

**UNIVERSITY OF WYOMING**  
**Energy Science Graduate Stipends and Fellowships**  
**NOVEMBER 1, 2017**

2011 Session Laws, Chapter 88, Section 346(d)(ii)(D)  
2017 Sessions Laws, Chapter 176, Section 1(a)

To the Joint Appropriations Committee; Joint Minerals, Business and  
Economic Development Committee; and Governor Mead

During its 2011 session, the legislature appropriated \$6,247,930 in Abandoned Mine Lands funds to UW's Office of Academic Affairs for energy science graduate stipends and fellowships. The funds were to be expended over multiple years with not more than \$1 million expended each year.

In FY 2018, approximately \$506,000 in funding is allocated for support of twelve graduate assistantships in their second year of funding and a further four third-year graduate assistantship funding for ongoing students. The Energy GA awards continue to elevate the stature of graduate education by providing competitive stipends for recruiting and retaining outstanding graduate students. As in prior years, the FY2018 awards support fundamental research in a wide array of energy topics important to Wyoming (Table 1). In the Fall 2017 semester, no new graduate scholars joined the program. Due to the sunset of the initial appropriation, Academic Affairs did not announce a new request for proposals in Fall 2016; had we done so, the newly recruited cohort of students arriving in Fall 2017 would be supported only in their first year under the time limits of the 2011 initiative. In order to maximize the impact of the Energy GA funding, the University of Wyoming chose to provide a third year of graduate assistantship funding to four ongoing Energy Science Ph.D. students (Table 2).

Since its inception, the awarding of Energy Science Graduate Assistantships has recruited outstanding students to be supported on two-year and three-year stipends. The awards support students to ensure continuity in their research progress. The funding has to date, enhanced Energy Science research within the Colleges of: Engineering & Applied Sciences (41 projects), Arts & Sciences (33) Agriculture & Natural Resources (9) and Business (5). Departments involved in the research include Atmospheric Sciences, Chemical and Petroleum Engineering, Mechanical Engineering, Civil and Architectural Engineering, Electrical and Computer Engineering, Chemistry, Geology & Geophysics, Global and Area Studies, Math, Physics and Astronomy, Statistics, Plant Sciences, Agricultural and Applied Economics, Ecosystem Science & Management, Molecular Biology, and Molecular and Cellular Life Sciences.

Since AY 2011-12, ninety-one graduate students have been recruited into the Energy Science Graduate Assistantships. During this period forty-three graduate degrees have been awarded (27 masters and 16 doctoral). There are thirty-six students pursuing graduate degrees who are current or past Energy GA awardees. Twelve students departed their program without degrees.

Although the remaining 2011 funds were due to revert in June 2018, 2017 Sessions Laws Chapter 176 reappropriated up to \$2,833,073.00 to the University of Wyoming for energy

science graduate stipends and fellowships, and this reappropriation will begin in FY2019 and will not revert until June 30, 2020. The actual available funding through 2020 is approximately \$1.6m, and this funding will be used to support two-year energy science graduate assistantships for FY2019 – FY2020. In response to Academic Affairs' Fall 2017 RFP, forty-nine applications for two-year energy science graduate assistantships were submitted and are currently being reviewed. The FY2019-2020 reallocation includes the requirement that at least fifty percent of the funds be used to support Wyoming residents or UW alumni. The University of Wyoming will abide by this requirement. Allocations of funding for FY2019 Energy graduate assistantships will be made in Fall 2018.

UW is greatly appreciative of this initiative that has strengthened energy research on campus and of the support provided to attract these impressive students. Furthermore, UW thanks the Wyoming Legislature and Governor Mead for reappropriating the remaining funding in order to support an additional cohort of energy science graduate assistantships.

**Table 1.** Departments and project foci of FY2018 Energy GA awards (second-year students of FY2017 awards).

<b>Department</b>	<b>Topic</b>	<b>M/F</b>	<b>Undergraduate Institution</b>	<b>Residency</b>
Chemical Engineering	Developing Nanocatalysts from Wyoming Rare Earth Elements for Advanced Energy Conversion	F	University of Wyoming	In state resident
Chemical Engineering	Exploring Algal Biodiversity for Biofuel and Biogas Feedstock Production	M	University of Wyoming	International 150% rate
Chemical & Petroleum Engineering	Novel Nanostructured Materials for Energy Applications	M	University of Wyoming	Alumni rate
Chemistry – student is no longer being supported with this funding.	Dry Reforming of Methane over Lanthanide-based Perovskites for H <sub>2</sub> Production	F	Shanghai Normal University	International 150% rate
Electrical & Computer Engineering	Control technology for wind turbines	M	University of Wyoming	In state resident
Geology & Geophysics	Reservoir-Scale Stratigraphy, Parkman Sandstone Member, Mesaverde Formation	F	University of Delaware	Out of state
Global & Area Studies	The graduate assistantship will support the work of a student looking at key government, industry and civil society stakeholders in the climate and energy security debate.	M	University of Texas	Out of state

Table 1 (continued)

<b>Department</b>	<b>Topic</b>	<b>M/F</b>	<b>Undergraduate Institution</b>	<b>Residency</b>
Mathematics	Multiscale methods with application to fluid flow in heterogenous dynamic media	M	University of Wyoming	In state resident
Mathematics	Construction and Analysis of a Deflation Projector: Improving the Stability and Efficiency of Iterative Methods for Solving Ill-conditioned Linear Systems Found in Reservoir Simulations	M	Zhejiang University of Technology	International
Mechanical Engineering	Hydrogen Embrittlement in High Entropy Alloys For Oil & Gas Infrastructure Applications	M	University of Wyoming	Out of state
Mechanical Engineering	High Fidelity CFD Modeling of Advanced Coal Combustion Concepts	M	University of Wyoming	In state resident
Mechanical Engineering	NANO-ADHESIVE LAYER FOR NEXT GENERATION METALLIC THIN-FILMS FOR USE IN ENERGY APPLICATIONS	M	Rowan University	Out of state
Petroleum Engineering	Molecular-scale Investigation of Solid/Fluid Interactions and Phase Behavior of Hydrocarbon Gas Mixtures in Nanopores of Unconventional Gas Reservoirs	M	China University of Petroleum	International

**Table 2.** PhD students who were provided with a third year of Energy GA funding in FY2018 (originally FY2016 awards).

<b>Department</b>	<b>Topic</b>	<b>M/F</b>	<b>Undergraduate Institution</b>	<b>Residency</b>
Economics and Finance	Mergers & acquisitions for sustainability in the energy sector	F	Boston College; Louisiana State University-Shr.	In state resident
Geology and Geophysics	Prediction ahead of the drill-bit	F	China University of Petroleum	International
Mathematics	Advance simulation methods for wind energy efficiency	M	Moscow Institute of Physics & Technology	International
Mechanical Engineering	In-Situ carbon sequestration for chemical-ooop combustion of Wyoming coal	M	Beijing University of Chemical Technology	International