

## KECK Geology Consortium Guidelines for Submission of Project Proposals 2017-2021 Projects

The Keck Geology Consortium Programs described below reflect our most recent proposal to NSF for support of the consortium through 2021. While retaining much of the historical structure of Keck projects, there are important differences, so please read the guidelines carefully.

### I. Background

The new annual research programs proposed for the 2017-2021 cycle include: one or two Gateway research projects for rising sophomores and juniors, and four to seven Advanced Research projects for rising juniors and seniors (Figure 1). Both programs include common components (research, analytical and professional development) that have differing goals and activities appropriate to the students in each program.

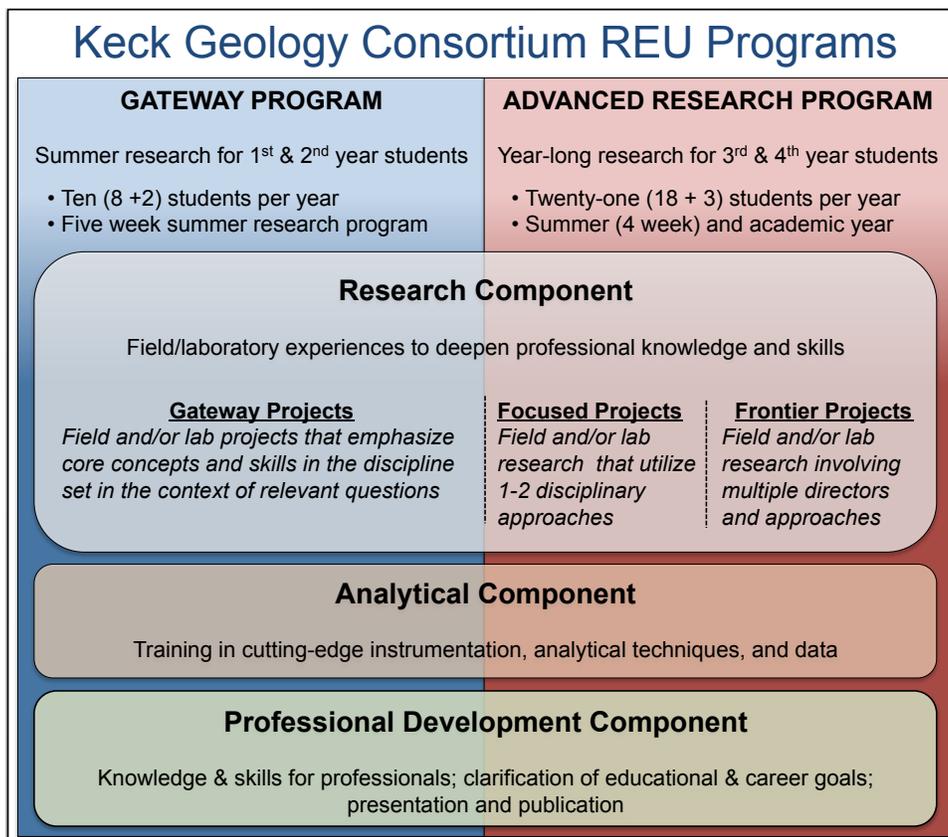


Figure 1. Diagram illustrating the goals and structure of the research, analytical, and professional development components in the Gateway and Advanced Research programs of the Keck Geology Consortium REU site. See text for detailed explanation.

The new **Gateway Program** for beginning students, especially those from underrepresented minority groups, focuses on exploration of the discipline and its intersections with socially relevant issues. The research component of this program is designed intentionally to appeal to beginning students, and especially those from diverse backgrounds, to introduce them to the breadth and excitement of the discipline through authentic research experiences, to deepen their understanding of the nature of science, to further develop their research skills and science identity, and to socialize them into a research community of practice.

The research component in the **Advanced Research Program** includes a collaborative summer field or laboratory project followed by an entire academic year of deeper questioning, data collection, analysis, and dissemination; two different types of research projects are envisioned: Focused and Multi-Disciplinary Frontier (Figure 1).

