IRAP Assessment Grant Proposal

Letter of Support from the Dean – Andrew Rogerson (CSM).

The College recognizes the challenge of improving student learning across the disparate disciplines in the CSM and the Dean’s office is in regular discussion with chairs and faculty to look for solutions. It is gratifying, therefore, to review this assessment grant proposal that crosses all disciplines and specifically seeks to evaluate the value of student scientific research as it impacts critical thinking skills, writing abilities and ultimately achievement. Evaluation will involve measuring ‘success’ and the authors propose to develop shared new rubrics and modify existing rubrics to fit the needs of the different Departments. Moreover, this proposal assesses existing SOAPS to look for ways to strengthen them and adopt a few similar approaches that unite the Departments. Funding this proposal will elevate the importance of student success across the College and generate increased involvement with faculty. I agree to providing the release time (3 WTU) to Dr. Lynda Harding since her experience will be a huge asset to the success of this proposal. I support this application without reservation.
The College of Science and Mathematics is seeking funding for a cross-college effort to assess the impact of student scientific research on student thinking, writing, and achievement. A major component of the proposed work is the development and pilot application of several common rubrics that can be used across all seven departments in the College of Science and Mathematics to evaluate the work of both graduate and undergraduate students.

Assessment will include analysis of the students’ writing skills, critical thinking skills, and quantitative and scientific literacy using research-related and other student work products. We will also establish a database that can be used to relate student research activities to assessment measures such as success in subsequent courses. Focus groups will be used to determine student satisfaction and dissatisfaction with research activities and barriers to participation in research activities.

**Overarching project activities will include:**

- Regular meetings of department chairs and assessment coordinators to collaborate on this project and to improve assessment within the college
- Coordination of assessment and reporting activities to streamline reporting and facilitate cross-college collaboration

**Project activities specific to all undergraduate students will include:**

- Development and pilot application of a rubric to analyze student work in a required senior-level class, to assess (specifics to be decided by assessment coordinators):
  - Critical thinking
  - Quantitative literacy
  - Quality of technical writing
- Determination of number of and quality of scientific presentations (e.g., Central California Research Symposium, CSU Research competition) and publications (e.g. *Nature, Science*) created by undergraduate students
Project timeline:

Summer 2011: Meetings with Assessment Coordinators/faculty selected to work on this project; examination of existing rubrics; creation of new rubric for senior-level undergraduate course; creation of focus group questions

Fall 2011: Coordination of focus groups, use of rubrics on undergraduate papers

Spring 2012: Use of rubrics on graduate student writing examination and projects/theses; analyses of all collected data; creation of final report; suggestions for “closing the loop” for each department and for the College of Science and Mathematics as a whole

Budget:

We are requesting $2,500 summer stipend for eight faculty members from the departments in the College of Science and Mathematics: Biology (1), Chemistry (1), Computer Science (1), Earth and Environmental Sciences (1), Mathematics (1), Physics (1), and Psychology (2). Psychology would involve 2 faculty members because of the particularly large size of both their undergraduate and graduate programs. To indicate the degree of support Dean Rogerson has for this project, he has agreed to provide 3 WTU of assigned time to Ethelynda Harding to coordinate project efforts.
Memorandum

DATE: March 28, 2011
TO: Christina Leimer
FROM: Frederick Zechman
RE: Supporting Letter- S'2011 College-Level Assessment Grant from CSM

I am writing in strong support of the college-level assessment grant proposal from the College of Science and Mathematics. I believe the proposal will greatly enhance and streamline the assessment process in the College by focussing on common goals that are shared across CSM departments, specifically the results of student research. Madhu Katti was previously awarded an IRAP assessment grant to evaluate the impact of student research in the Department of Biology, and the current proposal will build upon Dr. Katti's experiences.

