

**PROJECT TITLE:** EEPS Reach

**PROJECT TAGLINE/CAPTION** (160 characters): An outreach program for Rice EEPS students to bring awareness, knowledge, and conversations about earth, environmental and planetary sciences to the public.

**IMAGE:**



Primary Contact: Alana Semple

Primary Contact Email: [ags7@rice.edu](mailto:ags7@rice.edu)

Primary Contact Department: Earth, Environmental and Planetary Science

Name of Group/Organization: Earth, Environmental and Planetary Science Graduate Students

### **PROJECT DETAILS**

Provide a description of the project.

The intention of this project is to initiate an outreach program in the Department of Earth, Environmental and Planetary Sciences (EEPS). Our goal is to connect with and teach people of all ages in the Greater Houston area about earth, environmental and planetary sciences. We will pursue a variety of outreach activities including free classroom visits at local schools, appearing on local Houston radio, as well as other more spontaneous outreach opportunities (such as the

Reach For the Stars Festival at Rice and the Educator Event at the Houston Museum of Natural Science (HMNS)).

**Timeline:** If the project will take place at a specific time and place, please give details. Is it a one-time event or a series?

We intend to participate in a series of regular events throughout the semester. We will start with 2 events per month; 1 school visit and 1 local radio show appearance. In addition to these planned events, we will participate in a variety of one-time outreach opportunities held on Rice's campus or in the Houston area, such as the Reach For the Stars Festival, with which our department has participated in the past, and activities at the HMNS.

**Audience:** Who is your target audience? (e.g. program-specific, interdisciplinary, or university-wide? Will undergraduates, faculty, staff, or postdocs be involved? Any off campus participants?)

Our target audience includes the general public of the Greater Houston area, with a focus on local K-12 students. We will also involve teachers in the schools we visit, who can implement our lessons and labs in their own classrooms, amplifying the impact of our efforts.

We will allow and encourage all members of EEPS to participate, but primarily we wanted to help our graduate students to become more involved in science communication and public outreach.

How many people do you anticipate will participate?

Within the project we have 5 committee members dedicated to organizing and volunteering at outreach events:

Alana Semple (3rd year PhD): EEPS Graduate Student Outreach Coordinator

Laura Carter (5th year PhD): Outreach Liaison

Sriparna Saha (4th year PhD): Volunteer Coordinator

Eric Barefoot (2nd year PhD): Department Correspondence and Marketing

Michael Lara (1st year PhD): Project Developer

Linda Welzenbach (EEPS staff): Department Contact and Marketing

For each of our outreach events, we intend to recruit volunteer participants from the EEPS graduate community (2-3 students for radio visits, and 4-6 for classroom visits depending on individual event needs, including any available committee members).

We expect audience participants to be made up of the radio listeners (generally throughout the Greater Houston area), K-12 students in Houston schools (anticipate 25 students per class visited), and participants in a variety of local outreach events (e.g., Sally Ride Foundation's *Reach for the Stars* invites female middle-school aged students from Houston).

**Marketing Plan:** How do you plan to publicize the project?

EEPS Reach volunteers for both classroom teaching and outreach events will be recruited from graduate students in the EEPS department, using dedicated email (called Geounion), posts on the department website, and word-of-mouth among graduate students. Geounion email communication will be managed by our student head (Eric Barefoot). Web posts will be handled by the website manager (Linda Welzenbach).

To advertise our program to local teachers and schools, we will enlist R-STEM's help to connect with local Houston K-12 science teachers. We will coordinate with them via email, matching our resources with their needs via a questionnaire that details our offerings and involvement, such as possible lesson plans and activities. The questionnaire also serves to provide for special requests or modifications, along with organizational information such as dates and times.

We already have established a contact in local Houston radio KPFT's MiniGeology series.

## **ADVANCEMENT**

What are the goals of the project?

1. Educate and excite the public about how geology and science is present in our everyday lives, as well as share current, innovative research to bring the academy to the public, and to facilitate discussion about earth, environmental, and planetary science. Houston is a unique location where geology is not only around us in nature, but also in the jobs and infrastructure that depend on it. With earth science in the news as a result of recent policy changes and natural disasters, it is imperative that our department engages in public discourse, leveraging our accomplished researchers and innovative research programs. Providing young people with earth science knowledge will help prepare them to understand the news, vote in elections, and make decisions about their lives regarding natural risks.
2. The benefit of speaking to a broad audience is that we can attempt to introduce and answer questions about becoming scientists in our fields, and in particular encourage women and minorities to consider academia and/or geology.
3. This project provides an opportunity for Rice EEPS graduate students to learn about a variety of outreach opportunities, improve their communication skills when working with the public, and make a positive impact with the community. Both Rice and the greater Houston community benefit from a mutually strong connection.

