Faculty Accreditation Report

Anthropology Major and Minor

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Abstract

This document serves as an update to and revision of the Anthropology Faculty Accreditation Report prepared in January of 2009, updating enrollment information for the major and minor as of Fall 2009, adding new courses approved in AY 2009-10 to the curricular map, and revising the programmatic assessment plan based on Anthropology faculty experience with the assessment process as of January 2010. The latter includes: (1) an update of progress made in assessment by faculty during Year 1; (2) the allowance for ongoing assessment revisions from one year to the next, as faculty have recognized the iterative nature of assessment planning and implementation; and (3) the suspension of plans for use of electronic portfolios for student self-evaluation given issues of implementation and limited information likely to be obtained via this method due, in part, to the small size of the major.

SECTION I: PROGRAM DESCRIPTION

Through the specific perspectives and methods of socio-cultural, archaeological, and biological anthropology, anthropology students learn how the human experience (past and present) is constituted through the interaction of social, cultural, political, material, historical, environmental, and biological factors. In recent years, however, many large anthropology programs have fractured along subdisciplinary lines, while other divided programs now seek strategies to reintegrate the subfields of the discipline into an integrated program. Thus, the UCM Anthropology program considered the current disciplinary context and potential unique contribution of the program in developing our program goals, learning outcomes, and curriculum. The UCM Anthropology major (B.A.) is "standard" in that we incorporate three major subfields of anthropology (the minor requires exposure to a minimum of two subfields). Only linguistic anthropology is not included, although in the last 20 years this subfield has faded from many of the top programs across the country, including at UC Berkeley. Conversely, the program is relatively unique in the explicit emphasis on the research questions and topics related to the dynamics of human societies past and present that can be shared by sub-field practitioners yet explored and illuminated differently through distinct methodologies and lines of evidence. This contrasts with more traditional programs that take a geographic approach.

To accomplish these integrative goals, the Anthropology major and minor both place a greater emphasis on methods than is typical of many other top anthropology programs and the major also encompasses a greater diversity of methods than is typical for an undergraduate program. Thus, our curriculum not only emphasizes research training on issues pertinent to today's world, it also highlights the way that anthropologists increasingly work with people and material culture, as well as with archival records and other sources of documentary evidence. The program defines itself through the integration of the subfields and responds to emerging trends in the discipline in which archaeologists and biological anthropologists (for example) are more and more likely to have to consult with descendent communities, or socio-cultural anthropologists may act as consultants with indigenous or ethnic communities seeking to control or derive information from ancient objects or remains to represent heritage or possibly to assert

sovereignty. Further, how subfield-based anthropological knowledge has been utilized in the past and present by contemporary states and societies is of vital interest to the discipline as a whole.

The major and minor in Anthropology emphasize how topics and issues central to the human experience such as migration, gender, power, health, kinship, race, and identity are examined and understood through diverse anthropological methodologies. Following foundational courses in the three subfields (two subfields for the minor), students explore particular socio-cultural, archaeological, and biological perspectives on such thematic issues in greater depth in upper division courses. Significantly, such courses may specifically engage perspectives from two or more subfields. A few courses consider a range of topics within a specific geographical area, while acknowledging certain limitations to the area studies configuration of knowledge.

The major and minor in Anthropology at UCM are both designed to allow students develop critical skills in thought, written and oral expression, and the application of knowledge, as well as a valuable understanding of human cultural diversity. In an increasingly globalized world in which interaction with people of diverse cultures is becoming the norm, developing a cross-cultural understanding about the complexities of human societies past and present is what makes anthropology an ideal education for the 21st century. The B.A. in Anthropology is valuable preparation for a career in law, medicine, education, business, government, museums, and various areas of non-profit, public, and international service, including public policy and cultural resource management. The Anthropology major also provides a strong foundation for graduate study in any subfield of anthropology, while the minor is an excellent complement to students pursuing undergraduate degrees in other social sciences, natural sciences, engineering, or the humanities. Finally, by offering undergraduate majors opportunities to work with faculty research and apply knowledge and skills to local communities, agencies, and business through service learning and internships, students are further prepared for advanced study and successful careers.

Since the major requires methodological training in three subfields of anthropology, undergraduate majors are provided with hands-on experience that will enhance their ability to engage in anthropological research. The faculty is committed to providing undergraduate majors and minors with opportunities to

either carry out independent research or work on faculty research projects. The anthropology faculty has already generated research projects that involve the participation of undergraduate majors. In addition, the anthropology faculty has demonstrated their ability to create successful service-learning experiences for the program. Service-learning has enhanced learning by enabling students to connect classroom knowledge to local communities, agencies, and organizations; and, importantly, allowed students to contribute their time and skills to particular real world projects and issues providing valuable experiences that may lead to future careers. Student evaluations of teaching indicate that service-learning experiences provided in anthropology thus far were highly valued.

SECTION II: ASSESSMENT PLAN

The Anthropology Program at UC Merced emphasizes and integrates the three primary subfields of anthropology: archaeological anthropology, biological anthropology and socio-cultural anthropology. The learning goals for students majoring or minoring in Anthropology at UC Merced are:

- Develop an issues-based approach to anthropological knowledge and practice that emphasizes common topics shared by multiple sub-fields;
- Cultivate an understanding of human cultural and biological similarity and difference across time and space;
- Develop skills to effectively collect, analyze, synthesize, and present anthropological data.

Students majoring or minoring in Anthropology at UC Merced develop a holistic view of the complexities of human societies past and present and around the world. Students conduct anthropological research, critically analyze anthropological scholarship, and demonstrate the ability to communicate anthropological knowledge in different mediums to a range of audiences. Finally, as students majoring or minoring in Anthropology understand the social worlds of others, they demonstrate that they better understand their own world, including their place in an increasingly globalizing world.

Part A: Timeline and Goals

The Anthropology minor was launched in Fall 2007 and the major was launched in Fall 2008. From the initial cohort of four Anthropology majors and 12 minors, the enrollment has grown to 18 majors and 11 minors as fo Fall 2009 and we expect to continues steady growth over the next few years. The number of tenure-track anthropology faculty is currently small, as well, and is also expected to grow slowly. Given our current faculty to student ratio and projected rate of growth, we have decided not to incorporate a capstone course or requirement into our major at this time. When our faculty is large enough to direct a capstone course in addition to core coursework, we will revisit that decision as we understand that a formal capstone can serve an as an excellent program assessment measure.

As a new program, we are using the first three years of our assessment efforts to put in place an assessment tools to determine the success of our students in reaching the above six learning outcomes and, if necessary, help us reshape and develop appropriate curriculum in Anthropology. Such a phased approach to assessment is appropriate, since the number of majors will be small and, thus, statistically insufficient for significant program revision and decision-making on an annual basis. We must depend on cumulative data developed over several years, while still actively seeking to improve student success in light of our program learning objectives. Since we will have no graduating majors until the end of the first year of our original assessment plan (i.e., Spring 2010), Year 1 (AY 2009-10) focused on developing appropriate course and program assessment tools, while these tools also began to be applied, assessed, and, as necessary, revised.

Part B: Outline of Program Learning Outcomes

Six Program Learning Outcomes have been identified for the Anthropology major. Upon graduation, students majoring in Anthropology will:

- Outcome #1: Possess and apply fundamental anthropological knowledge, including terminology, concepts, intellectual traditions, and theoretical approaches

- Outcome #2: Identify and analyze common topics of research shared by the sub-fields of anthropology
- Outcome #3: Understand ethics and responsibility in the practice of anthropology and in our roles as citizens
- Outcome #4: Recognize and appreciate what it means to be human and how ethnographic, archaeological, and biological knowledge contribute to that understanding
- Outcome #5: Understand both qualitative and quantitative research methods as they apply to anthropological inquiry
- Outcome #6: Possess skills to communicate anthropological knowledge effectively through writing, oral presentation, and data presentation in various formats for diverse audiences

These six Program Learning Outcomes have been modified somewhat for the Anthropology minor, reflecting the more limited scope of minor with respect to disciplinary breath and methods. Upon graduation, students minoring in Anthropology will:

- Outcome #1: Possess and apply fundamental anthropological knowledge, including terminology, concepts, intellectual traditions, and theoretical approaches
- Outcome #2: Identify and analyze common topics of research shared by the sub-fields of anthropology
- Outcome #3: Understand ethics and responsibility in the practice of anthropology and in our roles as citizens
- Outcome #4: Recognize and appreciate what it means to be human and how anthropological sub-fields contribute to that understanding
- Outcome #5: Understand research methods as they apply to anthropological inquiry
- Outcome #6: Possess skills to communicate anthropological knowledge effectively in various formats for diverse audiences

Anthropology program goals and learning outcomes for the major are posted on the UCM Anthropology Program website (anth.ucmerced.edu).

Part C: Evidence

The following specifies the evidence of achievement for each Learning Outcome that serve as the basis for assessing the program success for students majoring in anthropology. Since Learning Outcomes (#1-6) for the minor align with those of the major, the same evidence applies to both the major and the minor.

- Possess and apply fundamental anthropological knowledge, including terminology, concepts, intellectual traditions, and theoretical approaches (Outcome #1)
    - ***Criteria*** (to be demonstrated through various assignments, exams, etc.):
        - Identify and define key concepts applied in either historical or contemporary anthropological studies
        - Identify and distinguish the major theoretical approaches that have shaped the discipline of anthropology over time
        - Identify how and why anthropological perspectives and practices have changed over time
        - Understand how anthropological thought has influenced or been influenced by other disciplines in the social sciences, natural sciences, and humanities
        - Appraise anthropology as a dynamic and self-reflexive discipline
- Identify and analyze common topics of research shared by the sub-fields of anthropology (Outcome #2)
    - ***Criteria*** (to be demonstrated through various assignments, exams, etc.):
        - Distinguish how the sub-fields of anthropology approach a common research topic

        - Understand how an issues-based perspective differs from other anthropological approaches and how this fosters both sub-field integration and interdisciplinarity
        - Compare and contrast the anthropological knowledge of a particular topic as applied to different societies across time and/or space
- Understand ethics and responsibility in the practice of anthropology and in our roles as citizens (Outcome #3)
    - ***Criteria*** (to be demonstrated through various assignments, exams, etc.):
        - Identify key ethical responsibilities of anthropologists
        - Identify and discuss ethical concerns that can arise in the context of anthropological research
        - Identify and analyze ethical debates within the discipline of anthropology, including the actual or potential uses or abuses of anthropological knowledge and practice
- Recognize and appreciate what it means to be human and how ethnographic, archaeological, and biological knowledge contribute to that understanding (Outcome #4)
    - ***Criteria*** (to be demonstrated through various assignments, exams, etc.):
        - Identify and discuss the factors that influence biological and cultural transformations across time and/or space
        - Demonstrate how anthropologists compare cultures and societies
        - Explain how anthropology challenges ethnocentrism and bias
- Understand both qualitative and quantitative research methods as they apply to anthropological inquiry (Outcome #5)
    - ***Criteria*** (to be demonstrated through various assignments, exams, etc.):
        - Recognize qualitative and quantitative methods commonly used in anthropological research

        - Identify the qualitative and/or quantitative methods used in specific anthropological case studies
        - Assess the strengths and weaknesses of various qualitative and quantitative methods
        - Evaluate how the use of multiple methods can enhance anthropological analysis
        - Apply one or more research methods to an anthropological research question
- Possess skills to communicate anthropological knowledge effectively through writing, oral presentation, and data presentation in various formats for diverse audiences (Outcome #6)
    - **Criteria** (to be demonstrated through various assignments, exams, etc.):
        - Identify the fundamental components of a well-structured argument that draws on anthropological knowledge
        - Recognize the pros and cons of different methods of communication, including applicability for specific audiences
        - Possess basic knowledge of primary tools and technologies available for communication in various formats
        - Demonstrate the ability to communicate anthropological knowledge to others

At the end of each of each year, the Anthropology Program will hold a half-day, all-faculty retreat. In this retreat, we will review program Learning Goals and Outcomes, the results of current assessment methods, and course-based learning outcomes. We will review our curriculum and our sense of student strengths and weaknesses as they have proceeded through our courses, and consider our department offerings and our assessment process.

At the faculty retreat, faculty will report on, analyze, and review Program Assessment Methods:

- *Course-specific rubrics*: Faculty will report on their summary results of course-specific rubrics.
- *Exit Surveys*: Faculty will analyze the summary results of exit surveys to date.
- *Alumni Surveys*: Faculty will review information gathered from alumni surveys to date.

Following review of the specified assessment methods, explicit discussion will identify which goals and outcomes are not being met adequately and how we can address any weaknesses in our upcoming course assignments and curricular planning. At this time, appropriate adjustments also will be made to program goals and assessment plans.

- A centralized electronic repository has been created for each year's program assessment data, results, and process documentation, and a brief annual report will be prepared.
- After year three, faculty will meet biannually to review program goals and assessment plans.
- The faculty will meet a minimum of once a year to review and discuss the data gathered that year for the purpose of identifying strengths and weaknesses of the program. The faculty will discuss and propose changes aimed at correcting any identified deficiencies.

Part D: Process

Year 1 (AY 2009-10): Faculty reviewed the current Learning Goals and Objectives of the Anthropology Program in relationship to specific courses being taught to ensure syllabus alignment and to confirm that initially established goals and objectives were appropriate to our program. A central electronic repository of course syllabi and documents relating to learning objectives and program assessment was created to facilitate both faculty review and collaboration in integrating learning goals and objectives.

- Faculty developed a specific assessment rubric for ANTH 100—the core upper division required course in the major—that will serve as a direct measure of whether or not our Learning Objectives are being met for PLO #1. The faculty met as a group to calibrate assessment under this rubric, complete the assessment process within this scheme, and discuss results, as detailed in the Fall 2009 Assessment Report. This exercise resulted in recommendations for revisions to the assessment process for the upcoming year.

- Faculty also considered the development of critical reflection prompts to guide graduating student's review and written critical reflection of a electronic portfolio of their own work, with this portfolio narrative to be included in all portfolios submitted to Anthropology faculty for review beginning year 2. Discussions with staff from CRTE and IPA, however, led to a rethinking of this strategy, since electronic portfolio capacity was not yet in place at UC Merced; in the absence of a curricular incentive, there is no effective means to ensure that students complete such the reflection exercise; and as a new major, graduating seniors would not have anticipated the need to archive materials for such a portfolio. In light of all of these factors as well as the small number of majors overall, the potential to glean meaningful data from such an assessment was deemed low. Therefore, faculty decided to drop this element of assessment in favor of the two remaining elements originally proposed.
- Faculty developed an exit survey for graduating majors. The anonymous survey will serve as an indirect measure by querying students on their perceptions of the program including the extent they have achieved program Learning Outcomes. With the assistance of IPA, prompts specific to Anthropology majors have been incorporated into the graduating senior survey. Unlike electronic portfolios, the survey provides a readily available and efficient means for indirect assessment, and it is anticipated that assessment tool will likely be relied upon for indirect assessment instead of portfolios for the foreseeable future.

Year 2 (AY 2010-11): Faculty will continue to review the current Learning Goals and Outcomes of the Anthropology Program in relationship to specific courses being taught to ensure syllabus alignment and to confirm that initially established goals and objectives are appropriate to our program. The course syllabus repository will be continually updated, with both current and archived materials available for faculty reference.

- Faculty will continue to revise, develop, and apply specific assessment rubric(s) to courses being taught., perhaps including the addition of at least one other PLO to the curricular assessment process for a course other than ANTH 100. As detailed in the Fall 2009 Assessment Report,

- Graduating students majoring in Anthropology will be given an anonymous exit survey about their perceptions of the program including extent they have achieved program Learning Outcomes, curriculum quality, experiential learning and research opportunities, and experiences with advising and mentoring. These data will be collected in a central electronic repository for eventual qualitative and quantitative analysis once sample size is sufficient.

Year 3 (AY 2011-12): Faculty will continue to review the current Learning Goals and Outcomes of the Anthropology Program in relationship to specific courses being taught to ensure syllabus alignment and to confirm that initially established goals and objectives are appropriate to our program. The course syllabus repository will be continually updated, with both current and archived materials available for faculty reference.

- Faculty will continue to revise, develop, and apply specific assessment rubric(s) to courses being taught,, expanding the scope to include one or more PLOs that have not yet been assessed.
- Graduating students majoring in Anthropology will be given an anonymous exit survey about their perceptions of the program including extent they have achieved program Learning Outcomes.
- An alumni network will be established to maintain contact with graduates. A survey will be developed to assess whether majors have entered a graduate program or a career. If employed, graduates will be asked whether their education as an anthropology major is of value in their current position and how; whether the major has contributed in significant ways to their current endeavors; and how they think their B.A. degree will serve them in their intended career path. Alumni will be asked to complete these questionnaires at one year, three years, and five years post graduation.

- Anthropology faculty will gather data from course-specific rubrics, exit surveys, and alumni surveys to assess whether or not to adjust Anthropology Program Learning Goals and Outcomes or assessment methods.

Part E: Participants

Tenure-line faculty in Anthropology will be responsible for implementing the assessment plan including collecting evidence, analyzing data, disseminating results, and implementing findings to improve student learning. Lecturers in Anthropology will be included in annual faculty retreats, and contribute to collection of evidence, data analysis, and implementing findings.

Part F: Minor

As noted above, the Learning Outcomes for the minor are closely aligned with those of the major. Therefore, the collection and assessment of evidence of student achievement for both the major and the minor can be undertaken simultaneously. In addition, collective analysis of the data for both majors and minors will provide potentially more robust results, given the relatively small number of students anticipated during these early years of the programs.

Part G: Summary of Programmatic Self-Assessment

As discussed in the Fall 2009 Assessment Report, Anthropology faculty have determined that the program is has either achieved Emerging or Developed status for each of the five criteria in our assessment of PLO #1 for ANTH 100.

- Criterion #1 (Assessable Program Learning Outcome for PLO #1) — Developed. The PLO clearly describes how students can demonstrate learning, identifying observable and measurable results. Theses criteria are articulated in the form of a rubric. Faculty have concluded that criteria and standards may need further development to be more meaningful and consistently applied.

- Criterion #2 (Valid Evidence for Assessment) — Emerging. Faculty have reached general agreement on the types of evidence to be collected for PLO #1 in ANTH 100, but evidence needs to be further focused or aligned with PLO or emerging criteria to produce truly meaningful and useful results.
- Criterion #3 (Reliable Results from Assessment) — Emerging. Faculty reviewers are calibrated to apply assessment criteria in a uniform way or faculty routinely check for interrater reliability, but further work is needed to refine the assessment criteria.
- Criterion #4 (Results Summary) — Developed. Results were clearly delineated for each line of evidence in tabular and other summary formats in the Fall 2009 Assessment Report.
- Criterion #5 (Conclusions & Recommendations) — Developed. The Fall 2009 Assessment Reprot clearly articulates conclusions, implications and recommendations for improvement regarding both student learning and assessment and which could be drawn from results. It also includes some consideration of the reliability and validity of results, although recognizing that the small sample size hinders determination of the significance of the results. The results were discussed by all ladder-rank faculty and plans are in place to implement recommendations

SECTION III: ALIGNMENT OF INSTITUTIONAL AND PROGRAM GOALS/OUTCOMES

Part A: Program and Institutional Goals/Outcomes

As a discipline with a holistic approach to understanding humankind past and present, anthropology draws on theories, methods, and research findings of the social sciences, natural sciences, and humanities. It is this breadth of knowledge and expertise that often attracts diverse students to the major and also results in the relevance of Anthropology Program Learning Outcomes to the Eight Guiding Principles of Education at UCM. (Table 1). The following narrative underscores how particular characteristics of the Anthropology learning objectives and teaching philosophy complement both the Anthropology Program Learning Goals but also the Eight Guiding Principles of Education at UCM.

Table 1. Curriculum map representing the alignment between Anthropology Program Learning Outcomes and the Eight Guiding Principles of General Education.

PLOs	Scientific Literacy	Decision Making	Communication	Self & Society	Ethics & Responsibility	Leadership & Teamwork	Aesthetic Understanding Creativity	Development of Personal Potential
1	X	X	X	X	X	X	X	X
2	X	X	X	X		X	X	X
3		X	X	X	X	X		X
4	X	X	X	X		X	X	X
5	X	X	X	X	X	X		X
6	X	X	X	X		X		X

First, our pedagogical goals of student-centered classrooms promote cooperative learning which supports University Guiding Principles of "teamwork and leadership." The Anthropology program is committed to building opportunities for service learning and community engagement into our courses. Such opportunities support University Guiding Principles of "Self and Society," "Ethics and Responsibility," and "Leadership and Teamwork," while helping students in career pursuits that support "Development of Personal Potential." Second, anthropology's lessons about different human societies (past and present) provide a mirror on the student and student's own understanding of society and their place in society. Thus, this dimension further supports the University Guiding Principles of "Self and Society" and "Development of Personal Potential." Finally, our emphasis on students being familiar with anthropological methods, the ethics of doing anthropological research and of being a citizen, and being able to communicate anthropological knowledge to diverse audiences within and outside of the classroom

each fulfill the University Guiding Principles of "Scientific Literacy," "Decision-making," "Communications," "Self and Society," "Ethics and responsibility," "Leadership and Teamwork," and the "Development of Personal Potential." Anthropology faculty are very satisfied that the Anthropology program curriculum design and teaching philosophy match very well with Eight Guiding Principles of Education at UCM, and we will be attentive to opportunities to further strengthen the alignment as our program grows.

Part B: Program and School Goals

The School of Social Sciences, Humanities and Arts (SSHA) Strategic Plan and Academic Resource Plan prepared in January of 2006 recognized the unique ability of anthropology to make a contribution to the undergraduate and graduate programs of both the social sciences and the humanities at UC Merced, and these expectations are also evident in the 2007 SSHA Strategic Plan. Representing one of the fundamental disciplines within the social sciences, the Anthropology program at UCM is uniquely positioned to promote and exemplify cutting-edge cross-disciplinary thinking and research, as faculty pursue research at the intersection of the social sciences, humanities, and natural sciences. In fact, a major argument for introducing the Anthropology major at UCM is complementarities with interdisciplinary thought and practice. Through an undergraduate curriculum that integrates theory, method, and topical themes, the UCM anthropology program stresses the integration of disciplinary subfields that already have extra-disciplinary corollaries to biology and biomedicine, material and earth sciences, and ethnic, area and cultural studies. Moreover, to accomplish the program's goals, students are required to complete training within each of the three subfields (sociocultural, archaeological and biological anthropology), which help students understand and appreciate both qualitative and quantitative research methods in the social sciences and beyond.

The Anthropology major complements disciplinary and interdisciplinary programs within SSHA. The addition of the Anthropology major expands the undergraduate majors within SSHA to eight and the number of majors across campus to 18. Anthropology articulates with existing programs in sociology,

American studies, global arts, history, and political science, and additional links are envisioned with world heritage, psychology, and cross-school programs as the Anthropology program grows. Courses offered in anthropology have relevance to students with interests in sociology, political science, cognitive science, psychology, management, and economics, as anthropological perspectives interrogate our understanding of institutions and policies while promoting cultural competency. As students become exposed to such perspectives in their undergraduate education, they may opt to major in anthropology instead of one of these other fields. The methods and intellectual terrain of anthropology are particular germane to the increasingly globalized world of the 21st century

Anthropology's comparative study of humankind past and present; its emphasis on spatial, temporal, and material perspectives; its examination of the relation between social institutions and society's practices, values, and beliefs; and its concern with the interaction between biology, environment, and culture are among the broad characteristics that link anthropological studies to the humanities, social sciences, and natural sciences. These characteristics also allow anthropology students and faculty to critically explore the pressing social and environmental issues central to the mission of SSHA and UCM, in general. Anthropology faculty at UCM have already forged interdisciplinary links, including working with faculty in history and literature on the World Heritage program and American Studies minor, consulting with faculty in the School of Natural Sciences on anthropological contributions to the proposed medical school and environmental management and policy program, and participating in discussions with the Engineering Service Learning program faculty on the inclusion of anthropology students in multi-disciplinary teams addressing community needs. The initiation of the Anthropology B.A. also holds promise for adding anthropological perspectives to the interdisciplinary student teams that are formed in CORE 100, the upper division general education course taken in the student's junior year.

Part C: Program and Course Learning Outcomes

Table 2 presents a curricular map that articulates the alignment between Anthropology program learning outcomes and course learning outcomes, while also demonstrating the progression from introductory to advanced levels.

Table 2. Curriculum map for Anthropology course learning outcomes.

Course #	Outcome					
	1	2	3	4	5	6
1	D	I	D	D	I	D
3	I	I	D	I	I	D
5	I	I	D	D	I	I
95	Varies by course/content					
98	Varies by course/content					
100	M	D	D	D	M	
110	D	D	D	D	D	M
112	D	D	M	D	D	M
114	D	D	D	D	D	M
116	D	D	M	D	D	M
120	I	I	I	I	D	
121	M	D	D	D	M	
124	M	D	D	D	D	M
126	M	D	D	D	D	M
130	D, M	D	D	D	D	D
134	D, M	D	D	D, M	D	D
140		D	M	D	D	D
142	D, M	D	D	D	D	D
144	D, M	D	D	D, M	D	D
146	M	M	D	D	D	D

Course #	Outcome					
	1	2	3	4	5	6
148	D, M	D	D	D	D	D
150	D	D, M	M	D	D, M	D, M
151	D	D	M	D, M	D, M	D, M
152	D	D	D	D	D	D, M
155	D, M	D	D	D, M	D	D
160	D	D	D	D, M	D	D
162	D	D	D	D, M	D	D
169	D	D	M	D	D	D
170	M	D	M	D	M	M
172	D	D	M	D	M	D, M
174	D, M	D, M	D	D	D, M	D, M
176	D	D	M	D	D, M	D, M
178	D, M	D, M	D, M	D, M	D, M	D
179	D, M	D, M	D, M	D, M	D, M	D
190	Varies by course/content					
195	Varies by course/content					
198	Varies by course/content					

I=Introduction, D=Develop, M=Mastery at a level appropriate for graduation

Revised Faculty Accreditation Report

Applied Mathematical Sciences Program
University of California, Merced

April 14, 2010

Summary of Assessment Plan Revisions

Based on our findings from the Program Learning Outcomes Assessment Report and our self-evaluation for program review, the applied mathematics faculty has increased its awareness of the assessment goals and processes. In doing so, we have made several revisions to the Faculty Accreditation Report. Below is a list of the revisions that we have made.

- We have added Student Focus Groups as an additional form of evidence to collect in Section 2.3 of the Revised Faculty Accreditation Report. The Applied Mathematical Sciences program has recently written a self-review in preparation for program review. In doing so, this program conducted an informal student focus group to gather student perspectives on the program. The applied mathematics faculty valued the evidence from this student focus group so much that we have decided to conduct these student focus group discussions regularly.

- We have revised the schedule for assessment of our Program Learning Outcomes given in Section 2.4 of the Revised Faculty Accreditation Report. The original plan was to assess initially only the first program learning outcome. However, the applied mathematics faculty decided to do an initial assessment of the first two program learning outcomes instead. In particular, the faculty decided to focus this initial assessment effort on two critical "transition" courses: Math 121 and Math 131. Math 121 is the first upper division course for the major in which students study intermediate and advanced analytical methods for solving ordinary and partial differential equations. Math 131 is the first upper division course for the major in which students learn numerical analysis. Consequently, we have adjusted our plan for future assessments based on this change of strategy for our initial assessment.

- We have begun to work closely with staff from Institutional Planning and Analysis as well as the Center for Research in Teaching Excellence to gather evidence useful in assessing the Applied Mathematical Sciences program. Hence, we have included our collaborative work in Section 2.5 of the Revised Faculty Accreditation Report.

