CUREs Commitment and Statement of Need Form

All responses are due by August 18, 2024. The current settings allow for answers to be edited and can be saved as a work in progress. If you experience any technical issues with this CASON document, please contact Grant Project Director, Christopher Saldivar or Academic Program Coordinator, Aaron Ellis. Support with CUREs Design, Marketable Skills, and Student Learning Objectives can be sought at Teaching and Learning Center with Dr. Joan Jaimes.

I. Instructor and Course Information

1) Instructor Name

2) Alamo Colleges District Email

3) Course Name, Section, and Format
Example: *PSYC 2301125 In Person*

4) Is the proposed CURE a renewal from the current term?

II. CUREs Design

5) Discuss in detail the undergraduate research project and/or case study for your course. Explanation must address how all students will be involved in the research process, participation in active learning experiences, demonstrate mastery of theoretical concepts applicable to real-world, employer-driven research questions and/or case studies, and development of communication skills to showcase results of their efforts to STEM faculty and company representatives.

Example:
This CURE will be suitable for Introductory Biology 1406 (Biology for Science Majors I). The project will run for a total of 8 weeks. For Week 1, we are introducing the problem and getting familiar with the current literature. Following this literature review, this course will integrate course concepts with CURE practices throughout the semester.

In weeks 2-4, students will learn population sampling techniques in the laboratory and practice them in a novel setting (Acoustic data from South Texas Bat Cave). Students will work in research teams to collect and maintain bat guano samples for analysis off site. Students will practice data entry and analysis on a growing master bat database maintained by Matt McConaughey at South Texas College. In weeks 5-7, students will repeat the DNA and acoustic sampling for early winter to determine seasonal variation in diet and types of bats.

In week 8, students will work in groups to prepare research posters for dissemination to the class. As part of this project, students will add to a growing knowledge of bat ecology as well as monitor bat migration and changes in diet based on seas and potentially monitor for outbreak of invasive insects and/or white nose syndrome.

All findings and data collected in Fall Semester will be made available for further research and data mining and will form part of the introductory material for the following Spring semester. In spring, the BIO 1407 class will continue to monitor the South Texas Bat Cave and conduct two major collections of acoustic data and guano/DNA to assess the seasonal variation in diet and abundance of bats.

6) Please provide a detailed timeline to show how the project will be implemented in your course. As an alternative, submitting course syllabus with weekly activities will suffice.

Note:
The project should be feasible in the given timeline and span a minimum of 25% of the course (at least 4 labs or weeks in a 16-week course or meet the 36-hour threshold found to maximize student benefits from research.

III. Course Student Learning Objectives

7) Please copy and paste your course's most recent specific student learning outcomes in the text box below. SLO's are listed in your course syllabus.

Example:
PSYC 2301

1. *Identify various research methods and their characteristics used in the scientific study of psychology.*
2. *Identify the historical influences and early schools of thought that shaped the field of psychology.*
3. *Identify some of the prominent perspectives and approaches used in the study of psychology.*
4. *Identify terminology unique to the study of psychology.*
5. *Identify accepted approaches and standards in psychological assessment and evaluation.*
6. *Identify factors in physiological and psychological processes involved in human behavior*

8) Please discuss how your CURE will support in meeting all or some student learning objectives. Feel free to use the same answer template in Section 3, Question 7.

IV. Marketable Skills

At San Antonio College we make a commitment to teach our students not only the course student learning outcomes, but also more global outcomes, Marketable Skills. If this course is part of Professional and Technical Education, it also includes teaching degree level program outcomes. Marketable Skills for your course can be found in

the following link: https://www.alamo.edu/siteassets/sac/about-sac/college-offices/integrated-planning/backwards_design.xlsm

- **Critical Thinking Skills** - creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- **Communication Skills** - effective development, interpretation and expression of ideas through written, oral and visual communication
- **Empirical and Quantitative Skills** - manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- **Teamwork** - ability to consider different points of view and to work effectively with others to support a shared purpose or goal
- **Social Responsibility** - intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities
- **Personal Responsibility** - ability to connect choices, actions and consequences to ethical decision-making
- **Leadership:** A student will maintain a productive work environment and confidently motivate others to meet high performance standards.
- **Performance:** A student will create artistic or technical demonstrations through the means of self-expression, language, technology, and/or learned skills.

9) Please discuss how your CUREs aligns in meeting any of SAC's marketable skills component shown above.

Example:
Students who participate in this CURE will have to opportunity to apply and engage in the scientific process to add to the growing literature of urban and bat ecology. This project will involve engagement with Universities and community partners such as South Texas University, and The Texas Department of Game and Fish. From this CURE, students should understand more deeply the kinds of work that scientists and biologists do, which may lead to discovery of new job interests and opportunities. Participation in this CURE should increase student scientific literacy, student persistence and sense of belonging, and scientific identity. In addition, it will provide resume building research experience that should prove valuable when applying to jobs, academic programs or graduate schools.

Specifically, students will be able to:

- *Apply scientific literacy skills to identify and perform primary literature review of bat ecology in the desert southwest.* ***(Critical Thinking)***
- *Apply the scientific process to answer baseline ecological questions about an important group of animals (bats) that provide tremendous pest control (insects) free of charge.* ***(Social Responsibility)***
- *Analyze genomic data to determine the species of insects most commonly preyed upon by these bats.* ***(Empirical and Quantitative Skills)***

- *Analyze acoustic data to determine species of bats present and when those bats first appear leave.* ***(Empirical and Quantitative Skills)***
- *Use field sampling techniques common to ecology research to determine species of bats present*
- *Work collaboratively to build a professional standard research poster* ***(Teamwork)***
- *Communicate their findings in both written and oral format* ***(Communication)***
- *Apply quantitative reasoning skills to collect and analyze data sets* ***(Empirical and Quantitative Skills)***
- *Describe the specific bat species present and determine specific patterns in migration* ***(Performance)***
- *Enter and collect data to build a large database of bat ecological measures over long time span.* ***(Empirical and Quantitative Skills)***

V. Statement of Need

10) Please provide a proposed supply list needed to implement your CURE for the semester. Do not exceed $3,000 in estimated costs as each project has a maximum supply budget. All items will also be reviewed for approval to ensure each is aligned with the research experience.

Project BUILD funds may not be used for:

- replacement equipment or instrumentation that does not significantly improve instructional capability;
  teaching aids (e.g., films, slides, projectors, "drill and practice" software);
- vehicles, trailers, laboratory furnishings, or general utility items such as office equipment (including word-processing equipment), benches, tables, desks, chairs, storage cases, and routine supplies;
- maintenance equipment and maintenance or service contracts;
- the modification, construction, or furnishing of laboratories or other buildings; and
- the installation of equipment or instrumentation (as distinct from the on-site assembly of multi-component instruments--which is an allowable charge).

Limitations:
Software purchases require approval from San Antonio College, Information Technology Department prior to purchase.