Briefly explain the need for the project and how it will promote excellence in scholarship, training, and/or development?

Although our department has been involved in occasional planned outreach events in the past, and students in EEPS have individually volunteered for others beyond Rice, opportunities are scarce, poorly advertised, and at times, inefficient. With the implementation of a structured outreach program that will include developing lesson plans with complimentary and stand-alone

geology outreach 'kits' that anyone can grab and use, EEPS will be better prepared to engage in, or create new opportunities for outreach. Providing multiple opportunities and in a variety of settings and teaching styles, graduate students will get a unique chance to not only try out teaching, mentoring, lesson planning, and science communication with K-12 students and the public, but also to grow those skills over the shorter time frame of a semester.

If this is an existing project/event or a similar one exists, describe how the project/event is being expanded or enhanced.

This is a pilot project. We anticipate expanding this program extensively in the future in collaboration with other departments and within our department.

If your proposal is for a pilot project, suggest how it might develop over a three-year period.

We expect this first year to use existing contacts from EEPS students who attended schools in Houston, and others recommended to us by R-STEM to teach in local classrooms along with a recent connection we have made with a local radio host to practice public science communication. Our first steps will be to prepare one or two lesson plans, purchase materials for lesson plans and 'outreach kits', and contact schools. We will start by performing 2 outreach events per month. In the future, this project will be expanded to impact a wider audience through more frequent events, more lesson plans, more schools, and include other avenues of outreach, such as local museum booths or exhibitions, organizing our own campus-wide event, or communicating our science through social media.

Additionally, after establishing the EEPS outreach program, we plan to collaborate with other Rice departments and graduate students who have established outreach programs, and be a resource for those who would like to initiate one. The Ecology and Evolutionary Biology section of the Biosciences Department (EEB) has already expressed interest in collaborating on future classroom activities, by marketing each of our unique lesson plans to the Houston public, coordinating contacts, and sharing our information as well as science activities on a joint Rice-hosted website.

Describe how you will measure the success and impact of this project. Please, provide quantitative targets, if possible.

We will gauge our success based on two inputs: interest within the department, and surveys of visited classrooms indicating satisfaction in our lesson and interest in continued future collaboration. Current department attendance of outreach events is very low. This is in part due to a lack of a program or the ability to provide a conduit to participate in outreach. We will consider our project successful in part if we can regularly engage new EEPS students and faculty in at least the two serial community outreach event types. Our Department representative will keep track of those attending the outreach events we advertise and keep a sign-out sheet for our 'outreach kits' to document their use. For classroom surveys, we will provide the teachers with a survey to evaluate our lesson. Their comments will be used to improve and update our lesson plans. The survey will also contain a 'would you recommend this

program' question, and we will consider a positive response a measure of success. We will also gauge student impact by asking how many are interested in pursuing EEPS-related topics before and after our lesson. Depending on the success of our lesson itself, we will modify (as needed) or add new lessons to our program. If a lesson is successful (gets positive feedback from participants, teachers and our own EEPS graduate students), it will be made available for easy access. We will also create a document of what works and what doesn't in terms of lesson plans and teaching, with advice for future outreach students at the end of this program, which will be kept with our outreach kits.

## BUDGET

### *Itemized Budget*

Please, provide an itemized budget. List each item, a description, and the anticipated cost.

<b>Item</b>	<b>Description</b>	<b>Cost</b>
Storage bins	Plastic Storage Bins, plastic baggies for kits and activities	200
Printing	Cost to print maps, handouts, brochures	400
Activity Supplies--from Rice	Beakers, petri dishes, graduated cylinder	500
Activity Supplies--from elsewhere (grocery store, online)	Fossil, mineral, and rock ID kits, hand-lenses, gravel and sand, dixie cups, straws, water bottles, foam balls and blocks, coloring pencils, geodes, mineral samples, corn syrup, oreos, coke, mentos, push pins, paper clips, timers, tape, food coloring, glitter, marbles, glue, construction paper, chalk	1400
Presentation supplies	Portable white boards, expo markers, erasers	100
T-shirts	Matching official shirts for identifying volunteers	200
Transportation	Gas money reimbursement	200

Total Expenses	\$3000
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***Funds from other sources***

Please, provide any information on funds from other sources that you have secured or potential funds that you plan to apply for.

Source	Status	Cost
N/A		
Total Amount		\$0

If the project/event has been offered in the past, how was it supported?

This is a pilot project, so has not been offered in the past.