- To demonstrate that this program is fulfilling the University mission to become a student-centered research university, we provide evidence of undergraduate student research in this program in Section 3.1 of the Revised Faculty Accreditation Report.

- We conducted a self-evaluation of this program using the WASC Rubric. The results of this self-evaluation are given after the Revised Faculty Accreditation Report at the end of this document.

Revised Faculty Accreditation Report

1 Applied Mathematical Sciences Program Description

The Applied Mathematical Sciences program at UC Merced provides students with knowledge of the foundations of mathematics and the skills needed to apply mathematics to real-world phenomena in the social sciences, natural sciences and engineering. The program uses a "core + emphasis" model which teaches students the fundamentals while building expertise in an application area through the emphasis tracks. There is a core set of courses all mathematical sciences students take. Beyond these classes, students complete an emphasis track consisting of courses in other fields. With the depth and breadth of training of the major, students are well suited for immediate placement within specialized positions in industry or for further educational advancement.

The Applied Mathematical Sciences minor at UC Merced is designed to prepare students to use mathematical techniques and computational methods to solve problems within their major field of study. The minor program compliments a variety of majors including biology, chemistry, computer science, engineering, economics, cognitive science, and environmental science. It is comprised of a core of courses and upper division mathematics electives to study data analysis, modeling, and computing.

This Applied Mathematics major is quite different from the traditional Mathematical Sciences major offered at most universities. In particular, this major emphasizes interdisciplinary applications of mathematics. The core courses include substantial discussions on the variety of applications for which the mathematical topics apply and provide important insight. Furthermore, our requirements for an emphasis track enable the student to learn about application topics first-hand from the specialists that study them. Finally, this Applied Mathematical Sciences major has a strong emphasis on numerical analysis and scientific computing. Using computers to solve complex mathematical problems is at the forefront of applied mathematics research. This major give students a substantial learning experience to develop their computational skills. These skills provide students access to employment and research opportunities in today's technologically advanced market.

2 Assessment Plan

2.1 Timeline & Goals

The applied mathematics faculty plans to gather data over a five-year assessment schedule to assess the degree to which students achieve the program learning outcomes as a result of completing the major or minor in applied mathematical sciences at UC Merced. The over-arching goal of the Applied Mathematical Sciences program is to

Build a community of life-long learners that use the analytical and computational tools of mathematics to solve real-world problems.

This five-year assessment schedule will allow us to develop and assess program learning outcomes in a strategic manner, detailed in Section 2.4.

2.2 Program Learning Outcomes

Upon graduating, we expect students completing the Applied Mathematical Sciences major to have become effect *problem-solvers*, meaning that student will be able to

1. Solve mathematical problems using analytical methods.
2. Solve mathematical problems using computational methods.
3. Recognize the relationships between different areas of mathematics and the connections between mathematics and other disciplines.
4. Give clear and organized written and verbal explanations of mathematical ideas to a variety of audiences.
5. Model real-world problems mathematically and analyze those models using their mastery of the core concepts.

The applied mathematics faculty plan to communicate the program goals and learning outcomes in the following forums by the start of the 2009 – 2010 academic year.

- The Applied Math website (http://appliedmath.ucmerced.edu);
- A revision of the catalog copy;
- Documents included with orientation materials for lecturers and teaching assistants;
- Included on slides given for student recruitment and orientation meetings.

2.3 Evidence

The procedure for assessing achievement of the program learning outcomes will utilize four methods – two direct and two indirect. These are:

- **Embedded Homework and Exam Questions.** These questions will be embedded in key lower division and upper division mathematics courses to assess students at various stages of learning - introductory, developing, and mastery levels. Each embedded question will be assessed using the rubric agreed upon by the applied mathematics faculty appropriate for each level.

- **Capstone Course.** The applied mathematics faculty are developing a capstone course in mathematical modeling to address PLO 3 at the mastery level. This course will serve several functions. One such function is to provide a unique experience for the Applied

Mathematical Sciences majors that include a series of activities designed to enhance their knowledge and appreciation of applied mathematics while preparing them for entry into a graduate program or placement in government, industry and business. Other functions of this capstone modeling course include avenues to assess the program through projects, presentations, and research.

- **Student Focus Groups.** Each academic year, we will conduct a student focus group meeting to hold a conversational and informal discussion about the major and minor. In particular, we will identify key aspects of student learning experiences, what items are valued most by students, what challenges students are facing and strategies for improving the program.

- **Senior Exit Survey.** A survey will be given to all graduating seniors to gather information about the program, minors obtained, job placement and future plans, and reasons why the student selected the major. Furthermore, we hope to identify which parts of the program work well and areas which need improvement.

- **Alumni Survey**. A survey will be distributed to one, five, and ten year alumni to gather information on whether applied mathematics graduates pursue graduate degrees, obtain meaningful jobs, and perception of preparedness for careers. In Spring 2009, we will administer a prototype exit survey to our first graduating class. Through analyzing the data we collect, we will continue to revise and develop our alumni survey further. Since we have a manageably small number of students graduating, we plan to keep in touch with our alumni informally and monitor their progress.

2.4 Process

For a plan to assess these program learning outcomes, the applied math faculty have decided to follow a five-year schedule. Each year will assess the corresponding program learning outcomes in the order that they appear. In other words, our five year schedule is as follows.

- 2009-2010 Academic Year – Develop and implement measures to assess PLOs 1 and 2 in the first set of upper division courses our majors take;
- 2010-2011 Academic Year – Implement revised measures to assess PLOs 1 and 2 in all major courses;
- 2011-2012 Academic Year – Develop and implement measures to assess PLO 3;
- 2012-2013 Academic Year – Develop and implement measures to assess PLO 4;
- 2013-2014 Academic Year – Develop and implement measures to assess PLO 5.

2.5 Participants

The applied mathematics faculty will work with the Department of Institutional Planning and Analysis as well as the Center for Research in Teaching Excellence to compile senior exit and alumni survey responses and hold student focus groups. The applied mathematics faculty will work with staff in the School of Natural Sciences to collect embedded exam questions of applied math majors for faculty review. All applied math faculty will be included in the interpretation of evidence in applied mathematics faculty meetings. Data collected will be reviewed and analyzed using agreed upon assessment rubrics with the goal to create a report. This report will be forwarded to Associate Dean and Dean of Natural Sciences. Using this report, the faculty can re-evaluate course structures and teaching practices, modify assessment measures, and examine student skill development for continuous quality of improvement.

2.6 Applied Mathematical Sciences Minor

Upon graduating, we expect students completing the Applied Mathematical Sciences minor to be able to

1. Solve mathematical problems using analytical methods.
2. Solve mathematical problems using computational methods.
3. Recognize the relationships between different areas of mathematics and the connections between mathematics and other disciplines.
4. Give clear and organized written and verbal explanations of mathematical ideas to a variety of audiences.

Assessment for the applied mathematical sciences minor will follow along with those for the major.

3 Alignment of Institutional and Program Goals for the Applied Mathematical Sciences Program

3.1 Connections to Institutional Goals

The Applied Mathematical Sciences major and its program learning outcomes reflect at least four of UC Merced's Eight Guiding Principles of General Education explicitly in the following ways.

- *Scientific literacy* -- Students take a broad variety of science courses that are required for the School of Natural Sciences as well as those courses within each student's emphasis track. (PLO 1-3, 5)

- *Decision making* -- Students develop mastery of quantitative skills that help to form an important component in making complicated decisions. (PLO 1, 2)

- *Communication* -- Students develop their ability to give clear and organized written and verbal explanations of mathematical ideas to a variety of audiences. (PLO 4)

- *Self & Society* – Students learn to recognize the relationships between different areas of mathematics and the connections between mathematics and other disciplines which brings about awareness of diverse perspectives. (PLO 3, 4, 5)

UC Merced is a student-centered research university. To that end, Applied Mathematical Sciences students will learn many of the fundamental skills needed to perform theoretical and computational research. The faculty are dedicated to providing opportunities for students interested in theoretical and computational research. Students have already participated in research with applied mathematics faculty as well with collaborative multidisciplinary teams of faculty where they can see first-hand the impact that their theoretical and computational work is having on an application field. Below is a list of some of these undergraduate research projects.

- Mr. Paul Tranquilli worked with Professor Kim on a project involving the numerical solution of a variable coefficient Fokker-Planck equation. This research resulted in the publication: A. D. Kim and P. Tranquilli, "Numerical solution of a boundary value problem for the Fokker-Planck equation with variable coefficients," *Journal of Quantitative Spectroscopy and Radiative Transfer* **109**, 727-740 (2007).

- Ms. Julia Clark worked with Professor Kim on a project involving the multiple scattering of polarized light. This research resulted in the publication: J. Clark, P. González-Rodríguez and A. D. Kim, "Using polarization to find a source in a turbid medium," *Journal of the Optical Society of America A* **26**, 1129-1138 (2009).

- Ms. Sydney Montroy and Mr. William Douandju have been working with Professor Blanchette on a project to study the potential of settling particles, typically sediments, to act as heat carriers. This research resulted in the submitting of a paper to the journal Physics of Fluids which is currently under review.

- Ms. Maureen Long, Mr. Anthony Grimes, and Mr. Brent Rich worked with Professor Sprague on a project to study a microfluidic mixing device. This research resulted in the publication: M. Long, M.A. Sprague, A.A. Grimes, B.D. Rich, and M. Khine, "A simple three-dimensional vortex micro mixer," *Applied Physics Letters* **94**, 133501.

- Mr. Paul Tranquilli has been working with Professor Tokman on a project to develop efficient and safe wood burning stoves that address the global need to reduce indoor air pollution – one of the top 10 global health risks, according to

the World Health Organization. Recently, Mr. Karl Loepker and Mr. Mark Bailey have joined Mr. Tranquilli and Professor Tokman on this project.

3.2 Connections to School Goals

The Applied Mathematical Sciences program complements the School of Natural Sciences' goal of multidisciplinary and interdisciplinary education, as well as its commitment to innovative undergraduate curricula. This is easily seen in its program through the use of a "core + emphasis" model. The core is designed to give students a rigorous learning experience in analytical and computational mathematical analysis and methods. The emphasis tracks are comprised of significant coursework in another field of study which allows students to study a broad spectrum of problems across a number of disciplines.

3.3 Alignment of Math Courses with Program Learning Outcomes

Below, we give a map of the mathematics curriculum. For each of the five Program Learning Outcomes listed above, we identify if this course provides an introduction (I), develop (D) or mastery (M) level appropriate for graduation.

Course	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5
Math 5	I			I	I
Math 15		I		I	
Math 18	I	I	I		I
Math 21	I		I	I	I
Math 22	I	I	I	I	I
Math 23	D		I	I	I
Math 24	D		I	I	D
Math 30	I	I		I	I
Math 32	D	I	I		I
Math 121	M		D	D	M
Math 122	M		D	D	M
Math 131	M	D	D	D	M
Math 132	M	M	D	D	M
Math 141	M		D	M	M
Math 142	M		D	M	M

Self-Evaluation using the WASC Rubric

Part A. Comprehensive List

The program learning outcomes for the Applied Mathematical Sciences program in terms of the "Comprehensive List" criterion are "Developed." After the initial assessment and self-review for the program's review, the applied mathematics faculty feel confident that they have articulated well these program learning outcomes. This list falls short of "Highly Developed" because the applied mathematics faculty need to spend more time to reach agreement on explicit criteria for assessing students' level of mastery of each outcome.

Part B. Assessable Outcomes

The program learning outcomes for the Applied Mathematical Sciences program in terms of the "Assessable Outcomes" criterion are "Emerging." Each of the PLO's may be refined to indicate more clearly to students how to demonstrate their learning.

Part C. Alignment

The program learning outcomes for the Applied Mathematical Sciences program in terms of the "Alignment" criterion are "Developed." At this point, the applied mathematics faculty feel confident in the curriculum design and map. When we launch our capstone modeling course, we will fulfill a need to have students develop a mastery level for PLO 3.

Part D. Assessment Planning

The program learning outcomes for the Applied Mathematical Sciences program in terms of the "Alignment" criterion are "Emerging." The applied mathematics faculty are still learning how to best interpret the evidence that we collect. As we agree upon standards for evaluating the evidence we collect, we can begin to plan over the long-term strategies for assessment.

Part E. The Student Experience

The program learning outcomes for the Applied Mathematical Sciences program in terms of the "Student Experience" criterion are "Developed." The applied mathematics faculty believe that our students understand well the program learning outcomes. In fact, our student focus group experience has shown us that students understand them so well that they have offered excellent suggestions on how to enable them to achieve these goals better. In the future, we will look to the students to become more involved in developing rubrics for assessment. Moreover, the applied mathematics faculty will

work to have students learn about our program learning outcomes at earlier stages in the academic experience, e.g. recruiting events.

Faculty Accreditation Report:
Bioengineering (BIOE) Program Learning Outcomes

Spring 2009

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1.0. BIOE Program Description

We strive to provide a top-quality educational program in BIOE that will prepare its graduates with the intellectual rigor, foundational practical skills, and independent creativity needed for successful professional careers in academic, medical, commercial and government endeavors. Our educational objectives are guided by the values (founding Principles of Community) of UC Merced, the mission of UC Merced's School of Engineering, and the accreditation requirements of ABET.

Bioengineering is a highly interdisciplinary field in which the techniques, devices, materials and resourcefulness of engineers are used to address problems in biology and healthcare; and lessons from biology are used to inspire design and inform progress in engineering. During the past 40 years, this synergy between biology and engineering has led to a wide range of implantable materials, diagnostic devices, sensors and molecular characterization techniques, and it has produced tools that greatly expedited the sequencing of the human genome. Along with these practical innovations has come a rapidly increasing need for personnel with the necessary hybrid skills, and undergraduate bioengineering programs have proliferated alongside the continued growth of bioengineering research.

The undergraduate major in Bioengineering is designed to provide students with both breadth and depth, and the possibility of a focus on nanobionegineering, tissue engineering, or physiological engineering. It is suitable preparation for individuals seeking a career in research or industry, or pursuing advanced degrees such as Ph.D. or M.D.

A nanobioengineering focus reflects the synergy between the "nano" and "bio" themes in engineering and science. It highlights molecular, supramolecular, cellular and material aspects of bioengineering, drawing efficiently on the talents of the biologists, chemists, physicists and other UC Merced faculty in basic engineering and science programs. Convergence between engineering and biology in the expanding area of nanotechnology – the realm of biological molecules, molecular aggregates and cellular processes – has begun to offer new, rich areas of study and commercialization.

Tissue engineering focuses on a specific class of applications for biomedical engineering. Current medical devices do not repair or replace diseased tissue, but rather, are designed to either minimize symptoms or partially replace a minimal level of organ functionality. An emerging and ambitious area of research seeks to build devices that would actually replace diseased tissues/organs with their biological equivalents, thus completely restoring tissue/organ functionality. This area has been termed Tissue Engineering and/or Regenerative Medicine. It is, by nature, cross disciplinary in that it employs cell culture methods combined with appropriate materials, scaffolding architecture, technologies for cell delivery, and nutrient transport strategies – while also synergizing with nanobioengineering by employing the use of small nanoparticles or nanocomposite scaffolding materials.

Physiological engineering is an area of bioengineering that focuses on the development and implementation of instruments and techniques to evaluate the function of biological systems at the tissue, cellular and molecular level. This area includes bioelectronics, bioinstrumentation, modern optical techniques, molecular biology, spectroscopy, electrophysiology, single molecule detection and genetic engineering techniques to evaluate central paradigms and hypotheses in bioengineering. In their training to become independent bioengineers, learners will acquire a

broad background in basic engineering and biomedical sciences, advanced knowledge in a specific area of experimental and theoretical physiology, the ability to identify specific problems and formulate testable hypotheses related to these bioengineering problems, and the technical competence to develop new or adapt existing laboratory techniques for solving bioengineering problems.

We require our students to participate in Engineering Service Learning, which provides practical exposure to the interface between engineering and society, and an introduction to the design, communication, budgetary and timekeeping skills that professional engineers need.

2.0. Assessment Plan

2.1. Timeline & Goals

A rolling five-year assessment schedule focusing on one Program Learning Outcome (PLO) per year will be followed. We will gather, analyze and act on data that enable us to assess the extent to which students achieve the desired PLOs as a result of completing the BIOE major at UC Merced. The primary goal of this exercise is to ensure that our students optimally (successfully) learn and practice the interconnectivity of ideas that underpin each of the PLOs.

2.2. Program Learning Outcomes

(i) Graduates will demonstrate an understanding of biology and physiology.

(ii) Graduates will demonstrate the capability to apply advanced mathematics (including differential equations and statistics), science, and engineering to solve problems at the interface of engineering and biology.

(iii) Graduates will demonstrate the ability to make measurements on, and interpret data from, living systems.

(iv) Graduates will demonstrate the ability to address problems associated with the interaction between living and non-living materials and systems.

(v) Graduates will demonstrate professional and ethical responsibility.

PLOs (i) through (iv) are closely aligned with ABET program criteria for Baccalaureate-level bioengineering-focused degree programs. PLO (v) is closely aligned with one of the ABET program outcomes (currently 'f') required of all Baccalaureate-level engineering degree programs; we have chosen this as one of our PLOs because we are keen to ensure that our graduates have learned how action and consequence are linked in their professional setting.

The BIOE faculty plan to communicate the program goals and learning outcomes in the following ways by the start of the 2009 – 2010 academic year:

- a website specific to BIOE;
- a revision of the catalog copy;
- documents included with orientation materials for lecturers and teaching assistants;
- presentation materials used in student recruitment and orientation meetings.

2.3. Evidence

The procedure for assessing achievement of the program learning outcomes will utilize four methods – two direct, and two indirect. These are:

- Embedded Midterm and Final Exam Questions. These questions will be embedded in BIOE 30 (*Introduction to Bioengineering*) and core upper division BIOE courses to

assess students at various stages of learning – introductory, developing, and mastery levels. Each of these exam questions will be assessed using a level-appropriate rubric agreed upon by the BIOE faculty.

- Capstone Course**.** BIOE Seniors are required to take BIOE 150 (*Bioengineering Design*). This design project is an exercise in addressing bioengineering problems that require design solutions. Learners identify and define the problem, propose a viable solution, acquire approval for the design, and build and test the designed device. Learners will be assessed as individuals and on their contribution to a team, and will be required to communicate their work in a professional format through both written and oral presentations.
- The University of California Undergraduate Experience Survey (UCUES), the National Survey of Student Engagement (NSSE), and UC Merced's Graduating Student Survey. The first two surveys, UCUES (http://www.universityofcalifornia.edu/studentsurvey/) and NSSE (http://nsse.iub.edu/html/survey_instruments_2008.cfm), are respectively a census and a sample survey administered to UC Merced undergraduates in alternating years; they can be mined to provide a basis for assessing our students' learning experience in comparison to the learning experience of students at our sister and peer institutions. The Graduating Senior Survey, administered through Alumni and Career Services, will provide information about the program's success in preparing learners for subsequent graduate studies, medical school, or employment. Together, there surveys will help us to gauge whether the learners in our program are acquiring knowledge and skills that they value, as well as which parts of the program work well and which areas need improvement.

- Alumni Survey. A survey will be distributed to one-, five-, and ten-year alumni to gather information on whether BIOE graduates pursue graduate degrees and obtain meaningful jobs, and on graduates' perception of their preparedness for their careers. Since our program is relatively small at present, we also expect to be able to keep in touch with many of our alumni informally and monitor their further progress on an individualized basis.

2.4. Process

The BIOE faculty have committed to a rolling five-year schedule to successively assess the PLOs at the rate of one per year. In other words, the first iteration of our five-year schedule is as follows:

(i) 2009-2010 Academic Year. Develop and implement measures to assess PLO(i). Embedded exam questions in BIOE 30 and core upper division courses will be identified and assessment rubrics will be created. Student performance in appropriate aspects of BIOE 150 (*Bioengineering Design*) will be assessed. Survey data will be gathered and analyzed.

(ii) 2010-2011 Academic Year. Develop and implement measures to assess PLO(ii). Methods correspond to those described above.

(iii) 2011-2012 Academic Year. Develop and implement measures to assess PLO(iii). Methods correspond to those described above.

(iv) 2012-2013 Academic Year. Develop and implement measures to assess PLO(iv). Methods correspond to those described above.

(v) 2013-2014 Academic Year. Develop and implement measures to assess PLO(v): Methods correspond to those described above.

2.5. Participants

The BIOE program faculty will appreciate interactions with, and support from, UC Merced's Center for Research in Teaching Excellence (CRTE) at all stages of the process described above. Collection and analysis of direct evidence (based on embedded exam questions and the capstone course) will be carried out by the BIOE faculty each semester as part of the normal administration of our courses. Survey data will be interpreted with the assistance of staff in UC Merced's Office of Institutional Planning and Analysis.

The BIOE program faculty will meet annually to disseminate the results of the assessment for that year's selected learning outcome and discuss appropriate responses. These may include (i) changes to the support (office hours, tutoring, workshops) offered to students, (ii) changing course content, sequence, or prerequisites, (iii) adding or deleting courses from the curriculum, and (iv) changing the instructors assigned to particular courses. Changes in courses or program requirements must be proposed and justified by the BIOE faculty and approved by the Engineering Curriculum Committee. If such changes are substantial (and especially if changes to any Engineering Fundamentals course are required, or if there are changes in prerequisites, or if there is a significant impact on the electives taken by students in other majors), they must also be approved by vote of the full Engineering faculty, and finally by the campus-wide Undergraduate Council. Authority for making teaching assignments rests with the Dean of Engineering, delegated to the Engineering Curriculum Committee.

3.0. Alignment of Institutional and BIOE Program Goals/Outcomes

3.1. Connections between Program and Institutional Goals/Outcomes

The program learning outcomes of the BIOE major reflect seven of UC Merced's Eight Guiding Principles of General Education explicitly in the following ways:

- Scientific Literacy. BIOE is a science-based program in which learners have to demonstrate that they have acquired broad scientific knowledge.
- Decision Making. Learners in BIOE have to demonstrate that they can apply their knowledge to solve complex problems.
- Communication. Learners have to be effective communicators to demonstrate their understanding of advanced principles, and to explain how they use their knowledge to solve complex problems.
- Self & Society. Bioengineering includes the application of engineering principles in the context of healthcare, and therefore cultivates a strong sense of the societal impact of the discipline.
- Ethics and Responsibility. Ethical practices and responsible conduct are hallmarks of a professional engineer, and they are necessary components of safe, sustainable design. Also, bioengineers work directly with living systems, requiring special attention to their ethical stance and responsibility towards human and animal subjects.
- Leadership and Teamwork. Both of these attributes are also hallmarks of a professional engineer, and are honed through the capstone design process.

- Aesthetic Understanding and Creativity. Engineering design is an inherently creative process. Some designs are more elegant than others. The design process is informed by knowledge of the creativity of the giants whose shoulders we stand on.

Guiding Principles of General Education	**BIOE PLOs**				
	(i)	(ii)	(iii)	(iv)	(v)
Scientific Literacy	✓	✓	✓	✓	
Decision Making		✓	✓	✓	
Communication	✓	✓	✓	✓	
Self and Society		✓		✓	✓
Ethics and Responsibility			✓	✓	✓
Leadership and Teamwork					✓
Aesthetic Understanding and Creativity		✓		✓	
Development of Personal Potential					

The eighth guiding principle, Development of Personal Potential, is something that we strive for in all our students. However, we deliver this primarily by interacting with our students on an *individual* basis – in office hours, in seminar classes, in the research laboratory, at social events, and through student clubs and societies. We do not list it as a PLO, because it is tied to no particular course, and it does not lend itself to objective measure.

UC Merced is a student-centered research university. The BIOE faculty are dedicated to providing research opportunities for students, and to integrating appropriate research findings into coursework wherever possible.

3.2. Connections between Program and School Goals/Outcomes

The five learning outcomes of the BIOE program complement the School of Engineering mission of providing an exceptional technical and professional education that instills in our learners advanced problem-solving skills and effective leadership qualities.

3.3. Connections between Program and Course Learning Outcomes

The table below maps the BIOE PLOs onto the BIOE Core Curriculum. For each PLO, we identify whether a course offers learners an introduction (I), development (D) or mastery (M) en route to graduation.

BIOE Core Course	**BIOE PLOs**				
	(i)	(ii)	(iii)	(iv)	(v)
BIOE 30 Introduction to Bioengineering	I	I	I	I	I
BIOE 100 Physiology for Engineers	D	D	D	D	D
BIO 100 Molecular Machinery of Life	D	D	D	D	D
BIOE 103 Biosensors & Bioinstrumentation	D	D	D	D	D
BIOE 104 Biotransport	D	D	D	D	D
BIO 110 The Cell	D	D	D	D	D
BIOE 150 Bioengineering Design	M	M	M	M	M

Faculty Accreditation Report for the Biology Major

Prepared by the Biology Faculty at University of California Merced

January 30, 2009

Revised April 5, 2010

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Abstract of changes made in 2010 to Biology Accreditation Report

Several changes were made in 2010 to the Biology Accreditation Report of 2009, based on the experience of evaluating the first Biology Program Learning Outcome (PLO1). Regarding Participants, it was found that the entire Life Science Curriculum Committee was needed to complete the Assessment, rather than a small subcommittee, as originally planned. Regarding the actual assessment of PLO's, several changes were made to this Accreditation Report in response to our experience in the past year. While the original plan was to use many embedded questions to assess each PLO, it was found that the process of carefully evaluating even a single question was so time consuming that we could realistically only plan to evaluate one or two embedded questions for a given PLO. Also, in our first assessment, we found that one of the most important areas for improvement was Scientific Accuracy in student responses, so this is now noted in the current report as something to specifically consider. Also, although our plan was to sub-categorize student achievement by emphasis track (e.g. "How did the Human Biology students do? How did the Molecular and Cell Biology students do?"), we are currently not able to track the students by emphasis track in an efficient manner, so this was removed from the report.

A fairly important change is that wording of PLO1 was changed in response to several faculty requests. Even with the changes, the PLO may still be overly broad and difficult to assess, so there is a continuing discussion of this PLO. Finally, the curriculum map showing the alignment of our courses with the PLOs (section IIC) has been updated (including the replacement of BIO100 "Molecular Machinery of Life" with a lower division course, BIO 2 "Intro to Molecular Biology"; and a self-assessment based on the WASC rubric is provided in section IIG.

Section I: Program Description:

The Biological Sciences major at the University of California Merced endeavors to be a path of study that truly reflects the emerging 21st century trends in the Life Sciences. One such emerging trend in biological sciences is the transformation from primarily "descriptive" studies of individual components of biological systems, to a science based on creating a comprehensive and ultimately predictive understanding of biological systems. This so-called "systems" approach to biology is already dramatically changing how biological research is done, leading to new connections with the physical, mathematical, and computational sciences. This new biology offers the promise of a much more complete understanding of living systems and ultimately new solutions for ecological challenges and new treatments for complex diseases. The biological sciences program at U.C. Merced is designed to provide students with the knowledge and skills to address fundamental questions in biology from a "quantitative" and "systems-wide" perspective.

The biological sciences undergraduate training at U.C. Merced is distinctive in its focus on providing all biology students with a truly multidisciplinary core foundation in physics, chemistry, mathematics, and the central tenets of modern biology before students pursue further training in specialized "emphasis" tracks (described below). Core courses provide the knowledge and skills necessary to formulate and test hypotheses using traditional as well as quantitative and systems-based approaches. Multidisciplinary training in biological sciences at U.C. Merced is strengthened by the fact that there is a high degree of collaboration and interaction between faculty specializing in experimental biology, computational and theoretical biology, physics, chemistry, and mathematics all within the School of Natural Sciences. This is in contrast to many other universities that have highly compartmentalized departments and few undergraduate or graduate programs that provide truly multidisciplinary training.