## II. Research Project Details

**Gateway Projects:** The ideal Gateway project is designed for 8-10 students and two faculty directors, but we will also consider four and five student projects with one faculty director for each project. In addition to research, a typical Gateway project will involve a mix of hands-on activities, problem sets and mini-lectures by project directors and perhaps a visiting scientist ("science mentor" in budget) to help introduce students to the geosciences in general as well as to help develop some of the skills needed to be successful during the five-week research project.

- 5 weeks summer
- Rising Sophomores and Juniors
- Students publish short contributions in *Proceedings of the Keck Geology Consortium*

**Focused Research Projects:** The ideal Focused Research project is designed for eight students and two faculty directors, but we will also consider four student projects with one faculty director. These projects involve students in a common four-week summer field and/or laboratory experience, followed by supervised independent work at their home campuses during the following academic year.

- 4 weeks summer
- Rising Juniors and Seniors
- Supervised (campus advisor) research at home institution through following acad. year
- Students publish short contributions in *Proceedings of the Keck Geology Consortium*

**Multi-Disciplinary Frontier Projects:** The ideal Multi-Disciplinary Frontier project is designed for 16 students and four faculty directors, but we will also consider twelve student projects with three faculty directors. These projects require a cooperative, multi-disciplinary approach to solving complex geologic questions that fall outside the scope of our Focused Research projects.

- 4 weeks summer
- Rising Juniors and Seniors
- Supervised (campus advisor) research at home institution through following acad. year
- Students publish short contributions in *Proceedings of the Keck Geology Consortium*

The optional **Analytical Skills Component** supports and supplements all three types of Consortium projects (Gateway, Focused Research, Multi-Disciplinary Frontier). The goals of the analytical component are two-fold: 1) to train undergraduate students in cutting-edge analytical techniques and instrumentation, and 2) to enhance student research experiences and project science goals through the use of analytical data. Project directors can request up to \$675 per student for analytical work. Note that preference will be given to projects that make use of services provided by established NSF-supported user facilities such as Laserchron, LacCore, Institute for Rock Magnetism, etc.

The optional **Professional Development** component is designed to support students in both Consortium programs (Gateway, Advanced Research) and expands upon the model of the Annual Symposium of previous funding cycles. The goals of this program are for undergraduate students to strengthen their professional knowledge and skills, promote the development of a science identity, and help clarify their educational and career plans through participation in a professional meeting. In the new model, Project directors and participants would travel to a regional or national conference, meet together to discuss their project results, and present their findings as appropriate. Project directors will also facilitate professional development of their students at the meeting.

### III. Proposal Format and Contents

**Project Title:**

**Project Directors:** name, institution, email for each

**Tentative Field/Laboratory Dates**

**Number of Students**

**Budget Request**

**Project Description:** brief introduction of project goals and significance, and geologic setting

**Student Learning Outcomes**

**Potential student projects** (e.g. scientific questions and number of students working on each)

**Project Logistics:** number of students, approximate project dates and location(s) for fieldwork, lab work, and conference travel, safety issues, expectations for students (e.g. remote camping, food flexibility, gear, physical ability). Please give a brief description of the faculty committed to or interested in working on the project and their areas of expertise.

**Optional Analytical Component:** If your project asks for additional funding for analytical work (see Analytical Component above), please include a statement of the type(s) of data you plan to collect, location, why it's important to the project, and provide a separate budget request.

**Optional Professional Development Component:** If your project asks for additional funding for professional development (see Professional Development above), please include a statement of the meeting that you plan to attend, its relevance to the project goals and student professional development, and the planned/facilitated activities by the project at the meeting.

