

Program Schedule and Expectations

- The program responds to high National Science Foundation (NSF) expectations.
- The majority of the program will be spent conducting hands-on lab activities.
- Education faculty will lend their expertise to help guide the development of lesson plans, which participants can take back to the classroom.
- Participants have the opportunity to experience research-related field visits to industrial and government laboratories.
- The program culminates with the preparation of a scientific report and presentation to colleagues and faculty. This includes a conference-ready presentation displayed in the department and online.
- Faculty mentors will support participants in the process of submitting their results to peer-reviewed journals and proceedings.
- Follow-up support provided by Georgia Southern faculty for school-year implementation.

APPLY TODAY:

coe.georgiasouthern.edu/energy/application



ABOUT GEORGIA SOUTHERN UNIVERSITY

Georgia Southern University, classified as a doctoral/ research institution by the Carnegie Foundation for the Advancement of Teaching, is a member of the University System of Georgia. As the largest and most comprehensive research institution in southeast Georgia, the University is a residential campus serving 20,674 students representing all 50 states and 88 nations.

ENERGY

GEORGIA SOUTHERN UNIVERSITY
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GeorgiaSouthern.edu/coe/energy



ENERGY
ENgaging Educators
in Renewable energy



**GEORGIA
SOUTHERN
UNIVERSITY**



Research Experience
for Teachers

National Science Foundation: Research Experience for Teachers “ENGaging Educators in Renewable EnerGY (ENERGY)”

ENGaging Educators in Renewable EnerGY (ENERGY) is a National Science Foundation (NSF) grant program that aims to develop a diverse, competitive, and nationally engaged teacher and faculty workforce through activities and projects performed alongside graduate and undergraduate students, as well as faculty and industry advisors. The participants will receive seven weeks of professional development on renewable energy content and teaching strategies delivered in the summer from the first week of June through the fourth week of July. A final component of the program will include follow-up sessions (2.5 days) hosted once per semester during the academic year.

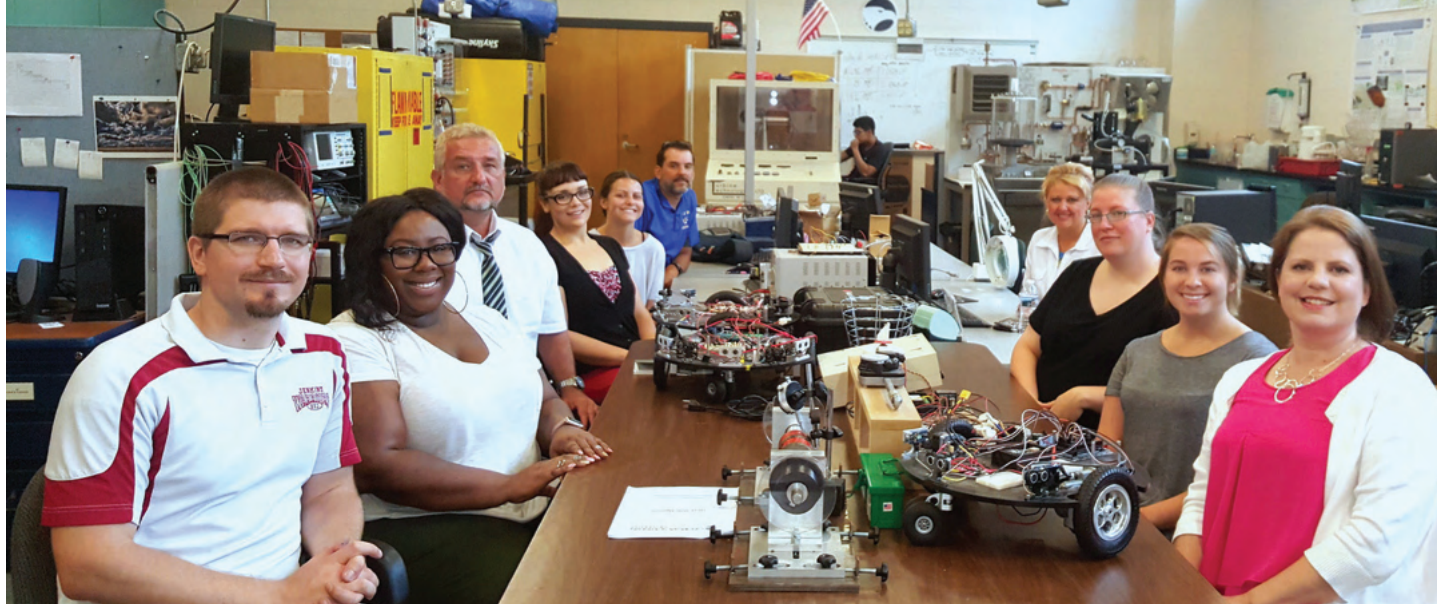
From 2017-2019, the grant program will provide stipends to 10 current and/or pre-service teachers, per year, for participation in the seven-week ENERGY program. In consultation with a faculty mentor, teachers will develop a research project, delineating expected contribution to their assigned team. Participants will attend lectures, seminars, workshops, and labs to develop their knowledge in renewable energy.

Application Information

1. Applicants must be currently teaching or majoring in education in the US.
2. Participants will receive financial support of \$6,650* for the 7-week program.
3. Application deadline is December 15, 2017 (2018 cohort).
4. June 4th is the program start date for 7 weeks.

**Housing is the responsibility of the participant and is available on campus for \$27/night (\$1,323 total)*

For more information, contact
Kania Greer, Ed.D., Recruiting Chair
kagreer@georgiasouthern.edu



Research Projects

1. THERMOELECTRIC POWER GENERATION

Faculty: Valentin Sologiu, Ph.D., and David Calamas, Ph.D., Mechanical Engineering

Participants will demonstrate an understanding of thermoelectric power generation, the Seebeck effect, Peltier effect, and one-dimensional heat conduction.

2. WIND ENERGY

Faculty: Mosfequr Rahman, Ph.D., Mechanical Engineering

Participants will be able to assess the viability of wind energy as a sustainable energy source, describe the reliability and performance of wind turbines, and understand the historical and societal perspectives regarding the use of wind turbines for electrical power generation.

3. SOLAR COLLECTORS

Faculty: David Calamas, Ph.D., Mechanical Engineering and Rocio Alba-Flores, Ph.D., Electrical Engineering

Participants will demonstrate an understanding of flat plate solar collectors, energy balances at the surface, thermal radiation, and solar energy measurement techniques.

4. FROM SMART GRID TO SMART HOME

Faculty: Rami Haddad, Ph.D., Electrical Engineering

Participants will demonstrate a working knowledge from

the basic concepts of power systems to the inherent elements of computational intelligence including power generation, transmission, distribution, decision support systems, smart metering, optimization, and renewable energy sources. They will develop practical skills using instrumentation in laboratory-based exercises.

5. SOLAR TRACKING SYSTEMS & DAQ

Faculty: Rocio Alba-Flores, Ph.D., Electrical Engineering

Participants will apply mathematical models to describe the movement of the sun during the day. They will design controllers to position a solar panel and maintain the best orientation relative to the sun's rays to maximize the power generation.

Supporting Lectures

1. Dr. V. Sologiu, PI and NSF-RET Program Director: Renewable Energy
2. Dr. D. Calamas: Thermoelectric Power
3. Dr. M. Rahman: Wind Energy
4. Dr. R. Alba: Solar Energy
5. Dr. R. Haddad: Sensors
6. Dr. D. Williams: Safety
7. Dr. R. Mayes: Classroom Implementation