Another distinctive aspect of the biological sciences program at U.C. Merced is the ability of students to select specialized "emphasis" tracks, instead of individual majors. In this way, all biology students graduating from U.C. Merced will have a common foundation necessary for biologists in the 21st century, as well as specialized skills and knowledge to aid in their pursuit of careers in biology-related fields or graduate / professional school training. There are five emphasis tracks in the biological sciences: Molecular and Cell Biology, Human Biology, Ecology and Evolutionary Biology, Developmental Biology, and Microbiology and Immunology.

In the Biology program at UC Merced, students learn laboratory skills and are also introduced to cutting edge research. Upper-division courses in each emphasis track typically include laboratory exercises (or entire laboratory courses) that provide students with an understanding of the scientific method and modern techniques, reinforcing what is learned in the classroom and providing skills necessary for careers in the biological sciences. In addition, students are encouraged to pursue supervised independent research study in laboratories of faculty at U.C. Merced. Faculty in the biological sciences are committed to providing undergraduate research opportunities since such experiences are particularly useful for preparing students for further educational or professional development as well as for careers in biotechnology and related fields. To ensure all students obtain some form of research experience or exposure to current research projects, all biological sciences majors are required to take either a "research seminar" course, in which they attend and critique seminars presented by U.C. Merced faculty and invited speakers as well as give their own student-led presentations or an "undergraduate research" course, involving individual or group projects supervised by a faculty member doing research in the biological sciences.

Section II: Assessment Plan

The assessment of the Biology Major at UC Merced will occur in a timely and regular fashion, with an emphasis on determining our success at achieving our Program Learning Outcomes. The assessment will be carried out by the Life Sciences Curriculum Committee, which deals with all matters regarding the curriculum content, quality, and assessment. The following five sections (Parts A through E) will detail our proposed Assessment Plan; Part G describes a self-assessment.

Part A: Timeline and Goals

The assessment of the Biology major will occur over successive five year periods in which we fully evaluate the success of our five Program Learning Outcomes. In every year of the five year period, one PLO will be evaluated, and a full assessment report prepared regarding the achievement of that PLO in relation to the overall state of the Biology major. The timeline for each assessment will be as follows: each Spring, preparation and data collection for the appropriate PLO will begin. This should include working with faculty on appropriate embedded questions, including developing a rubric. The following Fall, analysis of the gathered data will occur. In late Fall/early Spring, the Assessment report will be written. The report will be discussed by the faculty in mid-Spring, including possible changes to the curriculum. At that point (mid-Spring) the cycle will begin again, with data collection for the next PLO.

Within each evaluation, evidence will be collected regarding the success of that Outcome and there will also be an assessment of whether that particular PLO remains a top goal of the program, and whether the wording or the sense of the PLO should be changed. <u>In this way we plan to both assess the success of our program in producing Biology graduates, and also to assess the goals themselves and the tools we use in the overall process.</u>

The goals of our annual assessment will be:

1. To determine whether students are achieving the outcomes described by each PLO.
2. To determine whether a particular PLO remains one of the top goals of the Biology program.
3. To determine whether the Evidence and Process used to assess a particular PLO is indeed able to provide appropriate data regarding student achievement.

Part B: Outline of the Program Learning Outcomes of the Biology Major

The following Program Learning Outcomes have been established by the Biology faculty at the University of California Merced. Our goal is that each graduate with a Biology major should have this knowledge or proficiency. These PLO's will be prominently published on the School of Natural Sciences web page (http://naturalsciences.ucmerced.edu/2.asp?uc=1&lvl2=41&lvl3=41&lvl4=61&contentid=105), as well as placed in the UC Merced Undergraduate Catalog, which has both an electronic (online) as well as hard copy (book form) format. When the Biology major is presented to incoming students and prospective majors, these PLO's will be part of the presentation so that students are aware of the overall objectives of their Biology training at UC Merced.

Graduates from the Biological Sciences programs will have demonstrated:

1. An understanding of the tenets of modern biology and an understanding of how cellular functions are integrated from the molecular level to the cellular level, through to the level of organism, populations, and functioning ecosystems.

2. An ability to develop and critique hypotheses and to design experiments, models,

and/or calculations to address these hypotheses.

3. The ability to use appropriate instrumentation and computational tools to collect, analyze and interpret data.

4. The ability to read, evaluate, interpret, and apply numerical and general scientific information.

5. A familiarity with, and application of safety in good laboratory and field practices.

Part C: Evidence

In this section, each PLO will be stated, along with the evidence that will be collected to assess our effectiveness with the PLO.

C1. An understanding of the tenets of modern biology and an understanding of how cellular functions are integrated from the molecular level to the cellular level, through to the level of organism, populations, and functioning ecosystems.

This PLO is quite broad and will be assessed by using embedded questions on exams in Biology courses. The Committee that prepares the assessment of this PLO will request exam questions from several BIO faculty. These questions will be edited and a rubric formulated: What answer shows a full and sophisticated understanding of the problem? What answer shows an adequate, but more basic understanding of the problem? What answer is minimally acceptable as an answer to this problem? What answer(s) are unacceptable? In other terms, these levels of understanding may be compared to the “Highly Developed”, “Developed”, “Emerging” scale that is sometimes used in Curriculum Development.

The embedded questions for this PLO will be placed in about two of the following upper division courses, which in aggregate will include students from every emphasis track:

BIO 110 (“The Cell”; required for all emphasis tracks, so most likely to be utilized)

BIO 140 (“Genetics”)

BIO 141 (“Evolution”)

BIO 148 (“Ecology”)

BIO 150 (“Embryos, Genes and Development”)

BIO 151 (“Molecular Immunology”)

After the upper division students have taken the exams with the embedded questions, the Life Sciences Curriculum Committee will assess the success of the students both on an individual level as well as on the level of the whole group. The Committee will prepare a report detailing the proportion of students in each class that were able to provide various levels of answers. They will attempt to synthesize an overall picture of the success of the major in this PLO: Does any particular category of the rubric stand out in either a negative or positive way? (For example, in 2009, it was found that improvement was needed in Scientific Accuracy according to the rubric developed by the committee.) Is there general, overall success by the students in answering these prepared questions? The rubric used for assessment of PLO 1 is included in Appendix 1. Importantly, the rubric was developed after the exam data were collected, rather than as part of developing appropriate exam question(s). This led to a more cumbersome, after-the-fact evaluation process. It is recommended in future years to establish a rubric at the time of development of exam questions so that evaluation can be carried out more smoothly.

Although our goal is of course to have 100% student success at high proficiency with each question, it is more likely that we will show varying levels of success. Therefore, the committee will set goals for each category of the rubric (e.g. “75% Developed in the category of Scientific Accuracy”), and suggest ways to improve student success in the areas that seem weak. In future years, the previous assessment

report will be used as a yardstick for assessment, to determine if students are improving as we implement the suggested changes.

Another set of data in evaluating this PLO will be to measure the students' perceptions of their accomplishment. This will be done by adding questions to the graduating seniors survey that is given each year. Particularly for this broadly worded PLO, the viewpoint of the students in whether they have achieved this knowledge will be valuable. A set of questions will be developed to obtain the students' view of their understanding of PLO1 and PLO4 (and possibly others).

C2. An ability to develop and critique hypotheses and to design experiments, models, and/or calculations to address these hypotheses.

This PLO represents the foundation of the scientific method and is therefore one of the most important for a Biology major to achieve. The Life Sciences Curriculum Committee will assess PLO2 using several methods. The first method will be embedded exam questions that have been prepared by the faculty member of a course in conjunction with the Committee. Each question will be designed to require a clear hypothesis from the student, or an evaluation of a particular hypothesis. The embedded question will have a rubric to assess the level of understanding shown by the student, and the Committee will compile and analyze the results of these questions. Comparison to previous years will also be carried out to determine whether changes to course material or emphasis should be implemented. Courses for which embedded questions are proposed include one or two of the following courses: BIO 101 ("Biochemistry"), BIO 120 ("Microbiology"), BIO 150 "Genes and Development", and others at the Committee's discretion.

The second method that will be used to assess this PLO will be an evaluation of a portion of student lab write-ups, in which the students will be specifically required to

propose a hypothesis and discuss the data they have obtained in relation to the hypothesis. The writeups will be submitted to the Committee for evaluation. Among the courses that have significant lab components are BIO 120L Microbiology; BIO 141L Evolution; BIO 151L Immunology; BIO 161 Physiology; BIO 102 Biochemistry II.

As mentioned previously, preparation and analysis of data is quite time consuming, so experience has led us to the expectation that we can prepare 1-2 embedded questions for analysis, and possibly 1-2 lab questions/writeups for analysis.

C3. The ability to use appropriate instrumentation and computational tools to collect, analyze, and interpret data.

The assessment method for success in this PLO will be a careful evaluation of lab write-ups by the Committee. The committee will choose at least one lab from one or two of the following courses and will examine the lab write-up of either every student or a random sampling of students: BIO 102 ("Biochemistry II/Molec. Biology") BIO 120L ("Microbiology"), BIO 161 ("Human Physiology"), BIO140L ("Evolution"). The labs will be carefully chosen to include a wide variety of instrumentation and skills, including computational skills. The Committee will formulate a rubric for the evaluation of the write-ups, with input from the general faculty. The rubric will include the manner to assess success in both using the instrumentation to achieve the desired data/product and the manner to assess whether each student is able to interpret the data at a high/medium/low level of complexity.

C4. The ability to read, evaluate, interpret, and apply numerical and general scientific information.

This PLO represents an important high-level skill that will be assessed both by embedded exam questions and by participation in the research seminar course in

which students discuss and critique a weekly research seminar. The embedded questions will be much as described above, but will be applicable to this particular PLO, i.e. will involve evaluation of data, particularly numerical data. The embedded questions will be placed in exams in 1-2 of the following courses:

BIO 140 “Genetics”

BIO 180 “Mathematical Modeling for Biology”

BIO 182 “Bioinformatics”

It is worthwhile to note that although there is some repetition in the classes in which questions will be embedded, these processes occur over the course of five years. So in one entire year, the embedded questions will be in response to a single PLO. The next year, a different PLO will be assessed, so embedded questions of a different nature will appear on some exams.

The second way this PLO will be assessed is in an analysis of student participation in the research seminar course (BIO 190). On some days of class, video equipment will be set up, and student discussion of a seminar will be recorded. This will be analyzed by the Curriculum Committee, possibly in conjunction with the professors of the course who may have collaborated with the committee on asking particular questions to stimulate discussion into the area of data analysis and interpretation. Although this assessment method is not particularly quantitative, it will provide a valuable addition to the annual Assessment Report, as the committee will discuss participation rates, and at what level the students understood the research seminar(s). It should be noted that the proposal to use this measure of student achievement has engendered a mixed response from the faculty and the Life Sciences Committee. This method may be too reliant on how a small number of students perform during one short period of time. So when the logistics are approached in this particular year, it may be necessary to revise this plan or to place lesser weight on the

results from this type of analysis.

A final way to evaluate this PLO will be to measure the students' perceptions of their accomplishment in this area. This will be done by adding questions to the graduating seniors survey that is given each year. A set of questions will be developed to obtain the students' view of their understanding of PLO1 and PLO4 (and possibly others).

C5. A familiarity with, and application of safety in good laboratory and field practices.

Every Biology major is required to take the lab courses associated with the requirements in their emphasis track, as well as at least one further upper division Biology course having a lab component. Each student in a BIO lab course will be required to take specific safety training. In particular, advanced aspects of biological safety training and practices will be covered in BIO 120L ("Microbiology Lab") and BIO 141 ("Evolutionary Biology Lab"), BIO 151L ("Immunology Lab"), and BIO 149 field study ("Conservation Biology"). In these courses, the students will be required to prepare either a lab write-up regarding the safety training, or to take an exam or turn in a problem set/worksheet regarding safety. The Curriculum Committee will evaluate these documents from each student and determine the level of success of this PLO. Again, the goal is that 100% of the BIO students will be fully cognizant of all relevant safety procedures and good lab practices. The Committee will determine how close we are to meeting this goal, with further analysis of whether we have improved from past years, and whether the students are achieving higher levels of success beyond basic knowledge.

Part D: Process

Our assessment plan will include provisions to measure our success with these PLO's as well as to suggest ways to increase the proportion of students showing full proficiency in all five PLO's.

The process we will use to measure the success of these PLO's includes a revolving five-year plan to assess one PLOs every year, such that at the end of five years, all five PLO's have been assessed. The PLOs will be assessed by the Life Sciences Curriculum committee, which consists of 3-6 faculty members. The Committee will arrange for the assessment tools (embedded exam questions, etc), gather the data, and prepare an assessment report each year.

It is anticipated that at the beginning of the school year, the Committee will send an email to the Biology faculty, outlining their goals for the year, including which PLO(s) will be assessed. In years in which embedded questions will be used in the assessment, the Committee will issue a call for exam questions for embedded questions, and will help formulate the rubric used in the assessment of the student answers. It has been found that developing the rubric at the same time as the embedded question is more efficient than trying to make a suitable rubric months later during the actual evaluation of data. The Committee will then work with the individual instructors for each course to embed a question that fits seamlessly with the course content. The exams with embedded questions will ideally take place over the course of both the Fall and Spring semesters, although logistically we have found it difficult to have sufficient plans in place to obtain data from the fall semester. The professors will grade the embedded questions normally, but provide a photocopy of student solutions to the Committee.

At some point in Fall semester, the Committee will analyze the results of the embedded questions from the prior year, using the rubric that has been outlined. For small classes, all student embedded questions will be analyzed, while for larger classes,

some random sampling of photocopied exams will be analyzed. In years in which items like lab reports or lab safety problem sets are to be analyzed (see PLO 3 and PLO 5), the Committee will work closely with the professors of lab courses and the lab instructors to develop the items that will be turned over to the Committee for analysis.

Finally, the Committee will prepare their annual Assessment Report for the year's PLO(s) in late fall or early spring. The Assessment Report will discuss the PLO(s) that were assessed, the method of assessment, and the results obtained. These results will include a description of what percentage of students have satisfactorily attained a particular Program Learning Outcome, as well as how many have exceeded expectations, and how many are below expectations. Although currently we don't have a system to track students in emphasis tracks, it is hoped that eventually a breakdown will be made for students in individual emphasis tracks to be certain that all emphasis tracks are adequately training students in all the PLO's. A comparison will be made with results of previous years' assessment of this PLO and possibly with related PLO's.

Perhaps the most important part of the annual Assessment Report will be the recommendations of the Committee on how we may change our curriculum to more effectively meet the goals described in the PLOs. These recommendations (and the whole report) will be disseminated to the entire Biology faculty and discussions will be scheduled to determine which recommendations to implement. It is anticipated that the annual Assessment Report will engender change each year in the Biology curriculum, sometimes minor (adding emphasis to certain lecture topics) and sometimes major (overhauling a class or a set of lab experiments).

Additional items that will be included in the Assessment Report include whether this particular PLO is still a top goal of the program, whether it should be re-worded to align it more properly with the goals of the program, and whether the tool that were used to assess the PLO (e.g. embedded questions, viewing video of a student discussion) were appropriate and should be continued in future years.

The current plan for assessment is as follows:

Year 1: PLO 1

Year 2: PLO 2

Year 3: PLO 3

Year 4: PLO 4

Year 5: PLO 5

Part E: Participants

The major participants in gathering and analyzing the data each year for the Assessment Report will be the Life Sciences Curriculum Committee, whose membership will rotate so that there is some continuity from year to year. Under ordinary circumstances no individual faculty member will serve more than two consecutive years. These faculty members will work in conjunction with the whole Biology Faculty, and with the individual instructors of the courses that are relevant for the PLOs. Additional support will be provided by the School of Natural Sciences staff, who will assist in disseminating information, gathering data, coordinating meetings, and assembling the annual Assessment Report. In particular, we have two curriculum specialists as well as one staff member dedicated to analyzing curricula and outcomes.

Part F: Minor (Not applicable. We do not have a Biology minor.)

Part G: Self Assessment against WASC Rubric

The faculty have completed the assessment of PLO1 as of January, 2010. Therefore, we are in a position to begin to self-assess our Program Learning Outcomes using the rubric provided by WASC:

1. **Comprehensive List:** In this category we are probably "Developed", because our PLO's are reasonably complete, relevant, and focused on the key skills necessary for a Biology major. We are not "highly developed" because we are still struggling to agree on the explicit criteria to use to assess each PLO.
2. **Assessable Outcomes:** We are between "Emerging" and "Developed" in this category. For some of our PLO's, it should be quite clear the students how students can demonstrate their learning. For example, PLO2 in part reads "…to develop and critique hypotheses and to design experiments…". However, not every PLO is explicit in this regard, including PLO1, which has the somewhat vague wording "An understanding of the tenets of modern biology…" The faculty have considered the various wordings at length and in general feel that sometimes it is too reductionist to use verbs that turn a PLO into something that can be easily and obviously accomplished. Therefore, the wording of some PLO's may seem somewhat vague.
3. **Alignment:** The Biology curriculum is between "Emerging" and Developed" in this category. While each PLO is clearly covered by the curriculum (usually by several courses, as the curriculum map shows), the key area lacking is the opportunity for students to develop increasing sophistication in each Learning Outcome as they progress through the curriculum. In part, this is due to the design of the major, which does not specify when students must take large parts of the required and elective material. Each upper division class may be a mixture of sophomores, juniors, and seniors. This leads to an inability of most instructors to assume particular PLO-type knowledge for students in their course: Some

students may be quite sophisticated, others might be taking their first upper division course. This will be discussed in upcoming meetings of the Life Sciences curriculum committee.

4. Assessment Planning: We are "Developed" in this category: We have a clear plan to assess one learning outcome each year. We have identified who will do the assessment (members of the Life Sciences Curriculum committee), and we already assess the program on an almost-continual basis: In the spring of each year, planning is carried out for the next year's assessment, including discussing ways to assess the next PLO, inviting input from other faculty, and actually doing the data collection. In the following fall, the assessment on the past spring's data is carried out, followed by the writing of the assessment report in the winter/spring.

5. The Student Experience: We are between "Emerging" and "Developed" in this category. Although we have carefully publicized our PLO's on web sites, the course catalog, etc., it is not clear that a given student actually knows what a "program learning outcome" is, or how this concept relates to them. We believe that as we hold faculty meetings to discuss our assessment reports, and become a more interactive faculty in this regard, the general knowledge and terminology will be most effectively transmitted to the students.

Section III: Alignment of Institutional and Program Goals/Outcomes

Part A: Program and Institutional Goals

The Biological Sciences major embodies many of the principles and institutional goals of the University of California at Merced. UC Merced is founded on the principles of multidisciplinary research and innovative educational programs. UC Merced's commitment to multidisciplinary programs is evidenced in the campus organization, programmatic themes, and faculty hires. The Biological Sciences major is designed to emphasize the multidisciplinary character of modern biology. All Biological Sciences tracks include several broad "core courses" that emphasize the general biological concepts that underlie all of living systems at all scales. Additionally, all of the tracks in the major involve 2-4 elective courses taken from a very broad range of courses, including (depending on the track) biology, bioengineering and cognitive science.

Moreover, Quantitative Biology has been identified as a research and academic theme at UC Merced and this is a primary theme in the Biological Sciences major. The Biological Sciences core courses have a strong quantitative emphasis, with all core courses including at least one computational laboratory. Additionally, the major requires all students to take two semesters of calculus, a semester of statistics, a course in computer skills (at least 2 units) and several of the emphasis tracks require an additional course in the area of quantitative biology (e.g. biological modeling, bioinformatics, or genomics).

In addition to being a strong fit to the goals of broad, multidisciplinary academic programs, the Biological Sciences major also addresses a number of the UC Merced general education guiding principles, developed by UC Merced faculty in Summer 2003, to provide a template for our academic programs. Of the eight guiding principles, the design of the Biological Sciences major most directly addresses five:

- **Scientific Literacy & Decision Making:** All of the upper division Biological Sciences courses have a strong emphasis on evaluating and interpreting data to make decisions about scientific hypotheses.
- **Communication:** Students are strongly encouraged to enroll in the seminar course (BIO 190) which includes student presentations of scientific papers or research results. Also, many of the Biological Sciences upper division courses involve written laboratory assignments.
- **Self and Society:** The health and environmental impacts of individual decisions and behavior is a topic in many Biological Sciences courses. For example, in BIO 180 (Mathematical Modeling for Biology), there are lectures and laboratories on the effects of individual choices on population growth and epidemic control.
- **Ethics and Responsibility:** Issues of bioethics and ecologically-sensitive practices are covered in several Biological Sciences core courses and many of specialized courses.
- **Leadership and Teamwork:** Many of the Biological Sciences laboratory courses involve team assignments and/or presentations. Moreover, all Biological Sciences majors are encouraged to take part in research projects with faculty that will give the students direct experience working in scientific research teams.

The relationship between the Eight Guiding Principles and the Biology major can also be illustrated in terms of how our five PLO's themselves correspond to the Eight Guiding Principles. The following Table illustrates this correspondence. The five principles mentioned above are most directly relevant to the major, although it can be seen that all eight principles are addressed in some way by the PLO's.

Table **1:** A curriculum map representing the alignment between the Biology Program Learning Outcomes and the Eight Guiding Principles of General Education.

PLOs	Scientific Literacy	Decision Making	Communication	Self & Society	Ethics & Responsibility	Leadership & Teamwork	Aesthetic Understanding Creativity	Development of Personal Potential
1.Tenets of Biology	X			X				
2. Hypotheses, expts	X	X					X	X
3. Instrumentation, data analysis		X				X		X
4. Read, evaluate scientific info	X		X					X
5. Lab, field safety		X		X	X			

Part B: Program and School Goals

School of Natural Science Goal: Innovative curriculum

Curricular innovations in degree programs and foundational courses for science and engineering students are highly valued by the School of Natural Sciences and so the Biological Sciences undergraduate program offers a wide array of innovative curricula. Students have the opportunity to gain hands-on experience with cutting edge technologies and instrumentation. These courses span the areas of biochemistry, molecular/cellular biology, developmental biology, immunology/microbiology, and ecology/evolutionary biology. The Biology curriculum offers a wide range of courses that utilize computational, laboratory, and field-based teaching strategies.

School of Natural Science Goal: Academic excellence in training scientists and citizens

The School of Natural Sciences places a high priority on increasing the scientific literacy of all students and increasing the pool of students in UC Merced's academic programs in math, science and engineering. The Biological Sciences program expects that our undergraduate students are well versed in all areas of the biological sciences and have the ability to critically analyze and interpret biological data.

School of Natural Science Goal: Multidisciplinary and inter-disciplinary study

The programs in the School of Natural Sciences are organized to emphasize the commitment of the faculty and School administration to research programs that encourage cooperation and collaboration across disciplines. Thematic groupings acknowledge that finding solutions to complex problems often requires multi-disciplinary expertise and the growth of research programs should not be hampered by disciplinary boundaries. The multi/inter-disciplinary nature of the school is also reflected in some of the course offerings in the Biological Sciences program. Students in this program have to opportunity to take courses that integrate subject matter from the chemical/physical sciences (e.g. BIO 101 Biochemistry), engineering (e.g. BIOE 114, Tissue Engineering), earth sciences (ESS 125 Microbial Ecology), computer sciences (BIO 180-182, a series comprising mathematical and computer modeling and Bioinformatics), and social sciences (PSY 121 Cognitive Psychology).

Part C: Program and Course (Student) Learning Outcomes

Each course in the Biology curriculum was examined; the content and Student Learning Outcomes were compared to the Program Learning Outcomes of the Biology major. Table 2 below shows the contribution of each course to the PLO's. A question that may arise is whether students from each of the 5 emphasis tracks have the opportunity to succeed in each Program Learning Outcome. Therefore, Table 3 below shows just the *required* courses for each emphasis track. Note that this is a minimal

look at the PLO's within each emphasis track, because each track also requires electives that will also contribute to the student's training in the Program Learning Outcomes. Finally, Table 4 lists lower division, non-core courses that may be taken by non-majors, and Table 5 lists courses that are in the course catalog but have not yet been taught.

Program Learning Outcomes for Biological Sciences (Same as above)

Graduates from the Biological Sciences programs will have demonstrated:

1. An understanding of the tenets of modern biology and an understanding of how cellular functions are integrated from the molecular level to the cellular level, through to the level of organism, populations, and functioning ecosystems.

2. An ability to develop and critique hypotheses and to design experiments, models, and/or calculations to address these hypotheses.

3. The ability to use appropriate instrumentation and computational tools to collect, analyze and interpret data.

4. The ability to read, evaluate, interpret, and apply numerical and general scientific information.

5. A familiarity with, and application of safety in good laboratory and field practices.

Table 2: Alignment of Courses with PLO's; all courses for the major

Bio Courses	PLO #1	PLO #2	PLO #3	PLO #4	PLO #5
001/001L Contemporary Biology & Lab	X	X	X	X	X
002/002L Intro to Molecular Biology & Lab	X	X	X	X	X
003 Molecular Basis of Health & Dis	X				
101 Biochemistry	X	X		X	
102 Advanced Biochemistry	X	X	X	X	X
110 The Cell	X	X	X	X	X

111 Cells, Tissues & Organs	X	X	X		
120 & 120L General Microbiology & Lab	X	X	X	X	X
122 Microbial Pathogenesis (for 2010-2011)	X	X	X		
124 Microbial Evolution	X	X	X		
125 Emerging Public Health Threats	X				
127 General Virology	X	X	X		
140 Genetics	X	X	X	X	
141 Evolution	X	X	X		
142 Genome Biology	X	X	X		
147 Astrobiology	X	X	X		
148 Ecology	X	X	X		
149 & 149F Conservation Bio & Field Course	X	X	X	X	X
150 Embryos, Genes & Dev	X	X	X		
151 & 151L Molecular Immunology & Lab	X	X	X	X	X
152 Cancer Genetics & Tumor Bio	X	X	X		
153 Evolution & Development	X	X	X		
161 Human Physiology (has Lab)	X	X	X	X	X
164 Human Anatomy (has lab)	X	X	X	X	X
170 & 170L Neurobiology & Lab	X	X	X	X	X
180	X	X	X	X	

Mathematical Modeling for Bio					
181 Intro to Biomolecular Simulation	X	X	X	X	
182 Bioinformatics	X	X	X	X	
183 Population Genetics	X	X	X	X	
190 Seminar	X	X		X	

Table 3: The requirements for each emphasis track of the major in relation to the PLO's
(Note that each track has additional electives taken from Table 2 above that also significantly contribute to student success in PLO's.)