**Budget:** Use the guidelines below (Table 1), keeping an eye on the bottom dollar amount for the project size you propose. The participant support costs (travel to site, travel at site, room and board) may be reallocated as long as the final budget does not change from the maximum amount indicated. If you have matching funds available for projects that are more expensive than the budget limit, please indicate the source and use of those funds. If your project asks for additional funding for analytical work (see Analytical Component above), please justify in the proposal text, and include an "Analytical Component" line in your budget. Note also that additional Professional Development funds (\$1125 per student) are available for all projects to attend a regional or national meeting. If your project asks for additional funding for travel to a meeting (see Professional Development above), please justify in the proposal text, and include an "Professional Development" line in your budget. Note that the total amount of funding available for meetings is calculated on a per student basis. That is, a ten student Gateway project can spend up to \$11,250 for all project personnel (10\*\$1125).

### IV. Submitting a Proposal

Proposals are accepted at anytime, however, we are especially interested in receiving proposals before the annual GSA meeting. While you do not need to have commitments from project faculty when you submit a proposal, it is best to have faculty in place if at all possible. Typical proposals are five to seven pages in length, including figures, tables, and references. Please include the budget on a separate page.

Please send a copy of your proposal (as a PDF) to Cam Davidson (c davidso@carleton.edu) AND Karl Wirth (wirth@macalester.edu).

**Table 1. Budget Guidelines for 2017-2021 Keck Geology Consortium Projects**

**Example Gateway Project Budget (10 students)**

<b>I. Stipends</b>	Unit Cost	no.	Total Budget
Project Director	\$6,500	2	\$13,000
Science Mentor	\$2,000	1	\$2,000
Student	\$2,500	10	\$25,000

**II. Travel**

Faculty to site	\$600	3	\$1,800
Student to site	\$600	10	\$6,000
At site	\$300	10	\$3,000

<b>III. Room &amp; Board</b>	\$1,000	13	\$13,000
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<b>IV. Other Expenses</b>	\$400	10	\$4,000
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**Total Summer Research Budget: \$67,800**

*Optional Components:*

<b>V. Analytical Component*</b>	\$675	10	\$6,750 *
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<b>VI. Professional Development*</b>	\$1,125	10	\$11,250 *
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**Maximum Project Budget: \$85,800**

\*These are maximum amounts available and calculated on a per student basis. Show actual costs in your budget and explain in the proposal narrative.

**Example Focused Research Project Budget (8 students)**

<b>I. Stipends</b>	Unit Cost	no.	Total Budget
Project Director	\$6,500	2	\$13,000
Student	\$2,000	8	\$16,000

**II. Travel**

Faculty to site	\$600	2	\$1,200
Student to site	\$600	8	\$4,800
At site	\$500	8	\$4,000

<b>III. Room &amp; Board</b>	\$950	10	\$9,500
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<b>IV. Other Expenses</b>	\$1,000	8	\$8,000
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**Total Summer Research Budget: \$56,500**

*Optional Components:*

<b>V. Analytical Component*</b>	\$675	8	\$5,400 *
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<b>VI. Professional Development*</b>	\$1,125	8	\$9,000 *
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**Maximum Project Budget: \$70,900**

\*These are maximum amounts available and calculated on a per student basis. Show actual costs in your budget and explain in the proposal narrative.

**Example Frontier Research Project Budget (16 students)**

<b>I. Stipends</b>	Unit Cost	no.	Total Budget
Project Director	\$6,500	4	\$26,000
Student	\$2,000	16	\$32,000

**II. Travel**

Faculty to site	\$600	4	\$2,400
Student to site	\$600	16	\$9,600
At site	\$500	16	\$8,000

<b>III. Room &amp; Board</b>	\$950	20	\$19,000
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<b>IV. Other Expenses</b>	\$1,000	16	\$16,000
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**Total Summer Research Budget: \$113,000**

*Optional Components:*

<b>V. Analytical Component*</b>	\$675	16	\$10,800 *
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<b>VI. Professional Development*</b>	\$1,125	16	\$18,000 *
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**Maximum Project Budget: \$141,800**

\*These are maximum amounts available and calculated on a per student basis. Show actual costs in your budget and explain in the proposal narrative.