The College of Science and Mathematics currently supports a unified CSM assessment effort by providing assigned time to Biology faculty member, Prof. Lynda Harding in Spring 2011 to assist CSM Departments in SOAP improvement and other assessment activity. The College's commitment to continue that effort as a match for the current proposal is evidence that assessment is a high priority for the College and the Department of Biology. I believe the CSM is uniquely poised to make major advancements in assessment if focused broadly on our common values and research-based learning objectives.

There is no better way to learn science than by doing science, and this creed will be a unifying factor in future college assessment activities.
March 24, 2011

To Whom It May Concern:

This is to support the enclosed IRAP grant proposal. I am committed to provide assistance and support as needed for the implementation of this proposal, should it get funded.

Please do not hesitate to contact me if you have any questions in this regard.

Sincerely,

Saeed Attar, Ph.D.
Associate Professor & Chair
Department of Chemistry

278-5239
sattar@csufresno.edu
March 24, 2011

MEMORANDUM

TO: Christina Leimer
Director of Institutional Research

FROM: Todd Wilson, Chair and Assessment Coordinator
Department of Computer Science

RE: Assessment Grant RFP

As chair and assessment coordinator for the Department of Computer Science, I am pleased that our department can participate in this cross-college grant. Please find attached recent draft SOAPs for our undergraduate and graduate programs. As you know, the Department is currently revising these SOAPs, and is still incorporating input from various sources—including your own—and hope to have revised plans soon. If you have any questions, please do not hesitate to contact me. Thank you.
MEMORANDUM

Date: March 25, 2011

To: Dr. Connie Jones
Department of Psychology

From: Dr. Stephen Lewis
Department of Earth & Environmental Sciences

Subject: College of Science and Mathematics Assessment Proposal
Endorsement

The Department of Earth & Environmental Sciences strongly endorses the collaborative effort of the departments of the College of Science and Mathematics regarding improving the processes and results of our student assessment efforts. The Department of Earth & Environmental Sciences is interested in improving our Student Outcome Assessment processes, and, as a result, acquire meaningful, reliable, accurate and actionable data on student outcomes, and we enthusiastically support and endorse this collaborative assessment effort.
FROM: Stefaan Delcroix, chair  
Department of Mathematics  
(559) 278-3090  
sdelcroix@csufresno.edu

RE: CSM Assessment Grant Proposal

March 25, 2011

To whom it may concern:

The Department of Mathematics strongly supports the assessment grant proposal of the College of Science and Mathematics seeking funding for a cross-college effort to assess the impact of student scientific research on student thinking, writing, and achievement.

A couple of years ago, the Department of Mathematics made undergraduate student research a top priority in its seven-year plan. Since then, undergraduate research has definitely taken root in the department. It will be very useful to study the impact of this research on the students.

In the graduate program, mathematics students are required to write a project (Math 298, the culminating experience). Again, it will be extremely helpful to study the impact of these projects on our graduate students.
Letter of Support from the Department of Physics for the College of Science and Mathematics Proposal: Implementing Direct Measures of Student Learning and Using the Results for Program Improvement

The Department of Physics strongly supports the joint proposal for the college wide assessment proposal which the College of Science and Mathematics is submitting. The proposal will foster interdepartmental, college wide assessment. It will help assess the impact of student research on the education of our students. It will also make assessment more uniform and more useful across the departments in the college. Dr. Ray Hall has agreed to act as the department of physics representative on this grant.

Sincerely,

Douglas Singleton, Professor and Chair
Department of Physics, CSU Fresno
Fresno, CA 93740
1-559-278-5281
To: Tina Leimer  
From: Constance Jones, Chair, Department of Psychology  
Date: March 25, 2011

Re: Support from the Department of Psychology for the College of Science and Mathematics Proposal: Implementing Direct Measures of Student Learning and Using the Results for Program Improvement

The Department of Psychology strongly supports the college-wide proposal submitted March 25, 2011 to IRAP to improve student assessment and student outcomes. If this proposal is funded, two faculty from Psychology (tentatively Dr. Karl Oswald and Dr. Marilyn Wilson) will serve on the college-wide committee Summer 2011 through Spring 2012.