I. Molecular and Cell Biology					
002/002L Intro to Molecular Biology	X	X	X	X	X
110 The Cell	X	X	X	X	X
140 Genetics	X	X	X	X	
141 Evolution	X	X	X		
180 Mathematical Modeling for Bio	X	X	X	X	
II. Human Biology					
101 Biochemistry	X	X		X	
110 The Cell	X	X	X	X	X
140 Genetics	X	X	X	X	
141 Evolution	X	X	X		
161 Human Physiology (has Lab)	X	X	X	X	X
III. Ecology and Evolutionary Biology					
002/002L Intro to Molecular Biology	X	X	X	X	X

110 The Cell	X	X	X	X	X
140 Genetics	X	X	X	X	
141 Evolution	X	X	X		
148 Ecology	X	X	X		
IV. Cell and Developmental Biology					
002/002L Intro to Molecular Biology	X	X	X	X	X
101 Biochemistry	X	X		X	
110 The Cell	X	X	X	X	X
140 Genetics	X	X	X	X	
150 Embryos, Genes & Dev	X	X	X		
180 Mathematical Modeling for Bio	X	X	X	X	
V. Microbiology and Immunology					
002/002L Intro to Molecular Biology	X	X	X	X	X
101 Biochemistry	X	X		X	
110 The Cell	X	X	X	X	X
120 & 120L General Microbiology & Lab	X	X	X	X	X
127 General Virology	X	X	X		
151 & 151L Molecular Immunology & Lab	X	X	X	X	X

Table 4: Lower Division non-core courses, or courses for non-majors

005 Concepts in Biology	X				
010 Genetics, Stem Cells & Dev	X			X	
060 Nutrition	X	X		X	

Table 5: Courses in the Catalog that have not yet been taught

034 Intro to Marine Sciences	X	X	X		
043 Biodiversity & Conservation	X	X	X		
046 Age of Dinosaurs	X	X			
104 & 104L Biophysics & Lab	X	X	X	X	X
105 & 105L Enzymology & Lab	X	X	X	X	X
106 Intro to Molecular & Cell Biology	X	X	X		
123 Human Parasitology	X	X	X		
130 Plant Biology	X	X	X		
134 Marine Sci Theory & Practice	X	X	X	X	X
145 Intro to Pop & Community Ecology	X	X	X		
146 Paleobiology	X	X	X		
154 Developmental Immunology	X	X	X		
160 & 160L Comparative Physiology & Lab	X	X	X	X	X
162 Evolutionary Constraints of Physiol	X				
163 & 163L Endocrinology & Lab	X	X	X	X	X
175 Biostatistics	X	X	X	X	
185 Biomedical Ethics	X	X	X		

Appendix 1: Rubric used in 2009 for evaluating responses in assessing PLO1

Reviewer Initials: _____ **Code: _____**

	High Proficiency	Medium Proficiency	Low Proficiency
Comprehensiveness of Response	Addresses all aspects of the question completely and in depth using scientific descriptions and terminology. Level of detail well matched to question and scope of response.	May fail to address a few elements of the question, but includes appropriately detailed descriptions. Or, addresses all elements of the question but detail is somewhat limited.	Addresses few to no elements of the question; does not answer what was asked.
Composition	Narrative is organized with appropriate paragraphing and topic sentences and is focused and concise. Assertions are supported by relevant and specific examples as appropriate. Connections between assertions and supporting examples are direct and explicit.	Mostly focused with use of topic sentences and paragraphing as appropriate. Most assertions are supported with relevant examples as appropriate. Occasionally, a supporting example may seem inappropriate or its connection to an assertion unclear.	Narrative lacks focus and appropriate paragraphing. Lists rather than composes. Fails to support assertions with examples as needed or examples do not seem connected to assertions.
Professional Communication or Sense of Audience	Sufficiently legible so that text easily read and interpreted. Able to focus on quality of narrative rather than deciphering words. Minimal spelling errors.	Legible but sloppy so as to mildly distract reader from attending to content of narrative. Some text difficult to decipher. Some spelling errors.	Response illegible. Carelessly crafted.
Synthesis/Integration	Narrative explicitly connects all elements of the response to each other and to the question being addressed. No extraneous information.	Narrative slightly disjointed in that relationships of response elements to each other and/or to the question are occasionally unclear. Appears to include some extraneous information.	Collection of assertions or facts that are not related to each other or to the question being addressed.
Scientific Accuracy/Vocabulary	Assertions constitute biologically accurate responses to the question. Consistently uses appropriate and precise scientific vocabulary and language to describe biological processes, structures and concepts. Narrative illustrates command of biological concepts and the facts supporting those concepts. Is biologically logical.	Almost all assertions constitute biologically accurate responses to question. Mostly uses appropriate biological terms and language to describe concepts and processes to show accurate knowledge of concepts and supporting facts. Rarely describes biological phenomena using general, vague or metaphorical statements or everyday language. Occasional incorrect use of vocabulary.	Assertions are off-topic, biologically incorrect or irrelevant to question. Describes biological processes or concepts using vague, imprecise language or everyday English, revealing little scientific knowledge. May rely on metaphorical rather than scientific descriptions of phenomena. Does not use scientific vocabulary or uses it inaccurately.

Reviewer Initials: _____ **Code: _____**

	Explanations/Comments
Comprehensiveness of Response	
Composition	
Professional Communication or Sense of Audience	
Synthesis/Integration	
Scientific Accuracy/Vocabulary	

SPRING 2010 FACULTY ACCREDITATION REPORT—CHEMICAL SCIENCES

Faculty Accreditation Organizer: Anne Kelley

Other contributing faculty: David Kelley, Matt Meyer, Tao Ye, Meng-Lin Tsao, Erik Menke

April 5, 2010

UPDATES SINCE JANUARY 2009 REPORT

This report revises and updates the original Chemical Sciences report submitted in January 2009. The principal changes are the addition of a minor in Chemical Sciences and significant revisions in our approaches to assessing our Program Learning Outcomes in fundamental knowledge, communication, and ethics. We are also introducing a new required course to insure that our majors receive appropriate instruction in scientific communication and in ethics.

I. PROGRAM DESCRIPTION

Chemistry is often known as "the central science" because of the key position it occupies in modern science and engineering. Most phenomena in the biological and earth sciences can be described in terms of the chemical and physical behavior of atoms and molecules, and chemical principles also underlie much progress in medicine and engineering. In addition, chemical systems are fascinating and often beautiful in their own right. Recent developments in the chemical sciences are increasingly directed toward the study of phenomena at the nanoscale, the size range intermediate between individual molecules and macroscopic matter. The ability to measure, understand, and control the properties of matter on these size scales allows us to draw conceptual and practical connections between the submicroscopic world of atoms and molecules and the macroscopic world with which we interact.

UC Merced offers an undergraduate major leading to a B.S. degree in the Chemical Sciences. All of our programs are designed to meet the requirements for approval by the American Chemical Society. Students who complete an approved curriculum may obtain a certified degree, a valuable credential which serves as national-level recognition for successfully completing a rigorous academic chemistry curriculum in an ACS-approved department.[1] The curriculum is designed to meet the needs of students who plan to end their formal education with a bachelor's degree as well as those who wish to go on for an advanced degree. The UC Merced chemistry B.S. graduate is well prepared to pursue a career in chemistry or an allied field. A degree in the chemical sciences opens the door to a wide variety of careers in industry or government service, forensic chemistry in crime laboratories, commercial fields such as patent law and scientific writing, and high school science teaching. Many chemistry majors go on to

graduate study to prepare for careers in teaching and/or research at the college or university level, or research positions in the chemical, pharmaceutical, electronics or other high-tech industries. A major in chemistry is also an excellent foundation for medical school or other careers in the health sciences.

We offer both a basic chemistry program and emphasis tracks in biological chemistry, environmental chemistry, and materials chemistry, which allow students to pursue interdisciplinary areas within a degree program that is still focused on chemistry. Many aspects of our program are fairly standard among chemistry programs nationwide. Our students take foundational courses in math (through linear algebra and differential equations), physics (two semesters) and biology (one semester) in addition to the School of Natural Sciences requirements in general education, a computer science course, and a probability and statistics course. Required chemistry courses include a year of general chemistry with lab, a year of organic chemistry with lab, a year of physical chemistry, one semester each of instrumental analysis, inorganic chemistry, and biochemistry, and a combined physical chemistry and instrumental analysis lab. Further upper-division courses may be selected from a range of electives in chemistry, biology, earth systems science, materials science, and engineering depending on the emphasis track chosen. Mirroring the flavor of our institution as a whole, the UC Merced Chemical Sciences program is considerably more interdisciplinary than are most chemistry programs in allowing more of its upper-division course requirements to be met through chemistry-based courses offered in other disciplines. This breadth also permits us to offer both undergraduate and graduate programs in chemistry with a faculty that is currently far smaller than that of most chemistry departments at research universities.

Research is a very important part of the Chemical Sciences major at UC Merced. All of our majors are required to complete at least 2-4 units of CHEM 95 or CHEM 195, lower-division or upper-division undergraduate research. (The minimum requirement varies with emphasis track because of the different amounts of formal laboratory coursework required for the different tracks.) Thus far the number of chemistry majors has been sufficiently small that we have been able to provide research opportunities for all chemistry undergraduates who want them, as well as for some students majoring in biology and other fields who sometimes switch to chemistry after getting experience in a research laboratory. However, as of the middle of Spring 2010 there were 94 declared CHEM majors. Should most of these students remain in the major, seven chemistry faculty will not be able to accommodate all of them and we will need to revisit this requirement.

A minor in Chemical Sciences was approved in Spring 2010. Course requirements for the minor are two semesters of general chemistry, two semesters of organic chemistry, and three additional upper-division chemistry courses. As of Spring 2010 only one student had declared the CHEM minor. We expect that there will eventually be more, but because of the perceived difficulty of upper-division chemistry courses it is unlikely that this will ever be a highly popular minor.

[1]ACS will not consider a chemistry program for approval until it has been accredited by its regional accrediting body (WASC in our case) and has awarded an average of at least two degrees annually over a five-year period. As our first four majors graduated in Spring 2009, the earliest date at which ACS approval is possible would be 2014.

II. ASSESSMENT PLAN

A. Timeline and goals

The Chemical Sciences faculty has defined a set of program learning outcomes listed in Part B. Assessment of these outcomes is being phased in on an annual basis as outlined below:

Outcome	*Initiate collection of evidence*	*Evaluate evidence*	*Initiate response*
1. Fundamental knowledge and skills	spring / summer 2009	summer / fall 2009	fall 2010
2. Scientific methodology	fall 2009 / spring / summer 2010	summer / fall 2010	fall 2011
3. Communication and teamwork skills	fall 2010 / spring / summer 2011	summer / fall 2011	fall 2012
4. Citizenship, ethics, role of chemistry in society	summer 2012	summer / fall 2012	fall 2013

Evidence concerning Outcome 1 was collected at the end of spring semester and the beginning of summer of 2009 and was evaluated during summer and fall of 2009. The chemistry faculty met during fall semester to discuss what had been learned. Our conclusions were summarized in the Assessment Report submitted in January 2010. We found that the protocols we had initially adopted for assessing Outcome 1 did not provide the evidence needed to make informed decisions about student learning and appropriate modifications to our curriculum. A revised plan for assessing this and other program learning outcomes is described below.

Initial assessment of Outcome 2 will be based on student work during the current (2009-2010) academic year and will be carried out during summer and fall of 2010. Outcomes 3 and 4 will be assessed during the summer and fall of 2011 and 2012. Once assessment of all four outcomes has been phased in, it is anticipated that evidence pertaining to each outcome will be collected and assessed every year but that programmatic changes will normally be made on a four-year cycle based on evidence collected during all four years.

B. Program learning outcomes

Our program learning outcomes are based in part on the "student skills" specified as goals for chemistry undergraduate programs by the American Chemical Society's Committee on Professional Training. We have refined and reorganized their list and made some other modifications to reflect the character of Merced's program. The Program Learning Outcomes specified for the Chemical Sciences major are:

1. Fundamental knowledge and skills. Students are able to describe the major concepts and theoretical principles in chemistry. They can identify the central ideas underlying the principal

subfields of chemistry-- analytical, inorganic, organic, and physical chemistry--as well as the broader interdisciplinary subfields of biological, environmental and materials chemistry. Students are able to operate modern chemical instrumentation, perform chemical syntheses and carry out other essential chemical experiments with strict adherence to sound laboratory techniques as well as good safety and hygiene practices. They know how to use modern web-based methods to effectively search the scientific literature.

2. *Scientific methodology*. Students have developed the ability to integrate the aforementioned fundamental knowledge and skills into scientific inquiries. They can formulate well-defined and quantitative questions, develop testable hypotheses, design and execute experiments, analyze and interpret the results and reach appropriate conclusions. They are also able to critically analyze the work of other scientists and assess its correctness, importance, and relevance.

3. *Communication and teamwork skills.* Students are able to write organized and concise reports and present technical information using electronic media, posters and oral presentations. They have developed the communication and teamwork skills that allow them to work effectively both as leaders and as team members in a group.

4. *Citizenship, ethics, role of chemistry in society*. Students have an appreciation for the role of chemistry in the global society as well as the central role chemistry plays in other scientific disciplines such as biology, medicine, environmental science, and engineering sciences. They conduct themselves ethically and responsibly in science-related professions.

These learning outcomes, along with a brief description of the major, degree requirements, and brief course descriptions with links to recent syllabi, are posted on the School of Natural Sciences web site (http://naturalsciences.ucmerced.edu/students/undergraduate/chemical-sciences) and will be updated as appropriate.

C. Evidence

Achievement of program learning outcomes will be assessed through four types of evidence: student reports from upper-division laboratory courses and CHEM 195 research courses, oral presentations given in CHEM 194, an American Chemical Society standardized exam given to graduating seniors, and an exit questionnaire given to graduating seniors. Originally we had also planned to use embedded questions on final exams, but our initial attempt to do so led us to conclude that this provided very little new information beyond that contained in the students' final course grades.

Outcome 1 (fundamental knowledge and skills) will be assessed through a combination of an externally calibrated, standardized exam (for concepts and theoretical skills) and performance in upper-division laboratory courses (for laboratory skills). We will have our seniors take the American Chemical Society's Diagnostic of Undergraduate Chemistry Knowledge exam. This is a two-hour, 60-question exam that poses a number of realistic scenarios in forensics, environmental chemistry, medicine, agriculture, materials science, *etc*. and asks several chemical questions related to each one. Results from this exam can be benchmarked against results from other institutions to give us a good idea of where our students stand. In addition, faculty teaching upper-division laboratory courses, currently CHEM 101L (Advanced Synthetic Laboratory), CHEM 114L (Instrumental Analysis and Physical Chemistry Laboratory), and CHEM 147 (Materials Chemistry Laboratory, if it is ever taught), as well as all faculty supervising CHEM 195 research courses, will be asked to evaluate each student on the laboratory-based aspects of Outcome 1 as outlined in the table below. Each student will be rated on each applicable skill on a scale of excellent, good, fair, or poor.

skill	course
Operate modern chemical instrumentation	114L 195 (as appropriate)
Perform chemical syntheses	101L 195 (as appropriate)
Adhere to safety and hygiene standards	101L 114L 195
Search the chemical literature	114L 195

Outcome 2 (scientific methodology) will be assessed through evaluation of student reports from CHEM 195 research courses. While we teach aspects of scientific methodology in several places in the curriculum (see below), independent research provides the best opportunity to assess what the student has learned. For each student enrolled in CHEM 195, the instructor and a second faculty member will evaluate each report and assign a score of excellent, good, fair, or poor for each of the four sub-objectives:

- formulate questions and develop testable hypotheses
- design and execute experiments
- analyze and interpret results
- critically analyze the work of other scientists

The instructor's evaluation should be based on the written report as well as his or her interaction with the student during the course of the research project. The second faculty

member will provide a less informed but also unbiased evaluation based solely on the written report.

Outcome 3 (communication and teamwork) will be assessed in three ways. Written communication skills will be evaluated using laboratory reports from CHEM 114L and CHEM 195. The instructor and a second faculty member will evaluate one report from each student in each course and assign a score of excellent, good, fair, or poor. Oral communication skills will be evaluated based on student seminars presented in the new CHEM 194 course, which we plan to make a requirement for all Chemical Sciences seniors. The course instructor and another faculty member will evaluate each seminar as excellent, good, fair, or poor. Finally, teamwork skills will be evaluated by performance in the laboratory in CHEM 101L, CHEM 114L, and CHEM 195. The instructor of each course will be asked to assign each student a score of excellent, good, fair, or poor based on his/her ability to work with others in a laboratory setting.

Outcome 4 (ethics and citizenship) will be evaluated through an exit survey given to senior majors during CHEM 194 which will contain questions designed to probe understanding of and attitudes related to ethics and citizenship. Details of the survey are still under development.

D. Process

Collection of coursework- and research-based evidence and its assessment will be performed at the end of each semester, including summer session for research courses. The ACS exam and the exit survey will be administered to graduating seniors at the end of spring semester, during CHEM 194 once that course becomes a program requirement. Until that time, faculty supervising seniors in CHEM 195 will be asked to administer the exam and exit survey to their research students.

After assessment of all four outcomes has been phased in, the assessment results will be critically evaluated and action will be taken every four years. By averaging data over four years, we hope to avoid making excessively large or numerous changes in the program based on small amounts of data or an anomalously weak single class. Actions to be taken may involve adding or deleting courses, changing course content, sequence, or prerequisites, or changing the instructors assigned to particular courses. Substantive changes to individual courses or to the program will require formal approval by the faculty of the School of Natural Sciences and then by the campuswide Undergraduate Council. These change requests will be submitted before the end of fall semester, allowing adequate lead time for any course or program modifications to take effect the following fall semester.

E. Participants

Collection and analysis of coursework- and research-based evidence will be carried out by the chemistry program faculty each semester. While CHEM 101L, 114L, 147 if offered, and 194 are the key courses providing assessment data, most of the chemistry faculty supervise one or more CHEM 195's each semester. The "second faculty members" involved in evaluating laboratory and research reports (see above) will be chosen to distribute the work as equally as possible among the chemistry faculty, with a somewhat lighter load for untenured faculty. School of Natural Sciences staff will be tasked with ordering the ACS exams and, perhaps, with scoring them based on a multiple-choice key. The exit survey will be written by the chemistry program faculty.

The chemistry program faculty will meet annually to disseminate the results of that year's assessment and discuss possible changes to the assessment process or obviously needed changes to the curriculum. The faculty will convene a more thorough curriculum review every four years based on review of four years' worth of assessment data. Changes in courses or program requirements must be proposed and justified by the chemistry group faculty, approved by the Natural Sciences curriculum committee and, if substantive, by vote of the full Natural Sciences faculty, and finally approved by the campuswide Undergraduate Council. Authority for making teaching assignments rests with the Dean of Natural Sciences, but the recommendations of the program faculty are usually accepted.

Staff from the School of Natural Sciences, in consultation with the program faculty, are responsible for publicizing course syllabuses, program learning outcomes, and information about assessment. The Natural Sciences web site contains brief descriptions of each major, learning outcomes, degree requirements, and lists of all courses with links to recent course syllabuses (http://naturalsciences.ucmerced.edu/students/undergraduate/chemical-sciences).

F. Minor

The Chemical Sciences minor was originally defined to have a single Program Learning Outcome, which was the same as Outcome 1 for the major. Upon further reflection, we have recognized that this outcome is too ambitious in view of the small number of upper-division chemistry courses required for the minor, so we have modified it. The new Program Learning Outcome for the Chemical Sciences minor (pending Undergraduate Council approval) is:

Fundamental chemical knowledge. Students are able to describe the major concepts and theoretical principles in chemistry. They can identify the central ideas underlying the principal

subfields of chemistry-- analytical, inorganic, organic, and physical chemistry--as well as the broader interdisciplinary subfields of biological, environmental and materials chemistry.

The corresponding PLO for the major is being assessed through the ACS Diagnostic of Undergraduate Chemistry Knowledge exam. The same level of breadth and depth of knowledge cannot be expected for the minor because of the small number of advanced chemistry courses required. Assessment for the minor is still under discussion by the faculty.

G. Self-evaluation of assessment plan based on WASC criteria

Comprehensive List: The Chemical Sciences PLOs can be categorized as "Developed". They contain a well-organized, complete set of outcomes based on national disciplinary standards from the American Chemical Society. They also take into account relevant institution-wide outcomes such as communication and ethics. They fail to meet the "highly developed" level because the faculty have not yet discussed and agreed on explicit criteria for assessing mastery of each outcome.

Assessable Outcomes: The Chemical Sciences PLOs are probably best described as "Emerging". Although most of them do indicate how students can demonstrate learning, PLO #4 in particular is quite problematic in this regard.

Alignment: We would describe the Chemical Sciences PLOs as "Developed". All PLOs are addressed in the curriculum and everything in the curriculum is responsive to the PLOs. Most but not all of the PLOs are developed at increasingly high levels as students move through the curriculum.

Assessment Planning: We consider the Chemical Sciences assessment planning to be at the "Developed" level. We have a multi-year assessment plan that identifies when each outcome will be assessed and how the results will be analyzed and used to improve the curriculum. It is not "Highly Developed" because it is not yet clear how well the chosen methods of assessment will work or how sustainable the approach is.

The Student Experience: The Chemical Sciences program falls into the "Emerging" category in this regard. We have not done a very thorough job of communicating overall program outcomes to our students. Although program outcomes are available in the catalog and on various web sites, most course syllabi contain only course learning outcomes and do not link them to program outcomes.

III. ALIGNMENT OF INSTITUTIONAL AND PROGRAM GOALS/OUTCOMES

A. Program and Institutional Goals/Outcomes

The Chemical Sciences major, with its emphasis on research, fits very well into UC Merced's mission as a student-centered research university. All of our majors are required to take at least two units of CHEM 95/195 (Undergraduate Research), and most of them take considerably more, many starting in their freshman or sophomore years. Working with a faculty member on an independent research project exposes our students to the thrill of discovery that makes doing science so rewarding. It is also an excellent venue for teaching our students new laboratory techniques, laboratory safety, teamwork, use of the scientific literature, presentation of scientific results, and scientific ethics. In addition, the vast majority of our courses are taught by research-active ladder-rank faculty who can bring examples and ideas from current research into the curriculum. Our use of non-ladder-rank lecturers has thus far been limited mainly to CHEM 1 and CHEM 2 (preparatory chemistry and first-semester general chemistry).

Although the chemical sciences program is a largely technical major and is not a primary contributor to general education at Merced, most of UC Merced's guiding principles of general education are addressed in some way in our program. The table below indicates the correspondence between our program learning outcomes and the eight guiding principles:

GE Principle → Learning Outcome ↓	Scientific literacy	Decision making	Communi-cation	Self and society	Ethics and responsi-bility	Leader-ship and team-work	Aesthetic under-standing, creativity	Develop-ment of personal potential
Fundamental knowledge and skills	X							X
Scientific methodology	X	X					X	
Communication and teamwork skills			X			X	X	X
Citizenship, ethics, role of chemistry in society		X		X	X			X

While scientific literacy is clearly the dominant GE principle addressed in the Chemical Sciences curriculum, all of the other guiding principles are at least touched upon. Decision making is encountered in determining, for example, which route to take to synthesize a particular structure or which instrumental method to use to measure a property of interest, as well as in deciding when data are complete and convincing enough to allow a conclusion to be reached. Communication is taught and assessed through written laboratory and research reports as well as oral technical seminars. Leadership and teamwork skills are exercised through laboratory experiments and research performed in pairs or larger groups. “Self and society” and “Ethics

and responsibility" are addressed by discussing some of the challenges faced by modern society whose causes and/or solutions involve chemistry (ozone depletion, renewable energy). Creativity is an ingredient of most chemical research, where by definition one is trying to solve a problem that has not been solved before. Finally, successful performance in any rigorous academic discipline, including chemistry, requires development of the student's personal potential.

B. Program and School Goals

Solutions to many of humankind's most pressing problems, from fighting disease to creating sustainable energy sources, depend upon understanding natural processes. The academic and research programs in the School of Natural Sciences create the environment for excellence in student achievement and cutting edge research in the broad areas of life, physical and environmental sciences. George Whitesides, in his 2007 Priestley Medal address, states that "Chemistry is now the natural home of many of the most engaging problems in fundamental science and of the problems in applied science about which society cares the most." Examples include unraveling the chemical mechanisms of ozone depletion, the synthesis of exciting new materials for efficient solar energy capture and storage, the development of mass spectrometric methods for analyzing biological macromolecules, and the advancement of optical methods that can access details of life processes at the single molecule level. The fundamental nature of chemistry to other fields of science is recognized by the School's requirement that all Natural Sciences majors take at least one semester of chemistry. The Biological Sciences major requires three semesters and Earth Systems Science requires two semesters. All Chemical Sciences majors must also take one semester of biology, four semesters of math, and two semesters of physics. Additionally, a broad range of chemistry-based upper-division courses in other Natural Sciences disciplines may be used to satisfy elective requirements for the Chemical Sciences major, further demonstrating the integration of our program into the School as a whole.

C. Program and Course Learning Outcomes

The curriculum map below indicates the program learning outcomes to which each of our CHEM courses contribute. Only courses that are required for one or more emphasis tracks and/or have been offered as of Spring 2010 are included. (I = introduction, D = development, M = mastery.) Note that many of the skills we consider to be at the "introductory" level are introduced in required foundational courses in mathematics, physics, and writing.

CHEM course	Fundamental knowledge and skills	Scientific methodology	Communication and teamwork skills	Citizenship, ethics, role of chemistry in society
2 (Gen chem I + lab)	I	I	I	I
8 (Organic I + lab)	D	D	D	I
10 (Gen chem II + lab)	D	D	D	I
100 (Organic II)	M			I
101L (Synthetic lab)	M	D	D	D
111 (Biochem I)	D			I
112 (Quantum/ spectroscopy)	M			I
113 (Thermo/ kinetics)	M			I
114L (Physical/ instrumental lab)	M	D	M	D
115 (Instrumental analysis)	M			I
120 (Inorganic)	M			I
122 (Biochem II + lab)	M	D	D	D
147 (Materials lab)	M	D	M	D
95/195 (Research)	M	M	M	D
194 (Ethics & communication)			M	M

The emphasis of the program is on the fundamental knowledge and skills that are specific to the discipline. All of our chemistry courses except CHEM 194 address this outcome and most of the upper-division courses aim to develop mastery of a particular area of chemistry. The skills grouped under "scientific methodology", as well as communication and teamwork skills, are addressed mainly in laboratory and research courses and courses with a laboratory component. Communication is also addressed explicitly in the new CHEM 194. Citizenship and ethics are addressed occasionally in all of our courses and more often in laboratory-based courses, and explicitly in CHEM 194.

ASSESSMENT PLAN

(October, 2010)

CHICANO/A STUDIES MINOR

SCHOOL OF SOCIAL SCIENCES, HUMANITIES AND ARTD

UNIVERSITY OF CALIFORNIA, MERCED

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SECTION I: PROGRAM DESCRIPTION

The Minor in Chicano/a Studies, approved during the Spring of 2010 semester, is an interdisciplinary program that combines strengths and insights from Anthropology, Literature, History, Sociology, Spanish, and Writing. The program introduces students to the complex experiences, history, cultural practices, and social interactions of one of the largest ethnic groups in the United States. The program has been designed around conceptual and theoretical units that are central to Chicano/a Studies as a field. At the same time, we have developed those conceptual and theoretical units around current and anticipated faculty strengths, thus giving it a distinctive UC Merced flavor. The program thus maximizes the research interests and expertise for which our faculty is known, with direct ties to ongoing research projects in the field.

The UC Merced's *Minor in Chicano/a Studies* is organized around the following central questions that the program will explore from multiple disciplinary perspectives:

1. the role that race and ethnicity play and have played in shaping the experiences of different ethnic groups in the United States, with an emphasis on Chicanos/as;
2. the dynamics of migration and immigration, and the ensuing changes in identity, language, social and cultural practices, and national (or transnational) allegiances; we pay especial attention to the borderlands and its role in defining a Chicano/a identity over the years;
3. cultural contact and conflict in a historical context, including an in-depth examination of activism and its role in raising consciousness, political mobilization, building a sense of community, and advancing Chicano/a civil and human rights;

4. literature and the ways in which it reflects and advances social changes, produces artistic renditions of Chicano/a and non-Chicano/a life, facilitates a sense of community, and interacts with readers from different cultural backgrounds;
5. language, with special attention to bilingualism, the social and the artistic uses of mixing languages, as well as the tension between spoken and written versions of those languages;
6. the indigenous component of the Chicano/a identity; Chicanos/as are the descendants of multiple indigenous groups from present-day Mexico and the United States, and exploring that descent is central to our program.

Because the program is a minor with no associated major, student participation in research projects is not required, but we expect many of our students to collaborate in such ongoing faculty research programs as the Social Mobilization in California, Community Health in the San Joaquin Valley, Indigenous Migration, Chicano/a Literature Intertextual Database, and the Chicano/a Readers Oral Project, among others.

