



## **Provide**

Alar College is a highly selective liberal arts college that confers the Bachelors of Arts and Bachelors of Science degrees. Alar College is dedicated to the excellence in undergraduate education, and there are no graduate programs. In the last five years, 85% of our graduates rank in the top 25% of their high school class. Last school year 2125 students were enrolled. In the last five years, 15-20% of students have majored in science and math with approximately 400 students receiving bachelor's degrees. In the last five year, 25% of those graduates have enrolled in PhD programs related to health sciences, 15% have enrolled in and/or graduated from doctoral programs for medicine, dentistry, veterinary medicine, or physical therapy, and 10% have enrolled in Masters programs related to health sciences. The Biology Department encourages undergraduate research and takes pride in its effectiveness in training undergraduate students through high-quality research opportunities, rigorous standards, and individual responsibility. In the past 5 years, 20 students have received the prestigious National Science Foundation (NSF) Graduate Research Fellowships for demonstrating promise as leaders in their fields; in addition, 15 have received Honorable Mentions.

## **Special Characteristics that make it appropriate for the AREA program**

Our institution focuses on undergraduate students and gives a multitude of research opportunities to our students. This institution is an ideal recipient of the AREA grant because it: 1) is highly qualified and dedicated to supporting meritorious research, and 2) has a strong belief that student research plays a pivotal role in science education. With an emphasis on hands-on, inquiry-based learning at all levels, it is a priority to give students access to advanced investigations and open-ended problem solving from first-year laboratory senior investigation projects. Specified laboratory courses are emplaced to teach students to design experiments and develop hypotheses rather than follow provided protocols. Alar College strongly encourages its students to participate in research opportunities through an undergraduate research and creative opportunity grant program that provides up to \$2000 in support for students who successfully submit proposals to a faculty review board. Alar College also provides student researchers with an expense account of \$550/summer and \$400/semester for the purchase of materials required for their research projects. It also provides summer housing for 100 student researchers with typical 15 of these conducting research in the Biology Department. This institution has had an increasing number of undergraduates participating in student research projects in recent years and a limited amount of space and funding to accommodate them. The College intends to continue the school's long held tradition and commitment to preparing students for careers in science through high-quality meritorious research, allowing them to continue to make meaningful contributions to the microbiology field. The Biology department has already established a record of success in mentoring independent, pioneering undergraduate research. In the last five years, this has led to 60 undergraduate students as co-authors

on peer-review journal articles and more than 90 undergraduates have presented at regional and national meetings.

#### **Impact of the AREA program on PD/PI**

This grant will allow the PD/PI to hire 12 part time undergraduate students and a part-time research technician, who can culture mammalian cells, order supplies and help maintain lab productivity when the PD/PI is occupied with teaching and service. Funding for this program will allow the PD/PI to expand research and discoveries in the microbiology field and build on the excellent research environment at Alar College. Through doing this research, the PD/PI will have the ability to stay up to date with advanced methodologies and idea in her field, therefore improve her teaching by teaching from experience rather than textbook.

#### **Impact of the AREA program on our institute**

Because of our rapidly increasing student demand to participate in research projects and our very limited funding, Alar College is a great recipient of the AREA grant. It holds an extremely competitive environment, filled with eager students who are ready to contribute to research opportunities. Funding for this program will allow for additional talented undergraduates from Alar College to take part in excellent research and education in microbiology, and broaden their horizon through hands on learning with the most exquisite mentors and equipment. Our institution's commitment to research greatly aids in the success of our experiments. The PD/PI thoughtfully selects a number of skillful undergraduates that show intellectual curiosity, determination, self-motivation, competitiveness, and team-work skills. This grant would increase the Department's efficacy of preparing students for advanced study and careers in science and medicine by: 1) creating more research opportunities for students 3) encourage more student involvement and co-authorships on research papers and published materials and 4) generate more support to the still growing areas of microbiology at Alar College. The grant would also strengthen the research environment by encouraging faculty colleagues to pursue NIH-funded research.

#### **Institutional Support for the proposed research project**

Alar College is enthusiastic and in full support of student research opportunities. In addition to the support already mentioned, the institution has provided a generous start-up package and provides standard equipment, supplies, chemicals, and reagents. Alar College is also willing to offer free summer housing for 4 students who will be participating in the PI's research.