to develop the nuclear science and engineering workforce. The main objectives of this proposed effort are to recruit, select, and train junior- and senior-level undergrads at UTEP in the major areas related to nuclear science and engineering. The students will learn and experience how they can make good use of the nuclear facilities at Texas A&M, Sandia National Lab, and Los Alamos National Lab to address key research topics in Physics and Material Science and Engineering. Particularly, students will learn neutron diffraction, scattering, irradiation, and reflectivity techniques. Specific scientific objectives include investigating the magnetic and magnetic resonance properties of newly synthesized uranium and actinium-related nuclear materials, studying the optoelectronic properties of van der Waals crystals (e.g., MoS<sub>2</sub>) after neutron bombardment, and uncovering the interface magnetic properties of multiferroic thin film heterostructures such as BiFeO<sub>3</sub>/Co.

**Principal Investigator:** SRINIVASA RAO SINGAMANENI, [srao@utep.edu](mailto:srao@utep.edu)

## **University of Wisconsin-Madison Undergraduate Scholarship Program in Nuclear Engineering**

### **Executive Summary:**

The Nuclear Engineering degree program (NE) in the Engineering Physics (EP) Department at the University of Wisconsin – Madison proposes an Undergraduate Scholarship Program in Nuclear Engineering in support of outstanding undergraduate students enrolled in our nuclear engineering degree major, with a career objective of employment in nuclear engineering related fields. The employment may be with the NRC, other Federal agencies, State agencies, Department of Energy laboratories, nuclear-related industry, or academia in the recipients sponsored fields of study; i.e., 1-year of employment for a 2-year scholarship. The proposed scholarship program will recruit top-notch students from among the nuclear engineering programs' sophomore and junior classes into the scholarship program, and award scholarships for two years to financially assist students in pursuit of their Bachelor of Science degree in Nuclear Engineering (BSNE). The recruitment, selection, and program administration of the students and their progress will use proven techniques from the EP department and the WiscAMP program. The expected duration to obtain a BSNE degree is about 4 years, depending on the students' preparation. The EP department will supplement this award, as appropriate, to allow students to complete their degree. Evaluation of program success will be accomplished in a collaborative fashion.

**Principal Investigator:** Douglass Henderson, [dlhender@wisc.edu](mailto:dlhender@wisc.edu)

## **Western Carolina University Scholarship Program for Nuclear Workforce Development**

### **Executive Summary:**

Western Carolina University (WCU) proposes this two-year program to fund six Nuclear Workforce Development Scholarships per semester for specially selected, highly motivated engineering students specializing in electric power, mechanical and electrical disciplines, jointly called EPME, students who are pursuing an educational emphasis in nuclear power and who desire to contribute to the nuclear-related national workforce. The main objective is to use these scholarships to recruit and retain students who will sustain our existing program for serving nuclear-related industry and academia leveraging WCU's engineering project based learning sequence. Our objective is also to increase the quality, quantity and diversity of students seeking these engineering degrees. This Project Based Learning Program will, by design, benefit WCU's ongoing programs of recruiting, retaining and educating students, who include traditionally underrepresented groups (including but not limited to minorities, women, economically disadvantaged, first generation, and persons with disabilities), into the nuclear sector. A fraction of the proposal also covers support for faculty and costs to cover administration, mentoring, recruiting, marketing, and curriculum related activities.

**Principal Investigator:** H. B. Karayaka [[hbkarayaka@wcu.edu](mailto:hbkarayaka@wcu.edu)]

## **WPI Nuclear Science and Engineering Undergraduate Scholarship Program**

### **Executive Summary:**

The Worcester Polytechnic Institute Nuclear Science and Engineering Program (NSE) requests support for 6 undergraduate student scholarships per year for 2 years for a total of 12 student scholarships. Each scholar will receive a scholarship and participate in an enhanced educational program described within. To maximize the impact of this scholarship program, we will prioritize support for 12 different students over the two-year period of this proposal. This award will target junior and senior NSE students, although promising and committed freshmen and sophomores also will be considered. Our goal is to develop a highly talented and competent workforce to support the nuclear power industry. The WPI Scholarship Administrator will oversee an application and selection process aimed to obtain the best and brightest recipients for this program. Candidates will be assessed based on their academic achievements and their commitment and interest in the nuclear field.

Prior to starting this scholarship, a candidate must sign an agreement to pursue at least 6 months of employment within the nuclear industry for each year or partial year of support. As a scholar, the student will pursue an enhanced project-based educational program designed to enhance the fellow's professional success in the nuclear energy field. These program elements have the additional benefit of helping maintain the student's interest in nuclear energy and better incorporating the student into the NSE professional community.

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