The minor in Chicano/a Studies will contribute to and complement student education in such existing majors as Anthropology, History, Literature, and Sociology, among others. In doing so, the minor will contribute to preparing students for advanced degrees and graduate studies in those and other fields. At the same time, the program will educate its graduates for professional employment in fields that require and/or can benefit from a nuanced understanding of the Chicano/a population, from Human Resources to Civic Service and/or to private research, among others.

SECTION II: ASSESSMENT PLAN

The minor in Chicano/a Studies is centered around six learning goals that we intend to assess during a six-year cycle. Our intent is to assess our learning outcomes in the order stated below (Section II, Part A) by working with students who will complete the minor in each of those years. For the purposes of the following timeline, we have considered the possibility that some students may complete the minor at the end of AY 2010-11, since some of the courses that count towards the minor have been offered in recent years. If no students complete the minor during AY 2010-11, we will proceed with the assessment plan in the same order listed below, but beginning in AY 2011-12.

PART A: TIMELINE & GOALS

The timeline for the Chicano/a Studies minor assessment plan will be five years. We expect to assess our program learning outcomes as follows:

- **Year 1** (2010-11): Outcome 6;
- **Year 2** (2011-12): Outcome 5;
- **Year 3** (2012-13): Outcome 2;
- **Year 4** (2013-14): Outcome 1;
- **Year 5** (2014-15); Outcome 4;
- **Year 5** (2015-16): Outcome 3.

The goals for the assessment of our program are the following:

- to examine our curriculum content;
- to improve curriculum, as needed;
- to examine skill development;
- to change pedagogy, as needed;

- to stimulate faculty discussion;
- to re-examine our program learning outcomes;
- to improve our assessment process.

PART B: OUTLINE OF PROGRAM LEARNING OUTCOMES

At the completion of the Chicano/a Studies minor, we expect students to have developed the proper critical and analytical skills to understand the many facets of the Chicano/a experience, as well as to discuss them verbally and in writing. In particular, our program learning outcomes are as follows:

- **Outcome 1:** Students will be able to identify and analyze (both verbally and in writing) Chicano/a cultural practices, including an understanding of their origins, historical development, and social contexts;
- **Outcome 2:** Students will understand the role that race, gender and ethnicity have played in defining Chicanos/as as a group, and they will be able to apply that knowledge to specific academic areas (e.g. literature, anthropology, etc.);
- **Outcome 3:** Students will be able to recognize and discuss internal differences within the Chicano/a group, and to relate those differences to processes of migration, diaspora, transnationalism, and other forms of geographical displacement, as well as to their indigenous roots in the Americas;
- **Outcome 4:** Students will understand the role that activism and struggle have played in building a Chicano/a consciousness;

- **Outcome 5:** Students will be able to recognize the main elements of a Chicano/a aesthetics, as manifested in literature and language, as well as in cultural practices and rituals;
- **Outcome 6:** For upper-division courses, students will be able to produce research papers exploring topics salient to Chicano/a Studies.

Since the minor consists of courses from multiple disciplines, the Program Learning Outcomes will not be published in the syllabi for those courses. The Chicano/a Studies minor Program Learning Outcomes will be published in the general university catalog as well as in the program's website.

PART C: EVIDENCE

- **Year 1** (2010-11): Outcome 6;

Direct evidence: Students will be asked to submit a portfolio of 2-3 research papers prepared for upper-division courses taken for the major.

Indirect evidence: Students will be interviewed to ascertain their experience as researchers in the field of Chicano/a Studies

- **Year 2** (2011-12): Outcome 5;

Direct evidence: Exams and/or class assignments in relevant courses will include appropriate questions to assess learning in this area. Scans or photocopies of exams and assignments will be kept for assessment purposes.

Indirect evidence: Students will write a reflective essay on how their work during the completion of the minor helped them achieve this learning outcome.

- **Year 3** (2012-13): Outcome 2;

Direct evidence: Portfolio. Students completing the last course of the minor will prepare a portfolio with those course assignments, term papers, exams, and any other documentation that shows their understanding of the role that race, gender, and ethnicity have played in defining Chicanos/as as a group, as well as their ability to apply that knowledge.

Indirect evidence: Students will write a reflective essay on how their work during the completion of the minor helped them achieve this learning outcome.

- **Year 4** (2013-14): Outcome 1;

Direct evidence: We will administer a pre-test at the beginning of our introductory mandatory course (LIT 060) with questions related to this outcome. The same questions will be embedded in the final exam in order to assess what students have learned in the semester. We will use similar pre- and post-test methodology to asses these PLOs in one related upper-division course.

Indirect evidence: Students finishing the minor will be asked to complete a survey.

- **Year 5** (2014-15): Outcome 4;

Direct evidence: We will administer a pre-test at the beginning of our introductory mandatory course (LIT 060) with questions related to this outcome. The same questions will be embedded in the final exam in order to assess what students have learned in the semester. We will use similar pre- and post-test methodology to asses these PLOs in one related upper-division course.

Indirect evidence: Students finishing the minor will be asked to complete a survey.

- **Year 6** (2015-16): Outcome 3;

Direct evidence: Portfolio. Students completing the last course of the minor will prepare a portfolio with those course assignments, term papers, exams, and any other documentation that shows their understanding of internal differences, geographical displacement, and the indigenous roots of Chicanos/as, as well as their ability to apply that knowledge.

Indirect evidence: An exit interview will assess student learning.

PART D: PROCESS

Student assessment will take place every year, during the Fall and Spring semesters. Assessment will include all students completing the minor during each semester. When enrollment in the major reaches such numbers that including all outgoing students in the assessment becomes impractical, then we will select a sample of students for the purpose of assessing learning outcomes. For details on year-by-year assessment, please see the preceding section (Section II, Part C).

PART E: PARTICIPANTS

The tasks of gathering evidence, assessing learning effectiveness and implementing necessary or desirable changes involve different constituencies in diverse ways, as specified below:

- **Evidence collection:** all of the faculty will assist in data collection by building a database of student work at a special UCMCROPS site. Students will also be in charge of collecting evidence, as noted in Section II, Part B (e.g., assembling portfolios with class work).

- **Data analysis:** Data analysis will be the charge of an elected program assessment committee and of the Faculty Assessment Officer (FAO). Their task will be to analyze the evidence collected each year and to produce a report. The report will be shared with all faculty participating in the program for such purposes as rethinking curriculum, pedagogies, and assessment methods.
- **Dissemination of results** will also be the task of the program assessment committee and the FAO.
- **Implementation of findings to improve student learning** will be initiated by the program assessment committee and the FAO, but it will be the ultimate responsibility of the program faculty at large.

SECTION III: ALIGNMENT OF GOALS AND OUTCOMES

PART A: PROGRAM AND INSTITUTIONAL GOALS/OUTCOMES

The goal of the Chicano/a Studies minor are perfectly aligned with those of the University of California, Merced (UCM). Our program shares with UCM's mission statement a commitment to fostering a sense of community bound by learning, discovery and engagement, as manifested in our curriculum's emphasis on multiple approaches to the study of Chicano/a issues, on research, and on the role of activism. We also share with UCM's mission statement our commitment to interdisciplinarity, networking across academic groups and community constituencies, and leadership development.

In addition, our goals and outcomes are perfectly aligned with UCM's eight guiding principles of general education, as the following illustration indicates:

1. Scientific Literacy: Scientific literacy plays an important part in the minor in Chicano/a Studies, as students are introduced to working with social-science research and some quantitative-driven research in the Humanities. Students are introduced early on in the minor (in our required lower-division course LIT 060) to such issues as statistics of population, selective and/or biased used of evidence (and the effect it has had on Chicano/a historiography, for instance) and similar issues of methodology.
2. Decision Making: Chicano/a Studies coursework involves decision making in multiple ways, from critical analysis of texts and contexts to evaluating and interpreting sources and evidence. In addition, our study of activism (cf. PLO # 4) amply illustrates our desire to have students consider in depth the causes and consequences of decision making from a historical point of view, which they can then apply to social issues affecting Chicanos/as nowadays.
3. Communication: All courses in the Chicano/a Studies minor have strong writing and speaking components. In particular, upper-division courses (80% of the minor) require advance communication skills for producing solid research arguments, and for communicating to diverse audiences and in diverse formats the knowledge learned in the Chicano/a Studies minor.
4. Self and Society: The Chicano/a Studies minor is constructed to reflect on and study major issues involving self and society, including identity, race, gender, and ethnicity variables (PLO # 2), internal differences (PLO # 3), community-building through either relocation (PLO # 3) and/or activism (PLO # 4), as well as a

historical understanding of how Chicano/a selves and groups have participated in the construction of social networks throughout the United States.

5. Ethics and Responsibility: Students in the Chicano/a Studies minor will master multiple ethical practices involved in a responsible approach to research in studying human groups. PLO # 6, in particular, stresses the need to train students for producing research papers in agreement with professional ethic standards. In addition, the contents of many of our courses highlight a myriad of ethical issues, including those associated with migration (PLO # 3) and struggle (PLO # 4).
6. Leadership and Teamwork: Many of the courses in the Chicano/a Studies minor train students for working with others and developing leadership skills. Moreover, through the necessary study of Chicano/a leaders and collective struggle, the value of working in teams and of stepping up to lead others are critically reinforced.
7. Aesthetic Understanding and Creativity: Several of our Program Learning Outcomes stress aesthetic understanding and the role of creativity in shaping-up the Chicano/a experience over the years. PLO # 1, for instance, states that students will understand before they finish the minor Chicano/a cultural practices, and PLO # 5 ensures that the students will recognize the main elements of a Chicano/a aesthetics in language, literature, rituals, cultural practices and art.
8. Development of Personal Potential: All of our program's learning goals contribute to the development of our student's personal, intellectual, and ethical potential. Trough the interdisciplinary curriculum in Chicano/a Studies, students from multiple disciplinary majors will be faced to consider diverse issues they may (or

may not) be familiar with from novel perspectives. This will contribute to making them well-rounded intellectuals.

PART B: PROGRAM AND SCHOOL GOALS

Our program shares the School of Social Sciences, Humanities and Arts (SSHA) commitment to exposing students to many different approaches to our understanding of human nature, as well as its emphasis on the value of interdisciplinarity and multidisciplinary research and learning. Our program brings together faculty from six different units within SSHA (Anthropology, History, Literature, Sociology, Spanish, and Writing) that bring their own disciplinary training and expertise to the program with a dedication to expanding the limits of each of those disciplines they represent.

PART C: PROGRAM AND COURSE (STUDENT) LEARNING OUTCOMES

The following Curriculum Map will serve to illustrate how our courses support the program's learning outcomes:

I=Introduction, D=Develop, M=Mastery at a level appropriate for graduation from the minor program.

Course	**Outcomes**					
	1	**2**	**3**	**4**	**5**	**6**
ANTH 110	I	D	D	I	I	M
ANTH 116	I	D	D	M	I	M
HIST 119	I	I	M	D	I	M
HIST 123	I	M	D	I	I	M
LIT 60	M	D	I	I	D	N/A
LIT 111	I	I	D	I	D	M
LIT 150	D	I	D	D	I	M
LIT 162	D	I	D	I	M	M

LIT 168	D	D	I	D	M	M
LIT 169	I	D	I	D	D	M
SOC 110	I	M	M	M	I	M
SOC 131	I	M	M	D	I	M
SOC 180	I	M	M	D	I	M
SPAN 180	Varies according to the topic					
WRI 140	I	I	I	I	D	M

Abstract describing changes in this revision

The following changes have been made in this revision of the 2009 Cognitive Science WASC document.

> Section 2, part A: The description of PLO 2, which was assessed this year, was revised
> Section 2, part G: This section was added, to describe our self-assessment.
> Section 3, part A: A table was added describing alignment between Cognitive Science Program Learning Outcomes and the Eight Guiding Principles of General Education.
> Section 3, part C: Based on discussion with cognitive science faculty, and recent revisions to syllabi to explicitly include PLO's, the curriculum map was updated. New courses were added and entries were revised.

Section I: Program Description

Cognitive science is an interdisciplinary field that combines theories and methods from computer science, linguistics, philosophy, psychology, and neuroscience. The overarching aim is to understand how cognition emerges within and between biological organisms and artificial systems. Some cognitive scientists conduct research in universities, and others pursue careers in areas as diverse as cognitive engineering, information sciences, management, law, intelligent systems, graphic and digital media design, and medicine.

UC Merced has six cognitive science faculty who teach cognitive science (COGS) courses: Evan Heit, Christopher Kello, Teenie Matlock, David Noelle, Michael Spivey, and Jeff Yoshimi. Paul Maglio is an adjunct faculty who teaches a service science course cross-listed between COGS and Management. The cognitive science program also has affiliate faculty in the School of Engineering and the School of Social Sciences, Humanities, and Arts (SSHA), where the program is housed. Affiliate faculty are involved in the cognitive science program through research collaborations that often include undergraduate and graduate students, and various course offerings relevant to cognitive science. The affiliate faculty are Stefano Carpin, Yarrow Dunham, Marcelo Kallmann, Paul Maglio (adjunct), Shawn Newsam, and Miguel Carreira-Perpinan.

UC Merced offers an undergraduate minor and major in cognitive science, and a Ph.D in Social and Cognitive Sciences. Plans are underway to develop a separate Ph.D in Cognitive Science, and an undergraduate honors program is being developed.

How does your program reflect current or emerging trends in your respective field?

Our cognitive science program has courses that cover a) various techniques in computational modeling at both behavioral and neural levels of analysis; b) dynamic and complex systems approaches to cognition; c) neurobiological methods and theories related to cognitive science; d) embodied and situated approaches to cognition; e) experimental cognitive linguistics; f) eye tracking and other sophisticated behavioral

methods; g) service science; h) experimental and modeling approaches to Bayesian reasoning and categorization; and i) robotics and computer vision. These are all current or emerging trends in cognitive science.

What is distinctive about your program?

Cognitive science programs vary widely in their emphases because the field is so interdisciplinary. Thus each program will tend to have a distinctive combination of experts and foci. At UC Merced, there are four emerging areas of research strength in the Cognitive Science program. Each area is multidisciplinary and designed to provide students with an educational base that is both broad and deep.

1. *Computation*, e.g., robotics (Carpin, Kallman), machine learning (Carreira-Perpinan, Newsam), Bayesian reasoning (Heit), neural networks (Noelle, Kello), dynamical systems (Yoshimi, Spivey), distributed cognition (Maglio), dynamics and complex systems (Kello, Spivey).
2. *Reasoning*, e.g., concepts (Heit), cognitive control (Noelle), artificial intelligence (Kallman), philosophy of mind (Yoshimi), problem-solving (Maglio)
3. *Perception*, e.g., computer vision (Newsam), spatial cognition (Matlock), visual attention (Spivey)
4. *Language*, e.g., psycholinguistics and cognitive linguistics (Matlock), sentence processing (Spivey), speech and reading (Kello)

A new growth area that will help make the cognitive science program unique is cognitive engineering, which includes human factors, user interface design, data visualization, digital media interaction, and information foraging. Cognitive engineering fits well at UC Merced because of its proximity to Silicon Valley and its associated opportunities for internships and various other opportunities for cognitive science students. No other UC cognitive science program emphasizes cognitive engineering. Another area of focus that is unique among the UC campuses is dynamics and complex systems approaches to cognition.

Do students collaborate on research projects or engage in other distinctive learning experiences?

Cognitive science faculty members have active research programs and labs in which undergraduates can get hands-on research experience. Some labs have two or three undergraduate members, while others have as many as 10-12 undergraduate members. Students participate in a variety of research activities, including reading and discussing journal articles, developing stimuli and protocols for experiments, collecting and analyzing experimental data, and co-authoring journal articles and conference presentations.

Undergraduate students are also invited to attend the Mind, Technology, and Society weekly talk series that is organized by cognitive science faculty, and sponsored by the Glushko-Samuelson Foundation. Researchers from California and beyond are brought in to give scholarly talks about their interesting new research findings.

How does your program prepare your graduates for further educational and/or professional development?

Cognitive science is a growing area of research in academics and industry, and there are a number of different professional career paths that a cognitive science student may pursue. Any path towards a cognitive science research career must begin with graduate school. UC Merced's cognitive science program prepares students for graduate school by providing them with research opportunities, and courses that bring them to the leading edge of cognitive science research. With respect to non-academic career paths, the program provides students with opportunities to hone writing skills, critical thinking skills, research design skills, and computer programming skills. More specifically, cognitive science research is often used in industry to improve cognitive aspects of technologies. UC Merced's cognitive science program helps prepare students for various kinds of "cognitive technology" jobs at companies like IBM, Google, and HP, as well as myriad other smaller companies that market products with complex human-computer interfaces.

Section II: Assessment Plan

Part A: Timeline and Goals

Cognitive Science faculty members expect to publish the program learning outcomes of the major in Cognitive Science at the start of the Fall 2009 semester. Faculty members will meet at the beginning of the semester to discuss procedures for data collection on student status and progress (see below), with the goal of compiling an initial assessment of student progress by the end of the semester. Initial results will be fed back to improve the data collection process, and to establish a baseline from which the effectiveness of UC Merced's cognitive science program can be assessed. The process will be refined in the Spring 2009 semester, including a second Faculty meeting at the beginning of the semester to discuss progress and issues.

Data will continue to be compiled and analyzed over the Summer of 2010, and a similar schedule will be followed for the 2010-2011 academic year. The faculty meeting at the beginning of the Fall 2010 semester will be used to review results from the previous year. At the end of the Spring 2011 semester, results will be compared from the 2009-2010 and the 2010-2011 academic years. These comparisons will serve to assess student progress and provide input to further revise and improve procedures and program learning outcomes.

Part B: Outline of Program Learning Outcomes

This section summarizes the program learning outcomes of the major in Cognitive Science. These program learning outcomes (PLOs) will be published on the Cognitive Science website (http://cogsci.ucmerced.edu), and on the cognitive science section of the UC Merced SSHA web site. The PLOs are:

1) Explain and apply knowledge of landmark findings and theories in cognitive science, and use that knowledge as context for understanding the current state of affairs. Evidence will be collected in the form of embedded test questions in COGS 1.

2) Have the following abilities relating to research design:

A) Ability to interpret / evaluate / synthesize information in research papers
B) Ability to design a cognitive science research project
C) Ability to write clearly and scientifically

3) Interpret and appreciate formal and computational approaches in cognitive science. Evidence will be collected in the form of embedded test questions in one or more computational modeling courses.

4) Take theoretical positions in cognitive science and argue for them or against them. Evidence will be collected in the form of an essay from one of the writing-intensive cognitive science courses.

5) Be able to use a cognitive science education outside of the undergraduate classroom, particularly in terms of employment and career development. Evidence will be collected in the form of student surveys.

Part C: Evidence

The particular kinds of evidence to be collected for each individual PLO are listed in the previous section. Collectively, they comprise embedded test questions, a written essay, a written lab report, and a student survey. Embedded questions and written assignments will be created by the faculty instructors who are primarily responsible for teaching the courses in which the questions or assignments are given. These instruments will be distributed via email to all cognitive science faculty members for feedback prior to usage.

Part D: Process

The questions, essay, and lab report will be collected as part of the normal cognitive science coursework. The relevant instructors will grade these instruments, and copies of materials will be given to SSHA staff. Staff will compile grades and results in a spreadsheet at the end of each academic year. At the end of the Fall semester of each year, the student survey will be distributed by SSHA staff to undergraduates who are within a semester of graduation. Distribution and collection of surveys will be done via email. SSHA staff will follow up survey requests over the course of each Spring semester, and compile them at the end of each academic year. Compiled data will be used to assess student progress and provide input to further revise and improve procedures and program learning outcomes. Improvements may include changes to the cognitive science curriculum.

Part E: Participants

All cognitive science faculty members will participate in the bi-annual WASC meetings. Instructors who collect PLO data in their courses will grade the relevant instruments. SSHA staff will compile student assessment data.

Part F: Cognitive Science Minor

The cognitive science minor will draw from the same PLOs as the cognitive science major. PLOs 1 and 5 may be applied to all students minoring in cognitive science: 1) Explain and apply knowledge of landmark findings and theories in cognitive science, and use that knowledge as context for understanding the current state of affairs; and 5) Be able to use a cognitive science education outside of the undergraduate classroom, particularly in terms of employment and career development. The other three PLOs may or may not apply to cognitive science minors, depending on whether take the relevant courses. All PLO data will be tagged to indicate whether it came from a student majoring or minoring in cognitive science (or another program).

Part G: Summary of self-assessment

Part A. Comprehensive List: Developed. Our PLO's are reasonable and well organized. National disciplinary standards have not been consulted and, though it remains unclear how these can be obtained, we could improve in this area. In future years we hope to make some effort to see what standard are.

Part B. Assessable Outcomes: Emerging. The experience of doing an assessment showed that this process clearly shows how outcomes can be made more assessable once one gets in to the details of an assessment. Thus, the remaining PLO's can no doubt be improved as they are assessed.

Part C. Alignment: Emerging. Thus far we have not given much thought to how to help students improve on an outcome, when they perform poorly with respect to that outcome. This is an area for future improvement. We plan to discuss as a faculty this prior to the next assessment.

Part D. Assessment Planning: Developed. We have a plan in place for assessment, but as with assessable outcomes, the experience of doing the assessment showed that how to implement assessment of a PLO becomes more clear once it's actually done. Thus once we complete all the assessments this category should be more highly developed.

Part E. The Student Experience: Developed. All syllabi now have explicit PLO's and are readily available in the catalog but not yet on the website. Also, the concept of a PLO is still fairly new and students are just becoming aware of them. They are not yet using them actively or self-assessing. We plan to discuss as a faculty this prior to the next assessment.

Section III: Alignment of Institutional and Program Goals/Outcomes

Part A: Program and Institutional Goals/Outcomes

In what ways does your program reflect institution-wide goals? For context, please consider UC Merced's Eight Guiding Principles of General Education, and / or UC Merced's Mission Statement that identifies our campus as a "student-centered research university."

UC Merced's cognitive science program exemplifies "student-centered research" because undergraduates (as well as graduate students) are involved in faculty research projects. Students also learn about cognitive science research by participating in behavioral experiments. Experiment participation (or completion of an alternate assignment) is a requirement of the introductory cognitive science course (COGS 1), and counts as extra credit in many other cognitive science courses. As for UC Merced's eight guiding principles, they are listed below with narratives describing how the cognitive science program is aligned with them.

Scientific Literacy (To have a functional understanding of scientific, technological and quantitative information, and to know both how to interpret scientific information and effectively apply quantitative tools)

The cognitive science program is one of the more technical, quantitative, and scientific programs in SSHA. Students have opportunities to learn computer programming, computational modeling, and statistical analysis (including software packages for the latter two). In many of the upper division courses, students read and analyze scholarly journal articles.

Decision Making (To appreciate the various and diverse factors bearing on decisions and the know-how to assemble, evaluate, interpret and use information effectively for critical analysis and problem-solving).

Cognitive science students learn to think critically about cognitive science theories and empirical results. They learn to formulate arguments for or against theories on the basis of empirical data. In computational modeling courses, they learn problem-solving techniques in building and debugging models.

Communication (To convey information to, communicate with, and interact effectively with multiple audiences, using advanced skills in written and other forms of communication)

Some of the upper division cognitive science courses (e.g. COGS 101: Mind, Brain, and Computation) require students to write literature reviews and critical essays on cognitive science research. COGS 101 also includes an oral presentation in class.

Self and Society (To understand and value diverse perspectives in both the global and community contexts of modern society in order to work knowledgeably and effectively in an ethically and culturally rich setting)

Cognitive science is highly interdisciplinary, and so requires students to view phenomena from diverse perspectives. Traditional academic "silos" separate these perspectives, sometimes with the unintended consequence of fostering hostility and mistrust across disciplines. Cognitive science students are taught to view the respective disciplinary theories and methods as complementary in their contributions to advancing cognitive science research.

Ethics and Responsibility (To follow ethical practices in their professions and communities, and care for future generations through sustainable living and environmental and societal responsibility)

Ethical issues are encountered in UC Merced's cognitive science curriculum in the context of experimentation with human participants, consciousness, and artificial intelligence. Cognitive science students participate as volunteers in cognitive science experiments, and also conduct such experiments with faculty members. Students learn about ethical conduct in a professional research setting, and those who conduct research must complete a human subjects training course. Research on consciousness and artificial intelligence raise deep ethical questions about sentience, emotion, and awareness.

Leadership and Teamwork (To work effectively in both leadership and team roles, capably making connections and integrating their expertise with the expertise of others).

Some cognitive science lab courses (e.g. COGS 105) include projects that students work on in pairs or small groups. In the course of working in faculty research labs, students observe their faculty mentors playing research leadership roles.

Aesthetic Understanding and Creativity (To appreciate and be knowledgeable about human creative expression including literature and the arts).

Creativity can be treated as a cognitive process like any other human behavior, and as such, it is perhaps the most mysterious cognitive process we know of. The question of creativity is often encountered in cognitive science courses, especially in the context of what separates human intelligence from animal intelligence and artificial intelligence. (This is not to say that the latter two lack any creativity; rather, students learn that creativity must be addressed in defining intelligence.)

Development of Personal Potential (To be responsible for achieving the full promise of their abilities, including psychological and physical well-being).

Students learn about the characteristics of healthy versus impaired or diseased cognitive systems, in terms of neurobiology as well as physiology. With regard to the latter, students learn about the theoretical approach termed "embodied cognition", which holds that cognitive processes are fundamentally founded on, and rely upon, bodily processes. Thus students learn about empirical evidence for the old adage "sound mind, sound body".

Table: A curriculum map representing the alignment between Cognitive Science Program Learning Outcomes and the Eight Guiding Principles of General Education

PLO	Scientific Literacy	Decision Making	Comm-unication	Self and Society	Ethics	Team-work	Aesthetics, Creativity	Personal Potential
1:Landmark Findings	X			X	X			
2:Experimental Design	X					X		
3:Computational	X							
4: Theory		X	X	X	X		X	
5:Use outside classroom				X		X		X

Part B: Program & School Goals

How does your program complement your School's identity and learning goals?

In UC Merced's Strategic Academic Plan DRAFT Version 5.0 (September 15, 2008), "Cognitive and Information Sciences" is highlighted as one of five research themes. To quote:

> The interdisciplinary study of cognition is information processing is emerging as a coherent and unifying theme for research, spanning the natural sciences, social sciences, engineering and even the humanities and arts. It includes computation, communication, complexity, education and management. Cognitive processes appear at diverse scales, from small circuits of brain cells to complex networked systems of interacting humans and software agents. Researchers are increasingly producing insights that reach across these scales, leading to whole new fields of inquiry, such as "computational linguistics," "service science," "neuroeconomics" and "cognitive engineering." There is also expanding interest in industry, ranging from the design of computer systems to the design of corporate practices. This creates an important, synergistic link to the field of management, where ever-quickening advances in sciences and technology demand increasingly sophisticated management and leadership skills. Research programs on information-systems management and decision sciences are a natural complement to those in cognitive and information sciences and reinforce the multidisciplinary character of this dynamic research theme. **UC Merced is particularly well-positioned to become an international leader in this domain. The university's youth provides a unique opportunity to establish support for this broad research theme before disciplinary barriers appear, as they have at established universities.**

Part C: Program & Course Learning Outcomes

How does your curriculum support your Program Learning Outcomes?

Curriculum Map illustrating the relationship between Program Learning Outcomes and program courses. I = Introduction, D=Develop, M=mastery at a level appropriate for graduation, V = Varies by course / content.

COGS Course	Program Learning Outcome				
	1	2	3	4	5
1: Introduction to cognitive science	I	I	I	I	I
5: Introduction to language and linguistics	I	I	I	I	I
90: Freshman seminar	I	I	I	I	I
95: Undergraduate research	I	I	I	I	I
98: Directed group study	I	I	I	I	I
103: Introduction to Neural Networks in Cognitive Science	D	D	M	I	M
105: Research methods for cognitive scientists	I	D	D	I	D
110: Philosophy of cognitive science	D	D	D	M	I
121: Cognitive psychology	M	M	I	D	D
123: Computational cognitive	D	D	M	D	D

neuroscience					
125: Introduction to artificial intelligence	I	I	D	D	D
128: Cognitive engineering	D	D	D	D	M
130: Cognitive neuroscience	M	M	I	D	D
140: Perception	M	M	I	D	D
144: Animal cognition	D	D	I	D	D
150: Language, cognition, and interaction	D	M	D	M	D
152: Services science and management	D	D	D	D	M
153: Judgment and decision making	M	M	I	M	D
154: Cognitive science applications for management	D	D	D	D	M
155: Language acquisition	D	D	I	D	D
159: Metaphor and thought	D	M	D	D	M
171: Memory and cognition	M	M	I	D	D
172: Thinking and reasoning	M	M	D	M	D
175: Spatial cognition	D	D	D	D	D
180: Topics in cognitive science	V	V	V	V	V
190: Advanced seminar in cognitive science	V	V	V	V	V
195: Upper division undergraduate research	V	V	V	V	M
198: Upper division directed group study	V	V	V	V	M
199: Upper division individual study	V	V	V	V	M

Faculty Accreditation Report

Computer Science and Engineering

March 2009

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Section I : PROGRAM DESCRIPTION - MAJOR AND/OR MINOR

The mission of the Computer Science and Engineering program at U.C. Merced is to provide a modern, comprehensive, and interdisciplinary educational experience to its students, with the objective of preparing them for both graduate study ad successful careers in the current and dynamically changing professional environment. To achieve this mission, the faculty of this program strive to accomplish the following educational objectives:

1. To provide a solid background understanding of the pertinent computer science, mathematical, and engineering concepts that make up the foundation of the discipline of computer science and engineering, and its closely associated fields;
2. To provide our students with the knowledge needed to correctly apply the laws of nature to the creative formulation and solution of engineering problems through the use of analytical, computational, and experimental techniques;
3. To educate students as independent thinkers who are prepared to work effectively with others, demonstrating an appreciation of the importance of continuing education, self-learning, and diversity in the workplace;
4. To instill a sense of community and ethical responsibility associated with the professional use of the knowledge acquired;
5. To expand the reach of computer science and engineering to non-traditional areas by continually seeking to incorporate new methodologies and research findings into our curriculum.

Section II: ASSESSMENT PLAN

The assessment of the outcomes above will be made through the analysis of a number of measures:

i. Student class portfolios, including exams, design projects, lab reports, computer simulations, and special assignments;
ii. Course evaluations;
iii. Senior exit interviews;
iv. Yearly faculty meetings with the Program Advisory Board (PAB), which is composed of academic, research, and industrial advisers, including representatives from major employers. These meetings are expected to provide feedback on how well our students are being prepared to enter jobs in academia, industry, research labs, and the government;
v. Yearly faculty meetings with the University Advisory Board (UAB), which is composed of faculty members from the U.C. system with specializations in computer science and engineering, as well as other disciplines, who share the vision of our Computer Science and Engineering program. These meetings are expected to provide corrective measures and new visions to our program.

II.1 Timeline & Goals

The data gathered through the assessment measures, above, will be compiled and analyzed to identify corrective measures and new directions for our program. A number of adjustments will be considered, including the modernization of laboratory and computational tools, removal of outdated courses and addition of new ones to the program in response to evolving new directions in computer science and engineering; change in prerequisites,co-requisites and/or partition of laboratory, design, lecture, and computational content in existing courses; rotation of instructors; etc.

II.2 Outline of PLOs

Upon graduation, we expect our students to demonstrate:

(a) An ability to apply knowledge of computing and mathematics appropriate to the discipline;

(b) An ability to analyze a problem and identify the computing requirements appropriate for its solution;

(c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs;

(d) An ability to function effectively as a member of a team in order to accomplish a common goal;

(e) An understanding of professional, ethical, legal, security, and social issues and responsibilities;

(f) An ability to communicate effectively with a range of audiences;

(g) An ability to analyze the local and global impact of computing on individuals, organizations, and society;

(h) Recognition of the need for and an ability to engage in continuing professional development;

(i) An ability to use current techniques, skills, and tools necessary for computing practice;

(j) An ability to apply mathematical foundations, algorithmic principles, and computer science theory to the modeling and design of computer-based systems in a way that demonstrates comprehension of the trade-offs involved in design choices;

(k) An ability to apply design and development principles in the construction of software systems of varying complexity

II.3 Evidence

The following measures will be used to assess the success of the CSE program in achieving the above Programmatic Learning Outcomes. (PLOs that are tested are included within the parentheses.)

1. Student work in formal courses. Specifics include the performance of CSE majors on the cumulative finals of four out of six core courses (CSE 100, 111, 120, 140, 150, 160) will be assessed by a panel of faculty. (PLO (a), PLO (b), PLO (c), PLO (i), PLO (k))
2. Student success after graduation, i.e. acceptance to graduate or professional school, or employment in a field that makes use of the student's education. Efforts will be made to track all graduates annually for at least several years after graduation and to request their feedback in a 5-year follow up survey. (PLO (d), PLO (e), PLO (f), PLO (i), PLO (j), PLO (k))
3. Student "culture" activities. Participation of students in extracurricular activities such as a service learning, volunteering at science fares, presentation of research results at University research days and conferences will be used to assess the overall health of the program and the ability of students to communicate and work in groups, as well as an indication of the research caliber of students. (PLO (d), PLO (e), PLO (f), PLO (h))

II.4 Process

2009-10 Academic year. During the summer of 2009 the CSE faculty will assess PLO by examining student final exams from the core CSE courses. This process will include the development of an assessment rubric. Since the core CSE graduate students are still small, it is expected that the faculty will review the work of all the students.

The following is a tentative future projection of programmatic reviews.

2009-2010 Academic year. During the summer of 2010 the faculty will assess the PLO's (a)-(e).

2010-2011 Academic year. During the summer of 2011 the faculty will assess the Research Proficiency PLO's (f)-(k). This will give us a chance to review the thesis program after two years of operation.

2011-2012 Academic year. During the summer of 2012 the faculty will assess the all aspects of PLO's

II.5 Participants

All CSE faculty are expected to participate in the annual retreats to review and update program requirements and expectations. One faculty member will be elected by the group to coordinate this effort.

II.6 Minor

There is no CSE minor as of now (2009 academic year).

Section III : ALIGNMENT OF INSTITUTIONAL AND PROGRAM GOALS/OUTCOMES –

III.1 Part A: Program and Institutional Goals/Outcomes

Guiding Principle → Learning Outcome ↓	Scientific literacy	Decision making	Commun-ication	Self and society	Ethics and responsi-bility	Leader-ship and team-work	Aesthetic under-standing, creativity	Develop-ment of personal potential
PLO (a)	X	X						X
PLO (b)	X	X						X
PLO (c)	X	X	X			X		X
PLO (d)				X	X	X	X	
PLO (e)				X	X	X	X	
PLO (f)			X	X				
PLO (g)				X		X		
PLO (h)				X				X
PLO (i)							X	X
PLO (j)							X	X
PLO (k)							X	X

III.2 Part B: Program & School Goals (as applicable)

The CSE program supports and realizes the university's Eight Guiding Principles of General Education. For many of the Guiding Principles, this alignment is quite obvious --- clearly, all CSE classes address Scientific Literacy and Decision Making. (See the curriculum map below for more detail.) Here we comment on two of the less obvious connections.

(i) The CSE PLOs support the Guiding Principle of "Aesthetic Understanding/Creativity". One cannot learn the basic theory of computation without marveling at the intrinsic elegancy of these ideas, as well as the beauty of the algorithms needed to express and utilize these principles.

(ii) The CSE major requires that students complete a service learning course. This project touches on all eight of the Guiding Principles. For example: by presenting their thesis research, both in writing and orally, students develop "Communication" skills; by working in research groups (particularly for experimental research), students learn the importance of "Leadership and Teamwork"; furthermore, faculty will guide students on the appropriate "Ethics and Responsibility" of CSE research; perhaps most importantly, the work necessary to complete a senior thesis, and the accompanying pride and satisfaction, will help students in the "Development of their Personal Potential".

III.3 Part C: Program & Course (Student) Learning Outcome

Computer Science Engineering Course	PLO(a)	PLO(b)	PLO(c)	PLO(d)	PLO(e)	PLO(f)	PLO(g)	PLO(h)	PLO(i)	PLO(j)	PLO(k)
CSE020: Introduction to Computing I	x	x	x		x			x	x		
CSE021: Introduction to Computing II	x	x	x	x	x			x	x		
CSE030: Introduction to Computer Science and Engineering I	x	x	x		x			x	x		x
CSE031: Introduction to Computer Science and Engineering II	x	x	x	x	x		x	x			x
CSE120: Software Engineering				x	x	x	x	x	x	x	x
CSE140: Computer Architecture						x		x	x	x	
CSE170: Computer Graphics						x		x	x		
CSE176: Machine Learning						x		x	x	x	
CSE100: Algorithm Analysis and Design						x		x	x	x	
CSE160: Computer Networks						x			x	x	
CSE175: Introduction to Artificial Intelligence						x		x	x	x	
CSE185: Introduction to Computer Vision						x		x	x	x	

FACULTY ACCREDITATION REPORT

EARTH SYSTEMS SCIENCE, B.S.

SCHOOL OF NATURAL SCIENCES

January 28, 2009

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SECTION I: PROGRAM DESCRIPTION

The undergraduate major (B.S.) in Earth Systems Science is designed to provide students with a quantitative understanding of the physical, chemical and biological principles that control the processes, reactions and evolution of the Earth as a support system for life. Emphasis is given to the interactions between biological systems and physical Earth processes. Core courses within the major provide students with a firm foundation in the fundamentals of chemistry, biology, hydrology, ecology and Earth sciences, while emphasis areas allow students the flexibility to pursue disciplinary areas in more depth. This major emphasizes a highly interdisciplinary approach to Earth Systems Science, incorporating field studies, laboratory experiments and computations. Coursework in the social sciences exposes students to the political, economic and societal implications of human interactions with the environment.

Graduates of this major will have a strong background in the theory and application of Earth Systems Science, and the ability to apply their knowledge to diverse subjects. They will be well prepared for either graduate studies or jobs in the areas of environmental conservation, ecosystem and natural resource management and science, and aspects of agricultural sciences. Additionally, Earth Systems Science is an excellent foundation for professional careers in law, policy and administration that involve the environmental sciences. This major responds to the need to prepare a future workforce with both foundational science training and practical ability to solve and manage complex environmental problems and sustainable resources in an increasingly interdisciplinary and interconnected world.

Unique aspects of the Earth Systems Science major are its breadth and flexibility, and coursework that emphasizes the application of fundamental science concepts to current environmental challenges. Lower division coursework emphasizes foundational courses in

physical, chemical, biological, and Earth system sciences, and mathematics, with a choice of a lower division elective science course. Upper division requirements consist of five core courses that provide students with a balance of key physical, chemical and biological concepts in Earth Systems Science, and exposure to environmental science and policy, and economics. In the upper division, students select three courses from within an emphasis area for more in-depth study and to tailor their program to their individual interests. An upper division seminar highlights the latest research in interdisciplinary Earth Systems Science topics. Many courses in the program contain laboratory, field, or computer-based components. Students are required to participate in research, internship, or service learning as part of their undergraduate studies. Additionally, the UC Merced Sierra Nevada Research Institute, through its partnerships with Yosemite and Sequoia/Kings Canyon National Parks, the U.S. Forest Service, and other agencies, provides undergraduate opportunities for internships, summer jobs, and research experiences. The location of UC Merced in the San Joaquin Valley near the Sierra Nevada offers a diverse real-world laboratory for studying the natural environment and how it is affected by human activity.

SECTION II: ASSESSMENT PLAN – MAJOR AND/OR MINOR

Part A: Timeline & Goals

The current Earth Systems Science (ESS) undergraduate degree program was originally developed as one of the first majors in the School of Natural Sciences at UCM by founding faculty during 2003-2004 AY. From its inception, it was recognized that ESS would be modified and evolve as new faculty were hired. Over the last several years, faculty have been added in all three schools that have a broader range of expertise in environmentally related areas than covered by the original founding faculty. One of the current challenges to delivery of the

existing major is that several of the required and elective courses are taught by faculty who hold appointments in schools other than Natural Sciences. Our current school-based structure does not provide an organizational or resource mechanism for the delivery of cross-school undergraduate majors. However, there is a strong pedagogical basis, given the interdisciplinary nature of the ESS program, to include faculty beyond Natural Sciences as core participants in the major, and to formalize their contribution to the formulation and delivery of the major.

Faculty supporting the ESS major are undertaking a review of the program in Spring 2009 to assess the current pedagogical scope, to formulate programmatic changes that take advantage of the expertise of faculty across the university, and to better define and reinforce program learning objectives (PLOs). The PLOs and assessment plan described below will be updated as faculty implement program changes. The goals for the next five years are to evolve the ESS major such that:

-- Coursework and undergraduate experiences required for the major have the appropriate breath and depth for the interdisciplinary subjects associated with Earth systems;

-- Students exhibit knowledge and skills by graduation that demonstrate a mastery of the core pedagogy;

-- The ESS major is formally supported by a sufficient number of core faculty to deliver required and elective courses;

-- The program is distinguished from other majors (such as Environmental Engineering or Biology) even through these programs may share (i.e., cross-list) courses.

Part B: Outline of PLOs

Upon graduating, we expect students from the Earth Systems Science B.S. program to have achieved the following learning outcomes:

1. Foundational knowledge of physics, chemistry, biology, and mathematics related to Earth systems that supports a working knowledge of basic research methodologies, data analysis, and interpretation for a variety of Earth-related data.
2. Knowledge of major concepts, theoretical principles, experimental findings, and areas of study related to Earth systems science, and comprehension of the interactions between natural Earth systems and human economic, political, and social systems.
3. An ability to employ critical thinking, quantitative and numerical analyses, and hypothesis-driven methods of scientific inquiry in the formulation of research questions, experimental design, application and use of laboratory and field instrumentation, and analysis and interpretation of data related to Earth systems.
4. Effective written and oral communication skills, especially the ability to transmit complex technical information.
5. An ability to work effectively individually and in teams in classroom, laboratory, and field settings.

The PLOs will be posted on the web page describing the Earth Systems Science major, and will be added to the major description and check sheets given to students by undergraduate advisors starting in Fall 2009.

Part C: Evidence

Courses required for the ESS major incorporate most or all of the elements of the PLOs in their curriculum (Table 1). For example, ESS 100 and ESS 148 incorporate lab and/or field experiences that involve field measurements (PLO 3), written reports (PLO 4), and student teamwork (PLO 5). Likewise, ESS 141 (Environmental Science and Policy) aligns strongly

Table 1. Curriculum map representing the alignment between the Earth Systems Science Program Learning Outcomes and the required core courses for the major. I=Introduction, D=Develop, M=Mastery at a level appropriate for graduation.

Course	PLO				
	1	2	3	4	5
ESS 1	I	I	I	I	I
ESS 70	D	D	D	D	D
ESS 100	D,M	D	D, M	D	D
ESS 110	D,M	D	D, M	D	D
ESS 120 or ESS 148	D,M	D	D	D	D
ESS 141		D,M	D	D, M	D, M
ESS 180 or ENGR 180	D,M	D	D, M	D	D
ESS 190		M		D	
Upper division emphasis track courses	D, M varies by course				
Research or Service Learning	M	M	D, M	D, M	D, M

Key: ESS 1: Introduction to Earth Systems Science; ESS 70: Soil Foundations of Terrestrial Ecosystems; ESS 100: Environmental Chemistry; ESS 110: Hydrology and Climate; ESS 120: Geomicrobiology; ESS 148: Fundamentals of Ecology; ESS 141: Environmental Science and Policy; ESS 180: Field Methods in Earth Systems; ENGR 180: Spatial Analysis and Modeling; ESS 190: Undergraduate Seminar.

with PLOs 2 and 4. In order to assess how well students are achieving the PLOs, we will review random samples of student coursework associated with specific PLOs in core courses. For example, the effectiveness of PLOs 1 and 2 will be assessed by reviewing exams from the required courses; PLO 3 by lab and field exercises in ESS 100 and ESS 148; PLO 4 by written assignments from ESS 141 and other courses with writing elements; PLO 5 by group field reports and exercises from ESS 148 and ESS 100. Coursework from these and other ESS courses will be selected based on input from the course instructor on how different coursework activities relate to each PLO. In addition, we will conduct exit interviews with graduating seniors. Through personal interviews with faculty, a set of standardized questions will be asked that will assess whether their overall experience in the major has enabled them to achieve each PLO. Also, questions will assess how well they think specific learning activities in the required

core courses and elective courses for the major have led to a mastery of a PLO. Standardized questions will be generated by the ESS faculty with help from the Center for Research on Teaching Excellence (CRTE). In addition, we will review data from the University Graduating Senior Survey to assess the overall student experience with regard to the PLOs.

The information gathered during student assessment will be reviewed by ESS faculty, in consultation with CRTE staff, and used to revise program requirements, or communicated directly to course instructors if specific gaps or poor performance related to PLOs are identified. Given that our program size is currently small, and that we are in the process of making revisions to the current major, information gathered over the next 1-2 years can be used immediately to make program or curriculum changes.

Part D: Process

We will begin exit interviews with graduating students and gather data from the university survey in Spring 2009 when our first ESS majors graduate. We will review one PLO per year for the next five years by gathering representative coursework material from instructors in summer 2009 from the prior fall and spring semesters. Assessment of materials will occur in fall semester, and results communicated to the ESS faculty and course instructors at the end of fall semester. At the beginning of spring semester, ESS faculty will discuss and implement any program changes in response to the assessment in time for the catalog change deadline (usually around March 1).

Part E: Participants

Although the core faculty currently associated with the ESS major are in the School of Natural Sciences, faculty teaching courses in the ESS major are housed in all three schools. Given that our organizational structure may change over the next several years, the ESS faculty

will form a coordinating committee (3-4 members) to lead the assessment. The committee will work with staff from the CRTE, the advising staff in Natural Sciences, and other school and university support staff to design interview questions, gather data, review student coursework, and assess PLOs. They will meet with all faculty teaching ESS (or cross-listed) courses to disseminate information and discuss program changes.

Part F: Minor

This program does not currently have a minor.

SECTION III: ALIGNMENT OF INSTITUTIONAL AND PROGRAM GOALS/OUTCOMES

Part A: Program and Institutional Goals/Outcomes

The ESS program strongly embraces the institution-wide goals articulated in UC Merced's Guiding Principles (Table 2). As an interdisciplinary science major, there is a dual emphasis on foundational science knowledge and quantitative skills, together with connections between

Table 2: A curriculum map representing the alignment between the Earth Systems Science Program Learning Outcomes and the Eight Guiding Principles of General Education.

PLO	Scientific Literacy	Decision Making	Communi-cation	Self & Society	Ethics & Responsi-bility	Leadership & Teamwork	Aesthetic Understand-ing Creativity	Develop-ment of Personal Potential
1	x							
2	x			x	x			
3	x	x						
4			x					
5						x		x

science and society, communication to non-scientists, and individual and teamwork activities. The program emphasizes interconnections between the natural world and human society, and the importance of a sustainable approach to resource consumption.

Part B: Program & School Goals (as applicable)

The ESS major requires student to achieve a strong foundational knowledge in basic sciences, which is the core of all undergraduate programs in the School of Natural Sciences. The school philosophy stresses the importance of connecting science principles to processes and problems in the real world, and of teaching students to solve problems and implement solutions with technological tools. The school also recognized the importance of sustainability and environmental stewardship, and the connection between humans and the natural world. The ESS major embodies all of the elements articulated in the school's philosophy in its academic program.

Part C: Program & Course (Student) Learning Outcomes

Table 1 above maps the required upper division courses to the PLOs. In addition to these courses, lower division coursework in calculus, chemistry, physics, biology, and Earth systems directly supports PLO 1, and introduces students to PLO 2. The three upper division courses taken to fulfill emphasis tracks may be from ESS, but students have the flexibility to take a number of courses from ESS, BIO, or ENVE for this requirement. In general, these courses support PLOs 1-3; many of them contain written assignments and oral presentations (PLO 4) and often involve teamwork activities in the classroom, lab, and/or field (PLO 5). Students are required to participate in research and/or service learning, which enables them to work directly with faculty and their research groups, and reinforces PLOs 3, 4, and 5.

University of California, Merced

Environmental Engineering B.S. Program

Assessment Plan

April 19, 2010

DRAFT

I. PROGRAM DESCRIPTION

The degree conferred by this undergraduate program in the School of Engineering is the Bachelor of Science in Environmental Engineering. No distinction is made among the different optional courses or tracks of study followed.

The undergraduate major in Environmental Engineering prepares students for careers in both industry and government agencies concerned with managing water, energy, public health and the environment. The program is also a good foundation for further study in Earth science, engineering, business, management, law and public health. The curriculum provides students with a quantitative understanding of the physical, chemical and biological principles that control air, water and habitat quality and sustainability on Earth, along with expertise in the design, development, implementation and assessment of engineering solutions to environmental problems.

Environmental engineers are distinguished from other environmental professionals through their focus on problem solving, design and implementation of technological or management systems. Environmental engineers search for creative and economical ways to use resources efficiently, limit the release of residuals into the environment, develop sensitive techniques to track pollutants once released and find effective methods to remediate spoiled resources. They serve as the vital link between scientific discovery, technological development and the societal need for protecting human health and ecological integrity. In the coming decades, environmental engineers will increasingly be called upon to address broader issues of environmental sustainability by minimizing the release of residuals through altered production processes and choice of materials; by capturing the resource value of wastes through recovery, recycling and reuse; and by managing natural resources to meet competing societal objectives.

UC Merced emphasizes a highly interdisciplinary approach to environmental engineering, combining a strong theoretical foundation with field studies, laboratory experiments and computations. Core courses within the major provide students with a firm foundation in the physical and life sciences and the ways that they apply to energy, hydrology, air and water quality issues. Emphasis areas allow students the flexibility to study in more depth by following tracks developed in consultation with their academic advisor(s). The main areas of emphasis for Environmental Engineering at UC Merced are hydrology, water quality and air pollution and sustainable energy.

Hydrology: focuses on the sources, balance and use of water in both natural and managed environments, including precipitation, mountain snowpack, river runoff, vegetation, water use and groundwater. Both the physical and chemical aspects of the water cycle are included.

Water quality: focuses on engineering solutions to water and waste issues, including measurement technology, water quality assessments, treatment systems and remediation of contaminated waters. Physical, chemical and biological aspects are included.

Air pollution and sustainable energy: focuses on engineering solutions to air quality and energy problems, both regionally and globally. The sources, fate, effects of air pollutants, as well as the planning and design of solar and other renewable energy systems are included.

The program includes service learning components designed to engage students in the solution of real-world problems in their community. The team projects resemble those found in actual engineering practice, with increasing responsibility as students progress through the program.

Engineers need to understand not only the technical but also the social and political contexts of their work. They must be able to communicate, and to plan, finance and market their products and ideas. Social sciences, business, humanities and arts courses are an important part of the curriculum. The result is a major that is hands-on and creative, engaging and adaptable.

II: ASSESSMENT PLAN

A. Environmental Engineering Program Assessment Timeline

The EnvE program assessment plan includes continual course and program level assessment vehicles culminating in a periodic self-evaluation and review by the Accreditation Board for Engineering and Technology (ABET). The Program Learning Objectives (PLOs) to be evaluated are described in section B. These PLOs are directly relatable to the ABET criteria or required educational outcomes (see Table B.1); therefore, by satisfying the ABET criteria, the EnvE program will comply with WASC criteria.

It is the goal of the EnvE faculty to have the assessment plan outlined below in place and ready for evidence gathering in time for the 2010-11 academic year. By the end of the following year (AY 2011-12), we expect to have the plan refined and will begin collecting data for our self-evaluation. We anticipate an ABET site visit for formal evaluation in late spring 2013 or 2014, depending on the assessment and progress on near-term faculty hires.

B. Environmental Systems Program Learning Objectives (PLOs)

Program Learning Objectives (PLOs) are broad statements that describe the career and professional accomplishments that the UCM Environmental Engineering (EnvE) program is preparing graduates to achieve. The UCM EnvE faculty, through consultation with its constituents (students, faculty, alumni, and External Advisory Board), has developed the following list of PLOs:

1. **Fundamental Knowledge**: EnvE graduates will have gained a strong foundation in basic mathematics, science, social science, humanities and arts, along with engineering principles, enabling active engagement as citizens in their communities.
2. **Critical Thinking**: EnvE graduates will be adept at applying critical thinking, problem solving, engineering principles and reasoning, the scientific method, and teamwork to solve environmental resource problems and to restore and sustain the global environment.

3. **Design Skills**: EnvE graduates will be prepared for advanced studies and research and/or employment advancement in a broad spectrum of industries and government agencies.
4. **Professional Skills**: EnvE graduates will communicate effectively in written, spoken, and visual formats with technical, professional, and broader communities.
5. **Ethics**: EnvE graduates will practice engineering according to the highest professional standards, demonstrating respect for social, ethical, cultural, environmental, economic, and regulatory concerns.
6. **Lifelong Learning**: EnvE graduates will be instilled with a desire to pursue life-long learning opportunities including continued education, professional licensure, challenging professional experiences and active participation in professional organizations.

The EnvE PLOs are available for review by prospective and current students in the UCM Catalog and on the School of Engineering website.

Table B.1 – Mapping of UCM EnvE ABET-based educational outcomes onto general program learning objectives (PLOs).

	1. Fundamental Knowledge	2. Critical Thinking	3. Design Skills	4. Professional Skills	5. Ethics	6. Lifelong Learning
UCM outcomes (ABET-based):						
a. Understand and apply the basic mathematical and scientific concepts that underlie the modern field of Environmental Engineering	X	X				
b. Possess the ability to design and conduct experiments and to analyze and interpret data		X	X			
c. Possess the ability to meaningfully contribute to major EnvE design projects		X	X			
d. Be capable of working productively with others as part of a team			X	X		
e. Possess criticl thinking skills, problem solving abilities, and familiarity with the computational procedures essential to the field	X	X	X			
f. Understand the professional and ethical responsibilities of their profession				X	X	X
g. Possess effective oral and written communication skills				X		
h. Have an appreciation for the scope, complexity, elegance, and importance of EnvE and its impact on society					X	
i. Have the skills and motivation for continuing education and professional growth (life-long learning)						X
j. Maintain an awareness of contemporary issues and will contribute to the well-being of their communities					X	X
k. Possess the ability to use knowledge, skills, and modern engineering tools necessary for engineering practice		X	X			

C: Evidence

The PLOs (or ABET criteria) for the EnvE program must be consistent with, and will be assessed according to, the best practices devised by the Accreditation Board for Engineering and Technology (ABET). The lines of evidence for this are predominantly to be found within the courses delivered by the UCM faculty, particularly within the School of Engineering. Table C.1

summarizes the mapping of ABET outcomes onto required courses in the EnvE curriculum. The methods for assessing these outcomes are discussed below.

Table C.1 – EnvE required coursework mapping to PLO/ABET (numbers denote contribution to outcome: 0 = insignificant, 1 = some, 2 = moderate, 3 = strong; shaded outcomes are directly assessed in the course).

	ABET outcomes (see Table B.1 for equivalent PLO)										
Course number	**a**	**b**	**c**	**D**	**e**	**F**	**g**	**h**	**i**	**J**	**k**
CSE 20	2	1	0	0	3	1	0	0	1	0	3
CSE 21	2	1	0	0	3	1	0	0	1	0	3
Engr 97/197 Service Learning	1	2	2	3	2	3	3	1	3	3	2
EnvE 20 Introduction to EnvE	3	1	2	2	2	1	3	3	1	1	2
Engr 45 Introduction to Materials	3	0	0	0	2	0	0	0	0	0	3
Engr 57 Dynamics	3	0	0	0	2	0	0	0	0	0	3
Engr 65 Circuit Theory	3	2	0	0	2	0	0	0	0	0	3
Engr 120 Fluid Mechanics	2	2	2	1	3	0	1	1	0	0	2
Engr 130 Thermodynamics	2	2	2	1	3	0	1	1	0	0	2
Engr 151 Strength of Materials	2	0	1	1	2	2	1	1	1	2	3
Engr 155 Engineering Economics	2	0	1	1	2	2	1	1	1	2	3
Engr 180 Spatial Analysis	2	0	1	1	3	2	1	3	1	2	3
EnvE 100 (L) Environmental Chemistry	3	3	1	1	3	1	2	3	3	2	3
EnvE 110 Hydrology & Climate	3	2	2	1	3	1	2	3	3	2	3
EnvE 130 Air Pollution & Meteorology	3	2	2	1	3	1	2	3	3	2	3
EnvE 160 Renewable Energy	3	2	2	1	3	1	2	3	3	2	3
Engr 191 Professional Seminar	1	0	1	2	1	3	2	3	3	3	1
EnvE 181 (F) Field Subsurf Hdyrology	2	3	2	3	2	2	3	2	2	2	3
EnvE 183 (F) Field Snow Hydrology	2	3	2	3	2	2	3	2	2	2	3
EnvE 105 (L) Environ. Data Analysis	3	3	2	1	3	1	2	2	2	1	3
EnvE 112 (D) Subsurface Hyrdology	3	2	3	2	3	2	2	2	2	1	3
EnvE 114 (D) Mountain Hydrology	3	2	3	2	3	2	2	2	2	1	3

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EnvE 118 (D) Global Change	3	3	2	1	3	1	2	2	2	1	3
EnvE 132 (D) Air Pollution Control	3	2	3	2	3	2	2	2	2	1	3
EnvE 152 (L) Remote Sensing	3	3	2	1	3	1	2	2	2	1	3
EnvE 155 (D) Environ. Res. Mngmnt.	3	3	2	1	3	1	2	2	2	1	3
EnvE 162 (D) Remote Sensing	3	3	2	1	3	1	2	2	2	1	3
EnvE 170 (D) Mass Transfer Environ.	3	2	3	2	3	2	2	2	2	1	3
EnvE 171 (D) Environ. Org. Chem.	3	2	3	2	3	2	2	2	2	1	3
EnvE 176 (D) Water & Wastewater	3	2	3	2	3	2	2	2	2	1	3

Required courses for all EnvE	
Required fundamental courses (19 units)	
At least one field labs is required	
Technical electives 2 design experiences (D) and one lab (L) (14 units minimum)	

The course- and program-based outcome assessment (and ongoing improvement) plan is best characterized as a dual-looped plan, as shown in Figure C.1. The inner loop involves development of individual course content supporting and assessed for the outcomes as specific in Table C.1. Lines of evidence at the course level will include:

(1) Course and instructor evaluations administered by UCM
(2) Course survey questions pertaining to the major PLO/ABET outcomes in Table C.1
(3) Course content, such as syllabi, problem sets and specific exam questions pertaining to PLO/ABET outcomes

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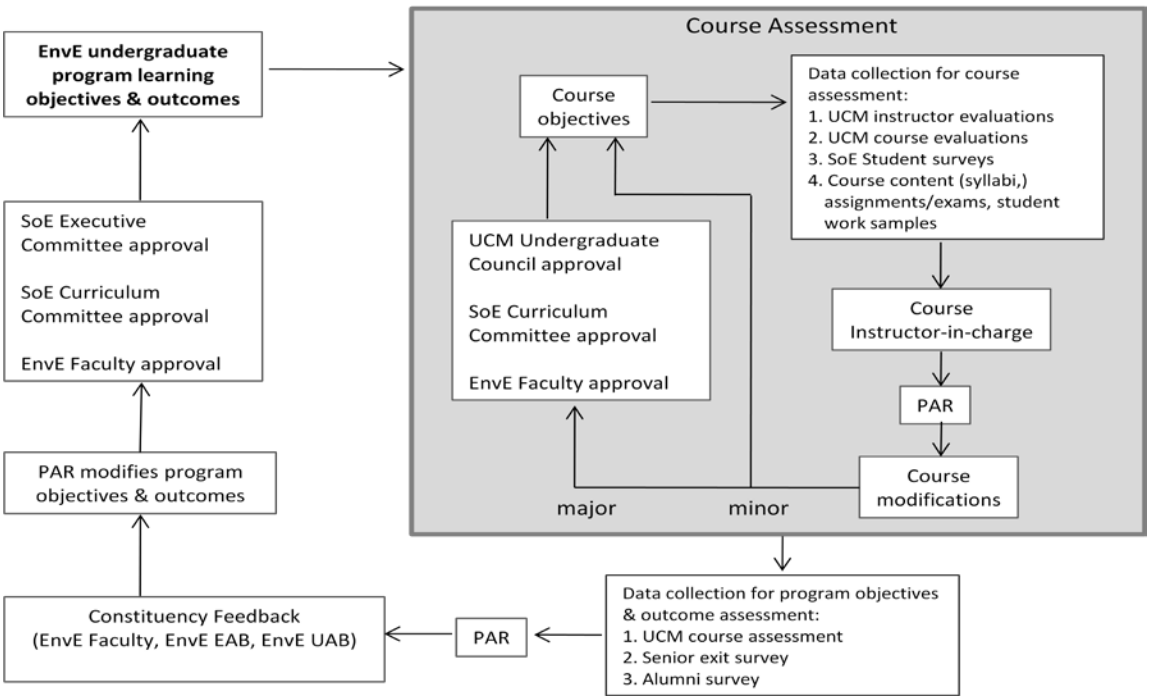

Figure C.1 – Diagram of the EnvE Program assessment process for UC Merced School of Engineering (shaded box is course-level assessment, set within the program assessment; PAR is Program Assessment Representative).

The program-level assessment overlies the course-level assessment and requires longer-term assessment vehicles, including:

(4) Summaries of UCM course and PLO-related student surveys (over multiple offerings)
(5) Senior exit surveys (annually)
(6) Feedback from an UAB (Undergraduate Advisory Board) (annually)
(7) Feedback from an EAB (External Advisory Board) (biennially)
(8) Alumni surveys (on a 4-year cycle)

The key faculty in the assessment plan is the Program Assessment Representatives (PAR, equivalent to the UCM FAO), who is the EnvE faculty member charged with insuring that (1) the instructors-in-charge deliver and assess the desired PLOs/ABET material in their course, (2) the assessment components are implemented and evidence analyzed and reported upon on the schedule noted above, and (3) any deficiencies identified via the assessment vehicles are addressed in a timely manner, and all course and program-level modifications remain consistent with the PLOs/ABET outcomes.

D. Process

A timeline for implementing the assessment plan for the PLOs/ABET outcomes described above is summarized in Table D.1. As noted above, the key faculty in this process is the PAR. As can be seen from the table, the EnvE program has made some progress in developing their assessment plan, but more development is needed in the near-term to put the program level

assessment plan in place. In some cases, however, slight modifications are necessary to ready these vehicles for the assessment of other PLOs.

Table D.1 – Timeline for line of evidence gathering for Environmental Engineering.

PLO line of evidence	Develop vehicle (by whom)	Data gathering/analysis
Course-Level:		
(1) Course and instructor evaluations administered by UCM	UCM	In place (UCM)
(2) Course PLO-related surveys	PAR and EnvE faculty	Fall 2009 (faculty, PAR)
(3) Course content	Instructor and PAR	Fall 2009 (PAR and SoE CC)
Program-Level:		
(4) Summaries of UCM course and PLO-related student surveys (over multiple offerings)	SoE Admin + PAR	Spring 2010 (PAR and SoE CC)
(5) Senior exit surveys (annually)	PAR, SoE Chair, Vice-Chair	Spring 2010 (PAR and faculty)
(6) Feedback from an UAB	PAR and EnvE Faculty	Fall 2010 (PAR and faculty
(7) Feedback from an EAB	EnvE faculty and PAR	Fall 2010 (PAR and faculty
(8) Alumni surveys (on a 4-year cycle)	SoE Admin, CC, PAR	Spring 2011 (PAR and faculty)

* Curriculum Committee

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E. Self-Assessment Using WASC Rubric

Comprehensive list: Highly Developed. Our list of PLOs is comprehensive and encompasses the broad scope of student learning we expect from our majors, and the EnvE faculty has agreed on explicit criteria for assessing students' level of mastery of each outcome.

Assessable outcomes: Developed. While our faculty has agreed on explicit criteria statements, and we have identified examples of student performance at varying levels for each outcome, we need to develop rubrics for evaluating student performance with respect to learning outcomes.

Alignment: Developed. The EnvE curriculum is designed to provide opportunities for students to learn and to develop increasing sophistication with respect to each outcome. We are currently revisiting the engineering design aspects of the curriculum in order to better thread grade-appropriate design experiences throughout the curriculum.

Assessment planning: Highly Developed. Our program has a clearly stated, multi-year assessment plan that identifies when each outcome will be assessed. Our plan includes sections on analysis and implementation of improvements. The School of Engineering has a online information management systems for acquiring and analyzing assessment-related materials. Indeed, we have already started such activity.

Student experience: Developed. Our students have a good grasp of program outcomes, due to the fact that outcomes are included in all of our syllabi and are readily available in the catalog and on our web page.

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III. ALIGNMENT OF PROGRAM AND INSTITUTIONAL OUTCOMES

A. Program Outcomes and Eight Guiding Principles of General Education

Table A.1: A curriculum map representing the alignment between the BS Environmental Engineering Program Learning Outcomes and the Eight Guiding Principles of General Education.

PLOs	Scientific Literacy	Decision Making	Communication	Self & Society	Ethics & Responsibility	Leadership & Teamwork	Aesthetic Understanding Creativity	Development of Personal Potential
1	1	2	2					
2	1	1	2					
3	1	1	1	2	2	1	1	
4	2	1	1	1	2	1	1	1
5		2	2	2	1	2		
6		2		1	1	2	1	1

PLOs: 1. Fundamental knowledge, 2. Critical thinking, 3. Design skills, 4. Professional skills, 5. Ethics, 6. Lifelong learning (score 1 = major emphasis, 2 = secondary emphasis).

B. Program and Course Learning Outcomes (see Table C.1)

University of California, Merced
School of Natural Sciences

DRAFT Faculty Assessment Plan
Minor in Environmental Science and Sustainability

November 19, 2010

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II. Program Description

Environmental science is an interdisciplinary academic field that focuses on application of concepts and methods from the physical, chemical, biological, and social sciences to the study of the natural environment, and seeks solutions to environmental problems. Sustainability science aims to improve the quality of human life within the carrying capacity of supporting ecosystems. The Environmental Science and Sustainability minor at UC Merced will allow students from diverse backgrounds to pursue interests in earth and environmental sciences in some depth without requiring the breadth of course work and extensive laboratory and field time required for the Earth System Science major.

To reflect the interdisciplinary nature of the fields, the Environmental Science and Sustainability (ESSU) minor was created in 2009-2010 by a group of faculty representing all current schools at UC Merced, Natural Sciences, Engineering and Social Sciences, Humanities and the Arts. We held regular faculty meetings in Fall and early Spring semester to scope the minor concept, determine whether we had adequate course availability to offer a minor, and to determine whether there was an interested student population. Regarding this last criterion, we conducted a survey of current undergraduates who had taken at least one environmentally-related course on campus. We had 118 respondents (21.5% response rate), across all three schools with the largest number of respondents from Biology, Psychology and Undeclared major students. We posed detailed questions about students' areas of environmental interest across the disciplinary areas emphasized in the fields of environmental science and sustainability, and found more students were "somewhat" or "very" interested in science and engineering dimensions than in social science, management and humanities dimensions. With this in mind, we designed a minor with a

stronger emphasis on environmental science, but that still provides options for students to complement these core subject areas with study in the social sciences and humanities. We would like to grow the social science dimension in future revisions of the major, pending student interest and adequate faculty support.

Requirements for the Environmental Sciences and Sustainability minor

To receive a minor in Environmental Science and Sustainability, a student must complete the following requirements.

General guidelines for Natural Science Minors

To declare a minor, students must have an overall grade point average of 2.0 (C) or better. Students from all schools should consult an advisor in the School of Natural Sciences to officially declare the minor and plan their courses.

The following guidelines must be adhered to:

- At least five courses, four of which must be upper division, must be taken for a letter grade.
- At least three of the required courses must be taken at UC Merced.
- Only one course may be used to satisfy two minor programs' requirements.
- Only one course may be used to satisfy both a minor and a major requirement.
- Work for the minor must be completed within the 150 unit maximum limit for graduation.
- If the student's major and minor are in different schools, the higher unit maximum will apply.
- Students must consult the UC Merced General Catalog for prerequisites to required courses.

- The minor will appear on the student's transcript and diploma.

Table 1 lists courses that satisfy requirements for an Environmental Science and Sustainability minor. All of these courses must be taken for a letter grade. At least four of these courses must be unique to the Environmental Science and Sustainability minor, i.e. they may not be also used to satisfy a major requirement. If more than one of the required courses for the Environmental Science and Sustainability minor is also needed to satisfy a major requirement, one or more additional upper division or graduate ESS, ES, ENVE course (worth at least 3 units) must be completed.

Course work requirements*:

1. One lower division core course
2. One upper division core course
3. One upper division course each in at least three of the four areas listed below
    i. One course in the area of Earth and Atmospheric Sciences
    ii. One course in the area of Environmental Biology
    iii. One course in the area of Society and Environment
    iv. One course in the area of Research, Communication, and Design skills

* As new courses become available they will be added as options to the upper division electives. Students may be able to satisfy the requirements for the minor (a) using additional courses that are not listed below or (b) by swapping some of the core upper division and area courses.

Students must receive approval for the conditions listed above (a and b) before completion of their course work.

Table 1. Course Options for the Environmental Science and Sustainability Minor

	Area	**Course**	**Units**	**Pre-requisites (as listed in the 2008-2009 Catalogue)**
Required Lower-Division Core Courses, 4 units (Choose 1)		ESS 1 – Introduction to Earth System Science	4	No pre-req
		ESS 2 - Sustainability Science	3-4	No pre-req
		ESS 10 – Earth and Society	4	No pre-req
		ENVE 20 – Environmental Science and Technology	4	CSE 021, CHEM 002 and MATH 032
Required Upper Division Core Courses, 4-5 Units (Choose 1)		ESS 100 – Environmental Chemistry	4	CHEM 010 and (MATH 022, ICP 001B or PHYS 008)
		ENVE 160 – Sustainable Energy	4	ENVE 020 or ESS 020
		ESS 141 – Environmental Science and Policy	4	WRI 010 and (any course in BIO, ESS, ENVE, POLI or ECON)
Additional Upper Division Courses, 9-12 Units (Choose 1 from each of 3 areas)	Earth and Atmospheric Science	ESS 170 – Soil Science	4	ESS 1 or BIO 1 and CHEM2
		ESS 103 – Geochemistry of Earth Systems	3	ENVE 100 or ESS 100
		ESS 105 – Biogeochemistry	3	ENVE/ESS 100 and ENVE/ESS 110
		ESS/ENVE 110 – Hydrology and Climate	4	ENVE 20, ESS 20, or one semester of calculus
		ENVE 114 - Subsurface hydrology	4	ENVE 110 or ESS 110
		ENVE 116/ESS 132 – Applied Climatology	4	ENVE 110 or ESS 110
		ENVE 176 - Water and Wastewater Treatment	4	(ENVE 020 or ESS 020) and (ENVE 100 or ESS 100) and ENGR 120
		ESS 134 - Air Pollution and Resources	3	ESS 100 or ENVE 100
	Environmental Biology	ESS /ES 148 – Ecology	4	BIO 1 or BIO 5 or ESS 1 or ESS 5
		ESS124/ES 224 – Ecosystem Ecology	3	Junior standing and (BIO 148 or ESS 025).
		ESS 120 – Microbial Ecology	4	CHEM 010 and either (ESS 001, or BIO 001, or ENVE 020)
		ESS/BIO 149 – Conservation Biology	4	BIO 001 and (MATH 018 or MATH 032). BIO 148 recommended
		ESS 147 - Astrobiology	4	CORE 001 and (BIO 001, BIO 005, PHYS 006, CHEM 002 or ESS 001), or consent of instructor
	Society and Environment	GEOG 142 – Geography of Resource Management	4	Any course in HIST, LIT, PUBP, BIO, ENVE or ESS, or consent of instructor
		ENVE 164/ES 264 - Energy	4	One course in economics

		Policy		(ENGR155 or ECON100) and MATH 24, 140
		ENVE 140 - Water Resources Planning and Management	3	ENVE 020 and ENGR 155
		ECON 120: Economics of the Environment and Public Policy	4	No pre-req
		ENVE155/MGMT155 Decisions Analysis in Management	4	ECON 100 or MGMT 100) AND (ECON 010 or POLI 010)
	Research, Communication, and Design skills	LIT 180 – American Nature Writing and Literature of the Environment	4	LIT 031
		ARTS 170: Urbanism & Sustainable Design	4	No-pre req
		ENVE 162: Modeling and Design of Energy Systems	3	ENGR 135, ENGR 160 and ENVE 160.
		ENVE 105 - Environmental Data Analysis	3	(ICP 001A or MATH 021) and (ICP 001B or PHYS 008)
		ENGR 180 - Spatial Analysis and Modeling	4	MATH 021 or ICP 001A
		ANTH 170 – Ethnographic Methods	4	ANTH 001 or junior standing, or consent of instructor
		ESS 180 - Field Methods in Earth Systems	4	CHEM 010 and (MATH 022, ICP 001B or PHYS 008)
		ENVE 181 - Field Methods in Snow Hydrology	1-3	ENVE 110 or ESS 110
		ENVE 183 - Field Methods in Subsurface Hydrology	1-3	ENVE 110 or ESS 110

II. Assessment Plan

A. Timeline and Goals

The goals of the Environmental Science and Sustainability minor assessment program are to stimulate faculty discussion of student learning, improve and coordinate curriculum, examine skill development, build stronger support and better assessment frameworks for cross-school degree programs, and re-examine Program Learning Outcomes. To reduce student, faculty and administrative burden, we will strive to coordinate assessment with other degree programs (e.g., Earth Systems Science), when possible.

The Environmental Science and Sustainability assessment program is just beginning since the minor was approved in Spring 2010. As such, the assessment plan described below is a "working plan," that will be revised as we take our initial steps and learn from them.

The timeline for the Environmental Science and Sustainability minor assessment cycle will be five years. That is, a full assessment report will be prepared every five years, but partial assessment will take place for one or more PLOs each year. Assessment will begin during the academic year in which we have at least 10 students with the minor declared at the start of the academic year. We expect this to be the 2011-2012 academic year, but if we do not have this minimum student number of students to assess as of August 2011, we will delay assessment until we do. Assessment of program learning outcomes will be unreliable with very small student numbers, *particularly given that the current degree program has no one course required of all students enrolled in the minor*.

→ If we have less than 10 students enrolled in the minor in 2011-2012, *we will assess* the barriers to student declaration of the minor with interviews of student advisors (indirect evidence).

→ Further, because the minor was designed around "on the books" courses, some of which may not be taught reliably, *we will assess* the ease of degree completion through analysis of the timing and frequency of course offerings relative to student demand (direct evidence), and through exit interviews that ask about the ease of completing the minor (indirect evidence).

B. Program learning outcomes

Graduates with a minor in Environmental Science and Sustainability will be able to:

1) Use knowledge and techniques from three to four areas of Environmental Science and Sustainability (Earth and Atmospheric Sciences; Environmental Biology; Society and Environment; and Research, Communication, and Design Skills) to gather and report environmental data using appropriate measurement tools.
2) Analyze information on environmental quality and recommend appropriate technical, political, or economic solutions to environmental problems.
3) Communicate to diverse stakeholders the major concepts and principles of Environmental Science and Sustainability, such as how elements of the Earth system are interconnected, the carrying capacity of natural systems, and how governmental policy and economics can both perpetuate and solve environmental problems.

Since not all students who take courses listed in Table 1 will be declaring a minor in Environmental Science and Sustainability, the Program Learning Outcomes will not be published

in the course syllabi. The ESSU minor Program Learning Outcomes are published in the University's catalogue and are also placed on the School of Natural Sciences' website.

C and D. Evidence and Process

Each academic year, we will collect data on one or more program learning outcomes, as follows (student numbers and resources permitting, exit interviews will be conducted every year, evaluating all PLOs).

- **Year 1** (2011-2012, expected but may be delayed if student numbers are small)

Third PLO – Graduates will be able to communicate to diverse stakeholders the major concepts and principles of Environmental Science and Sustainability, such as how elements of the Earth system are interconnected, the carrying capacity of natural systems, and how governmental policy and economics can both perpetuate and solve environmental problems.

→ Direct Evidence: Final exam questions (LD) and portfolio (UD).

We will develop final exam questions appropriate to each lower division core course available to minors that assess student ability to communicate crtitical concepts and principles. We will pilot this effort with ESS 1 and ESS 2, two large enrollment general education courses expected to be "feeder" courses for the minor. The primary instructors for these two courses will, in consultation with other faculty as needed (especially instructors of ESS 10 and ENVE 20), develop a set of questions that are consistent in the level and type of understanding and communication skill expected at this level. The initial effort will take place in Fall 2011, with expected implementation in Fall and Spring semesters in 2011-2012.

With student consent, faculty will also gather examples of assignments students have completed in upper division elective courses that require communication of major concepts and principles. A faculty committee will evaluate these assignments using a rubric describing criteria and standards. After a scoping effort to determine which upper division courses should be used to pilot this effort (to begin in 2011-2012), we will develop rubrics for at least one assignment in each of the chosen pilot courses. These rubrics will be made available to all students in the courses, not just minors. Assessing students at early and later points in their degree progress will help us assess whether their learning outcomes are improving.

→ Indirect evidence: Self assessment through student exit interviews.

A sample of graduating students will be invited to participate in individual and group interviews conducted by SATAL to reflect on their level of confidence that they have achieved this PLO. They will be asked to give concrete examples of where they feel more and where less confidant. A faculty committee will develop the interview questions in collaboration with on campus resources and will evaluate the interview results. Exit interviews will begin as soon as we have at least 1 graduating minor (but not before 2011-2012). Interview question development will begin in 2011-2012.

- **Year 2** (2012-13, expected but may be delayed if student numbers are small)

Second PLO – Graduates will be able to analyze information on environmental quality and recommend appropriate technical, political, or economic solutions to environmental problems.

→ Direct evidence: Portfolio.

With student consent, faculty will gather examples of assignments students have completed in upper division core courses that require analyzing information and recommending solutions to environmental problems. A faculty committee will evaluate them using a rubric describing criteria and standards. One upper division core course (e.g., ESS 100) will serve as the stepping off point for developing rubrics and piloting assessment. The upper division core courses are required by two majors (ESS and ENVE) and provide an opportunity for joint assessment. Rubric development will be led by the core course instructor in consultation with other faculty, particularly those teaching other upper division core courses. These rubrics will be made available to all students in the courses, not just minors. Rubric development and assignment revisions to meet PLOs will begin in 2011-2012.

→ Indirect evidence: Self assessment through student exit interviews.

A sample of graduating students will be invited to participate in individual and group interviews conducted by SATAL to reflect on their level of confidence that they have achieved this PLO. They will be asked to give concrete examples of where they feel more and where less confidant. A faculty committee will develop the interview questions in collaboration with on campus resources and will evaluate the interview results. Exit interviews will begin as soon as we have at least 1 graduating minor (but not before 2011-2012). Interview development will begin in 2011-2012.

- **Year 3** (2013-14, expected but may be delayed if student numbers are small)

First PLO - Graduates will be able to use knowledge and techniques from three to four areas of Environmental Science and Sustainability (Earth and Atmospheric Sciences; Environmental Biology; Society and Environment; and Research, Communication, and Design Skills) to gather and report environmental data using appropriate measurement tools.

→ Direct Evidence: Portfolio.

With student consent, faculty will gather examples of assignments students have completed in upper division elective courses (4 area options, many course options) that require collection and reporting of environmental data. A faculty committee will evaluate them using a rubric describing criteria and standards. One elective course known to have appropriate assignments (ESS 110, ESS 148 or ENVE 105) will serve as the stepping off point for developing rubrics for at least one assignment per course that addresses this PLO. The rubric will then be applied, modified, and refined in collaboration with a larger group of faculty responsible for more of the upper division elective options. Our ultimate goal is to have a rubric that can work in the courses that serve 75% or more of our minors. These rubrics will be made available to all students in the courses, not just minors. Rubric development will begin in 2012-2013.

→ Indirect Evidence: Self assessment through student exit interviews.

A sample of graduating students will be invited to participate in individual and group interviews conducted by SATAL to reflect on their level of confidence that they have achieved this PLO. They will be asked to give concrete examples of where they feel more and where less confidant. A faculty committee will develop the interview questions in

collaboration with on campus resources and will evaluate the interview results. Exit interviews will begin as soon as we have at least 1 graduating minor (but not before 2011-2012). Interview development will begin in 2011-2012.

E. Participants

The Environmental Science and Sustainability minor is a unique degree program in that it has no one course required of all students, and instruction is distributed across all three current Schools at UC Merced. This complicates the definition of the faculty group who should bear responsibility for assessment. As the administrative structure of UC Merced evolves, such responsibility may become more clearly defined, but at the present moment, all faculty members with an interest in contributing to the degree program (through teaching or assessment) are welcome participants. Because the ESSU minor is currently housed within the School of Natural Sciences, and the minor was developed with critical input from faculty associated with the Earth Systems Science major, initial assessment responsibility will lie primarily with this group. When required for assessment, we will seek out faculty contributions from other schools if there is not adequate representation/expertise in the current group.

Administrative participation in data collection, organization, archiving, and summary is expected to come from the School of Natural Sciences. SATAL will be called upon to co-develop and administer exit interviews. Report preparation will draw on all available resources at the School and University level to ensure a useful process that meets accreditation and other expectations.

Finally, students are a critical element of assessment. To cultivate a student group invested in their own learning outcomes, our faculty group has requested resources from the School of Natural Sciences to hire a student ambassador and peer advisor to complement efforts by faculty and advising staff to increase interest in these important fields and to help students navigate course scheduling and course expectations. The resources provided to the Earth Systems Science major in 2010-2011 amount less than 3-4 hours per week for one semester. With this, we will initiate this student position in Spring 2011, with allocation of the student's time to both ESS and ESSU student needs.

F. Minor

The above assessment plan is for the stand-alone Environmental Science and Sustainability minor. While this minor has much in common with the current Earth Systems Science major (including courses and faculty stakeholders), it is much more topically broad, with greater integration of social sciences, humanities and engineering than the current ESS major.

G. Self evaluation of assessment plan

Comprehensive list: Emerging

Outcomes seem reasonable, but do not consider national standards.

Assessable outcomes: Initial

Linking demonstration of learning outcomes to the learning outcomes themselves is still under development, particularly in the context of this multi-disciplinary distributed degree.

Alignment: Initial to emerging

Thought was given to developing a curriculum that meets the expectations of the learning outcomes, but the curriculum was built with existing courses not specifically developed for the current degree. The assessment process will help us determine how well aligned course learning outcomes and program learning outcomes really are.

Assessment planning: Emerging

We have a multi-year plan, but feasibility of implementation is uncertain given unknown student numbers, and a very small faculty group distributed among multiple schools with responsibility for multiple degree programs (therefore multiple program assessments) and working in on and off-campus (Castle) locations.

The student experience: Emerging

PLOs are available to students via websites (how they primarily access course and program information). Whether they focus on learning outcomes through their coursework is up to individual instructors.

III. Alignment of Institutional and Program Goals/Outcomes

A. Program and Institutional Goals/Outcomes

The Environmental Science and Sustainability program goals meet multiple institutional goals, particularly in the areas of scientific literacy, decision making, and ethics and responsibility (Table 2). Faculty and students associated with the minor are represented on the Chancellors Advisory Committee on Sustainability, and engage in other informal efforts related to sustainability at UC Merced. This minor gives more students access to environmental degree programs, on a campus where the concept of sustainability is woven into the campus identity.

Table 2. A curriculum map representing the alignment between the Environmental Science and Sustainability Program Learning Outcomes and the Eight Guiding Principles of General Education.

PLOs	Scientific Literacy	Decision Making	Communication	Self & Society	Ethics & Responsibility	Leadership & Teamwork	Aesthetic Understanding Creativity	Development of Personal Potential
First	X	X						
Second	X	X			X			
Third	X		X	X	X			

B. Program and School Goals

Environmental and Earth systems science was one of the founding foci for the University and the School of Natural Sciences.

C. Program and Course Learning Outcomes

A curriculum map will be developed in 2011-2012 as this requires collection of syllabi for all course options listed in the minor and analysis of their learning outcomes.

University of California, Merced

Environmental Systems Graduate Program

Revised Assessment Plan

April 19, 2010

DRAFT

Environmental Systems Graduate Program
Assessment Plan

I. PROGRAM DESCRIPTION

The Environmental Systems (ES) graduate program confers M.S. and Ph.D. degrees. The goal of the program is to equip students with the knowledge and skills necessary to improve the scientific understanding of coupled Earth systems--atmosphere, hydrosphere, lithosphere and biosphere--and to use this understanding to pursue basic research in environmental systems, optimally manage natural resources, and/or engineer the restoration of impaired environments. This improvement in understanding is gained through the systematic study of biological, chemical and physical processes, socioeconomics and policy, and through rigorous individualized research programs in these areas. Courses are designed to provide an understanding of the scientific principles underlying the function and sustainability of natural and engineered environmental systems, and to equip students to provide strong support for environmental resource decision-makers.

A distinctive feature of the ES graduate program is its multi-disciplinary nature and the accompanying opportunity for inter-disciplinary training this breadth affords. Participating ES faculty are affiliated with the Schools of Engineering, Natural Sciences, and Social Sciences, Humanities and Arts. The current ES faculty research strengths include:

- Earth systems science
- Ecology
- Geospatial Analysis
- Environmental Engineering
- Geochemistry
- Solar Energy
- Climatology & Climate Change
- Hydrology & Water Resources
- Environmental Policy
- Environmental Economics

UC Merced's unique geographical location, its relationship with neighboring institutions, and its seamless integration of science, engineering, and social science will render the ES program distinctive amongst similar programs in California and elsewhere. In particular, a substantial part of ES faculty research involves coupling scientific enquiry, engineering analysis, and policy-making associated with resource management, in natural and engineered settings of the Great Central Valley, the Sierra Nevada, and the world.

We expect our M.S. graduates will find employment with private engineering, hydrologic, and environmental consulting firms, federal agencies such as the U.S. Forest Service, National Park Service, U.S. Environmental Protection Agency, as well as state and regional resources agencies, such as the Department of Water Resources, Fish and Game, Water Quality Control Board, and Air Resources Board. Ph.D. graduates will find positions as academic faculty and staff in

teaching and research universities, as well as in private and public resource-related agencies. along with

II: ASSESSMENT PLAN

A. Environmental Systems Program Assessment Timeline

The ES program includes continual student-level and programmatic assessment on a 5-year cycle, with the first assessment scheduled for Spring 2013. The Program Learning Outcomes (PLOs) to be evaluated are described in the following section (B). While the program is relatively new, several of the student-level assessment vehicles, particularly those associated with M.S. and Ph.D. research competency (PLO 1 below), have been implemented since even before the official recognition of the program by the UC Coordinating Council on Graduate Affairs (January 2008). Others need to be developed. Furthermore, protocols for capturing all lines of evidence supporting the PLOs need to be put in place.

It is the goal of the ES program to have the assessment plan outlined below in place and ready for evidence gathering in time for the 2010-11 academic year, with staged introduction of evidence gathering beginning in Spring 2008. Lines of evidence to be gathered in support of the PLOs are explained below in section C, and a timeline for staging the evidence gathering, analysis, and curriculum modifications is presented in section D.

B. Environmental Systems Program Learning Outcomes (PLOs)

The overarching goal of the Environmental Systems (ES) program is that its graduates be knowledgeable and professionally competent in one or more areas of environmental systems. The following program learning outcomes (PLOs) are being used to attain this goal:

PLO-1: **Core Knowledge -** Graduates will be knowledgeable, skillful, and self-directed in the observation and analysis of environments systems in terms of their capacity to:

a. (M.S. graduates) Design experiments with appropriate controls and conduct original research, with an appropriate level of supervision, in the context of an M.S. project or thesis
b. (Ph.D. graduates) Independently identify important research questions, formulate experimental plans, data analysis, and formulation of conclusions in the context of a doctoral dissertation

PLO-2: **Communication Skills -** Graduates will be conversant in at least two area(s) of environmental systems, and be adept at oral, written, and visual communication of research results to peers and non-technical decision makers

PLO-3: **Ethics, Community, and Lifelong Learning -** Graduates will understand the importance of research and professional ethics, engagement in the needs of their community, and life-long learning

PLO-4: **Career Placement and Advancement -** Graduates will find suitable career placement and achieve advancement in government agencies, non-government organizations, private industry, and academic teaching and research institutions

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These PLOs are to be maintained for review and feedback by constituents and other stakeholders (e.g., employers) on the ES program website (https://es.ucmerced.edu/), and in the UCM Catalog, and will also be disseminated annually to incoming graduate students at the Fall Orientation session.

C: Evidence

A mapping of the ES PLOs to lines of evidence to be used for assessment purposes is provided in Table 1. Give that ES is a relatively new program, not all lines of evidence are currently being gathered and examined. Hence, the current status of each line of evidence in Table 1 is designated as "in place," or "under development." A plan and timetable for having these assessment tools in place is detailed in the following section.

Table 1 - Lines of evidence for assessing Environmental Systems program learning outcomes (PLOs).

	Lines of Evidence	
PLO	**Direct**	**Indirect**
PLO-1: Core knowledge	(a1) Core course project[1] (b) Qualifying exam[2] (c) Research proposal[2] (d) Thesis/dissertation[1]	(a2) Core course student survey[1] (e) Program exit interview[1] (f) Alumni survey[1]
PLO-2: Communications	(a1) Student seminar[1] (b) Qualifying exam[2] (c) Research proposal[2] (d) Thesis/dissertation[1]	(a2) Seminar peer-assessment[1] (e) Alumni survey[1] (f) Community client questionnaire[1]
PLO-3: Ethics, Community, Life-long learning	(a1) Community service self-evaluation[1] (b) Research ethics course[1]	(a2) Community client questionnaire[1] (c) Alumni survey[1]
PLO-4: Career Placement and Advancement	(a) Employment record[1] (b) Professional publications[1]	(c) Alumni survey[1]

[1]Line of evidence for both M.S. and Ph.D. degrees.
[2]Line of evidence for Ph.D. degree only.

The lines of evidence summarized in Table 1 are expanded here in terms of specific data gathered, data analysis, and curricular modifications aimed at improving this outcome. The lines of evidence for PLO-1 (Core knowledge) are as follows:

(a1 and a2) Core course project (M.S. and Ph.D. degrees). ES 200 Environmental Systems is a course taken by most M.S. and all Ph.D. students in the program. Reports from the self-directed student projects will become part of each student's work portfolio. The instructors are currently testing a scoring rubric in order to provide more consistent advice to the students about the expectations for the project and more systematic feedback to the students regarding their performance on the project. The instructor(s) for ES 200 will provide copies of the student reports along with their evaluations and completed rubrics. Each summer, the ES Educational Policy Committee (EPC) will review the reports and solicit input from ES students (typically during their 2nd year annual curriculum planning "checkup"—see section planning and make

recommendations to the instructor(s) on improving the ES 200 course and self-directed projects. Student exit survey data from this course will also be used by the instructor(s) to improve the course with respect to PLO-1 using anonymous student feedback.

(b) Ph.D. qualifying exam (Ph.D. degree only). Each doctoral student is required to pass the qualifying exam before they can advance to candidacy. This exam is detailed in the ES Policies and Procedures (Section 2.4.5). The purpose of the exam is to test basic knowledge and the ability to formulate and defend two proposals for original research. The program is currently developing and testing scoring rubrics in order to provide more consistent advice to the students about the nature of the exam and more systematic feedback to the students regarding their performance on the exam. Following the exam, copies of the two proposals along with a written assessment and completed rubrics from the examination committee will become part of the student's portfolio. The assessment will be compiled by the chair of the exam and will focus primarily on technical content, particularly on the student's knowledge base and ability to think independently. This assessment will be reviewed by the student and his/her faculty advisor after the exam for the purpose of addressing any deficiencies noted by the examination committee. Qualifying exam documents (student proposals and committee evaluations) will be reviewed by the ES EPC on a **3-year cycle** to assess whether its format and/or execution are contributing sufficiently to PLO-1, and modified if necessary.

(c) Ph.D. research proposal (Ph.D. degree only). Doctoral students prepare their research proposal in consultation with their major advisor, and submit the completed proposal to committee members for review (ES Policies and Procedures Section 2.4.6). The program is currently developing and testing scoring rubrics in order to provide more consistent advice to the students about the nature of the exam and more systematic feedback to the students regarding their performance on the exam. The committee will review this document and determine if the student has outlined a project that is appropriate for a Ph.D. A copy of the proposal and the committee's written comments will become part of the student's portfolio. This material will be reviewed by the ES EPC on a **3-year cycle** to assess whether its format and/or execution are contributing sufficiently to PLO-1. In the event of a negative assessment, best practices will be solicited from other graduate program at UCM and other universities.

(d) Thesis/Dissertation. The thesis/dissertation is the final opportunity for the dissertation committee to assess PLO-1. The dissertation committee will review this document with respect to technical content and likelihood of publication in the peer-reviewed research literature. A copy of the thesis/dissertation and written comments by the dissertation committee will become part of the student's portfolio. The EPC will review theses/dissertations on a **3-year cycle** to assess whether their quality is indicative of successful attainment of PLO-1, and will use these documents to suggest improvements to the overall curriculum and/or assessment plan.

(e) Program exit interview. The ES Academic Advising Committee (AAC) will conduct exit interviews with students when they complete their M.S. or Ph.D. degree. Several questions in the exit interview will assess PLO-1 from the students' perspective. The AAC will prepare a transcript of the interview for review by the ES EPC with respect to potential curriculum modifications.

(f) Alumni survey. The EPC will develop a database of ES alumni and use this database to solicit alumni participation in an on-line survey every **4 years**. Several questions in the exit

interview will address whether PLO-1 was achieved by the ES program. The EPC will use the results from the interview to help address deficiencies in achieving PLO-1.

The lines of evidence for PLO-2 (Communications) are to assess written, verbal, and visual/graphical communication for both technical and non-technical audiences. They include the following:

(a1 and a2) Program seminar presentation (M.S. and Ph.D. degrees). All ES M.S. and Ph.D. students are required to give at least one open seminar while in the program (see ES Policies and Procedures section 2.4.8). The students' peer group will complete a survey (developed by the EPC) on the quality of the presentation in terms of technical clarity, non-technical context, and demonstrated verbal and visual/graphical communication skills. The student will review the recorded seminar and survey results with his/her faculty advisor, and these materials will become part of the student's work portfolio. Seminar and survey content will be reviewed by the ES EPC on a **3-year cycle** to assess whether its format and/or execution are contributing sufficiently to PLO-2, and modify the procedures if necessary.

(b) Ph.D. qualifying exam (Ph.D. degree only). The purpose and format of the Ph.D. qualifying exam is described above with respect to PLO-1. The examination committee will include an assessment of student's demonstrated communication skills (written, oral, and graphical) with respect to the documents and presentations. This assessment will be included in the committee evaluation discussed above for PLO-1, and will be reviewed by the student and his/her faculty advisor after the exam for the purpose of addressing any deficiencies noted by the examination committee. Qualifying exam material will be reviewed by the ES EPC on a **3-year cycle** to assess whether its format and/or execution are contributing sufficiently to PLO-2, and modify procedures if necessary.

(c) Ph.D. research proposal (Ph.D. degree only). The examination committee will include an assessment of student's demonstrated communication skills (written and graphical) with respect to the dissertation research proposal described above for PLO-1. This assessment will be included in the committee evaluation discussed above for PLO-1, and will be reviewed by the student and his/her faculty advisor after the exam for the purpose of addressing any deficiencies noted by the examination committee. Qualifying exam material will be reviewed by the ES EPC on a **5-year cycle** to assess whether its format and/or execution are contributing sufficiently to PLO-1, and modify procedures if necessary.

(d) Thesis/Dissertation. The dissertation committee's written evaluation (discussed above for PLO-1) will include an assessment of the student's communication skills (verbal, written, visual/graphical), which will become part of the student's work portfolio. The ES Educational Policy Committee will review theses/dissertations on a **5-year cycle** to assess whether their quality is indicative of successful attainment of PLO-1, and will use these documents to suggest improvements to the overall curriculum and/or assessment plan.

(e) Alumni survey. The EPC will develop a database of ES alumni and use this database to solicit alumni participation in an on-line survey every **4 years** so that the results may be incorporated into the programs 5-year review. Several questions in the survey will address the alumni's perception of whether PLO-2 was achieved by the ES program and what improvements might be made. The EPC will use the results from the survey to help address deficiencies in achieving PLO-2.

(f) Community client questionnaire. This questionnaire is discussed in more detail below in the context of student outreach or community service activities associated with PLO-3. This questionnaire will provide feedback from the targeted outreach group(s) on the student's ability to communicate technical information to a non-technical audience in a comprehensible and respectful manner.

PLO-3 is concerned with students understanding the importance of professional ethics, community service, and life-long learning. The lines of evidence to assess PLO-3 are as follows:

(a1 and a2) Community service self-evaluation and client questionnaire. All ES students will be required to participate in a community service effort during the course of their studies. Examples are contributions to local community planning activities, presenting short-courses or seminars to students, teachers, or non-government organizations (NGSs), assistance to undergraduate service learning groups or to local, national, or international non-government organizations. Students will prepare a self-evaluation summarizing the nature and quality of their service activity. In addition, the student must provide a client questionnaire to the relevant contact(s) for their assessment of the services, presentation, or course delivery. The student's faculty advisor and ES Academic Advising Committee (AAC) will review merits of the service activities on as soon as they are completed in order to evaluate whether this aspect of PLO-3 has been achieved.

(b) Research ethics course. All ES students will complete a professional ethics course (QSB 294 or equivalent); this requirement may be fulfilled as a directed independent or group study course (ES 298 or ES 299) prior to the end of their second year in the program. In this course, the student must complete a pertinent project or paper for inclusion in his/her work portfolio. The student's faculty advisor and ES Academic Advising Committee (AAC) will review the projects annually with respect to this aspect of PLO-3.

(c) Alumni survey. The EPC will develop a database of ES alumni and use this database to solicit alumni participation in an on-line survey every **4 years**. Several questions in the survey will address whether PLO-3 was achieved by the ES program and what improvements might be made. The EPC will use the results from the survey to help address deficiencies.

PLO-4 is concerned with successful career placement and advancement of ES program graduates. The lines of evidence to assess PLO-4 are as follows:

(a) Employment. Graduate employment records will be maintained by the program based on exit survey information and input from faculty advisors. Data to be collected will include position attained, salary level, and information pertaining to the manner and ease with which the position was attained. Career advancement will be tracked using the alumni survey. These data will be summarized and critically evaluated by the EPC for each 5-year review.

(b) Professional publications. Graduate publications will be tracked throughout their careers, including peer-reviewed research articles, government agency/NGO reports, and trade publications. These data will be collected using library search engines and via the alumni survey, and will be summarized and critically evaluated by the EPC for each 5-year review.

(c) Alumni surveys. In addition to the record-keeping noted above, the alumni survey will include questions aimed as assessing the graduate's career satisfaction and perceived level of

competence as a result of their ES degree. These responses will be synthesized by the EPC for each 5-year review.

D. Process

A timeline for implementing the assessment plan for the PLOs described above is summarized in Table 2. The ES program individuals and committees charged with the development of the assessment vehicles are the same as those charged with evidence gathering in the previous section. As can be seen from Table 2, the ES program has made some progress in developing their assessment plan with respect to PLO-1. In some cases, however, slight modifications are necessary to ready these vehicles for the assessment of other PLOs. For example, while the qualifying exam is in place for assessing PLO-1, an assessment rubric for the exam with respect to PLO-2 needs to be developed.

Table 2 – Timeline for line of evidence gathering for the Environmental Systems PLOs.

PLO line of evidence	Develop vehicle (by whom)	Data gathering/analysis
PLO-1: Core knowledge		
(a1) Core course project[1]	Completed (instructor)	Spring 2009 (instructor, EPC)
(a2) Core course student survey[1]	Spring 2009 (instructor, EPC)	Spring 2009 (instructor, EPC)
(b) Qualifying exam[2]	Completed	Ongoing (EPC)
(c) Research proposal[2]	Completed	Ongoing (EPC)
(d) Thesis/dissertation[1]	Completed	Ongoing (EPC)
(e) Program exit interview[1]	Fall 2009 (AAC)	Spring 2010 (EPC)
(f) Alumni survey[1]	Fall 2011 (AAC)	Spring 2012 (EPC)
PLO-2: Communications		
(a1) Student seminar[1]	Fall 2009 (EPC)	Spring 2010 (EPC)
(a2) Seminar peer-assessment[1]	Fall 2009 (AAC, students)	Spring 2010 (AAC, students)
(b) Qualifying exam[2]	Spring 2010 (EPC)	Fall 2010 (EPC)
(c) Research proposal[2]	Spring 2010 (EPC)	Fall 2010 (EPC)
(d) Thesis/dissertation[1]	Spring 2010 (EPC)	Fall 2010 (EPC)
(e) Alumni survey[1]	Fall 2011 (AAC)	Spring 2012 (EPC)
(f) Community client questionnaire[1]	Spring 2012 (AAC)	Fall 2012 (EPC)
(**PLO-3: Ethics, Community, Life-long learning**		
(a1) Community service self-evaluation[1]	Spring 2012 (AAC, students)	Fall 2012 (AAC)
(a2) Community client questionnaire[1]	Spring 2012 (AAC)	Fall 2012 (AAC)
(b) Research ethics course[1]	Fall 2011 (faculty)	Spring 2012 (EPC)
(c) Alumni survey[1]	Fall 2011 (AAC)	Spring 2012 (EPC)
PLO-4: Career Placement and Advancement		
(a) Employment record[1]	Complete	Ongoing (faculty, EPC)
(b) Professional publications[1]	Complete	Ongoing (faculty, EPC)
(c) Alumni survey[1]	Fall 2011 (AAC)	Spring 2012 (EPC)

[1]Line of evidence for both M.S. and Ph.D. degrees.
[2]Line of evidence for Ph.D. degree only.
Note: EPC = Educational Planning Committee; AAC = Academic Advising Committee

DRAFT

E. Self-Assessment Using WASC Rubric

Comprehensive list: Developed. Our list of PLOs is reasonably comprehensive and encompasses the broad scope of student learning we expect from our majors. A key subset of our faculty (Academic Advising and Educational Policy Committees) has agreed on explicit criteria for assessing students' level of mastery of each outcome and is vetting the criteria with the entire ES faculty.

Assessable outcomes: Developed. While a subset of our faculty ahs agreed on explicit criteria statements, such as rubrics, and we have identified examples of student performance at varying levels for each outcome, we feel that our rubrics will require time to test (due to low student numbers in our graduate program) and will likely call for some improvement.

Alignment: Developed. The curriculum is designed to provide opportunities for students to learn and to develop increasing sophistication with respect to each outcome. We feel that this criteria will require time to test (due to low student numbers in our graduate program) and will likely call for some improvement.

Assessment planning: Developed. Our program has a clearly stated, multi-year assessment plan that identifies when each outcome will be assessed. Our plan includes sections on analysis and implementation of improvements. Indeed, we have already started such activity.

Student experience: Developed. Our students have a good grasp of program outcomes, due to the fact that outcomes are included in all of our syllabi and are readily available in the catalog and on our web page.

Faculty Accreditation Report – the Arts (Global Arts Studies Program and Media Arts Program)
REVISED SEPTEMBER, 2009

Abstract: Media Arts Program's first step in the process of meeting the accreditation review criteria consisted of re-drafting all MAP syllabi to reflect the rubric of Learning Outcomes. All lecturers participated in this process with enthusiasm.

MAP PLOs were developed by the MAP ladder faculty member who carefully examined all syllabi SLOs to determine the common threads that could be organically woven into the PLOs. Since MAP curriculum concentrates on art technique and all lecturers (as well as the visiting professor and the ladder faculty member) are practicing artists, finding commonality was deemed to be the best way to start building MAP PLOs.

The Program Learning Outcomes have been revised twice since January 2009 in response to the process of assessment of the first PLO which occurred in spring 2009, summer 2009, and fall 2009.

Significant progress has been made in implementing what was learned in the assessments into teaching. Instructors have revised syllabi and pedagogical methods to improve teaching and student success. Second PLO is ready to be assessed at the end of spring semester 2010. New method of archiving student work has been proposed and will be implemented in summer 2010 on trial basis.

The largest challenge and danger in this ongoing process of assessment and meeting accreditation requirements is the fact that the entire responsibility for the Media Arts Program administration and curriculum falls to single ladder faculty member who, in addition to all her many responsibilities, teaches full load of three courses a year. She has received minimal administrative support. Whatever inadequacies there are in the assessment methods and their future is directly tied to the sheer impossibility of one person having to initiate, process and record assessment for between ten and fourteen courses a semester, taught by five lecturers, one visiting faculty and one ladder faculty.

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SECTION I: PROGRAM DESCRIPTION – MINOR IN ARTS

Part A. Global Arts Studies Program and Media Arts Program Description

The arts at UC Merced represent the coming together of two multidisciplinary Programs: the Global Art Studies Program (which integrates scholarship in the arts) and Media Arts Program (which integrates mixed media within art technique and practice). The GASP faculty consists of scholars and the MAP faculty consists of practicing artists. Two different programs are necessary (the division is common in academia) because scholars and practicing artists teach in different formats: lecture and seminar classes for scholars, studio and practicum for artists. In short, scholars study art, while artists create art. The GASP designation allows scholars with PhDs to determine the educational requirements for students choosing to emphasize art history and music studies according to their standard professional practices in teaching research and assessment of student progress. The MAP designation allows practicing artists (who may or may not have terminal degrees such as Master of Fine Arts) to determine the educational requirements for students choosing to emphasize technique and practice according to their standard professional practices in teaching technique in various art media. At the same time, the two Programs complement each other and reflect each other in an innovative way.

The Global Arts Studies Program (GASP) and the Media Arts Program (MAP) provide a unique cutting edge integrated curriculum by offering subjects conventionally housed in disparate departments, underscoring the integrated primary agenda of promoting interdisciplinary study of the arts. The GASP course offerings familiarize students with a number of critical approaches and theories currently debated in the arts, while the MAP course offerings provide students with the opportunity to sample multiple art techniques, from traditional to experimental. The blending of scholarship and technique and practice in multiple art disciplines within one program is designed to allow students the opportunity to develop holistic understanding of the arts as a form of human expression.

The study of arts technique, practice as well as art history and critical theory in a multi-disciplinary setting offers students a wide range of transferable skills and knowledge. Acquisition of art technique teaches students to think creatively as well as practically, to collaborate, and to express themselves verbally as well as visually. The access to acquisition of techniques from multiple art disciplines and the ability to critically evaluate them aims to give students tools to create new forms of expression, to understand the old as well as to develop respect for diverse ways in which art manifests itself. Students who enroll primarily in GASP courses may continue their studies on graduate level in order to become Professors of Art History, Theory and Critical Studies. Students who choose to emphasize technique and practice may become practicing artists or go into teaching art practice and technique both on K through 12 level and college level. Some may find jobs in entertainment, advertisement and arts management industries while others may continue their education by enrolling in art schools, or university based Master of Fine Arts Programs.

The combined GASP and MAP curriculum is designed to reflect and creatively challenge the capacities of twenty-first century art culture which make it possible for artists to cross the traditional boundaries of art disciplines and to create new hybrid forms of art expression by integrating traditional artistic forms with digital technology. A research university campus, where the arts and sciences coexist provides a unique opportunity for exploration of the breaking down of established divisions between artistic and technological disciplines that has been occurring in the past one hundred years. Thus the arts curriculum at UC Merced aims to take advantage of what must always be seen as its most important asset: its location on a research university campus. Due to their ubiquity and their inherent adaptability the arts are intrinsically suited for the formation of interdisciplinary channels. UC Merced, with its institutional dedication to fostering of interdisciplinary collaboration is an appropriate setting in which to exploit the potential the arts have to connect disciplines through innovative and creative methods. Students are encouraged and guided to take advantage of the fact that they are studying art at a research university which offers high level academic courses in other disciplines that might help them to gain a deeper understanding of the form(s) of art that interest them and to fully develop their sense of art's interconnectedness with the world.

The ultimate mission of both the GASP and the MAP curricula is to enhance the educational experience of students enrolled in all UCM programs. Students may choose courses to strengthen their cognitive abilities such as visual cognition, to develop or strengthen creativity, to access intuitive holistic thinking and problem-solving, to increase cultural literacy and communication skills, to develop empathy, to improve the ability to collaborate and to lead, to gain aesthetic understanding.

Part B. Minor in Arts Description and Requirements

The GASP and MAP minor reflects the major characteristics of the two blended programs as described in Section I (1).

"A minor is by definition a form of study that can truly be referred to as enrichment. The Minor in Arts provides students the opportunity to explore courses from the three parallel tracks in the Arts curriculum: history (interpreting works of art from all media within their context and purpose), theory (concentrating on research) and art technique and practice (acquiring and applying art techniques in fine arts, music and performing arts). ARTS 007 (ArtScore: Introduction to Global Arts Studies Program) is a survey course of arts around the globe, with an integrated and comparative approach to studying the history and ideas of arts from antiquity to the twentieth century. This course serves as the foundation for all students pursuing the Arts Minor." (UC Merced General Catalogue 2009-2011) Satisfactory completion of any of the GASP 1 - 5 courses will fulfill the introductory coursework for an Arts Minor and will be considered an equivalent substitute for the Arts 7 course. (Revise 9/1, 2009 and published on the UC Merced School of Social Sciences, Humanities and Arts websites: ssha.ucmerced.edu and arts.ucmerced.edu)

Minimum Requirements

- ARTS 007 or GASP 001 through GASP 005
- **One** additional lower division ARTS (MAP) course
- A minimum of **four** upper division ARTS (MAP) or GASP courses

SECTION II: ASSESSMENT PLAN FOR GASP, MAP and MINOR IN ARTS

Part A. Background, Goals and Timeline

Background and Goals

GASP

Currently, GASP consists of two ladder faculty members and one lecturer (teaching between one and two courses every academic year). Please, see GASP PLO document for assessment criteria.

MAP

Currently MAP faculty consists of one ladder faculty member, five lecturers (each teaching between two and six courses a year, not counting summer school), and one visiting professor. All lecturers and the visiting professor were informed of the importance of systematic engagement in assessment of PLOs as well as of the accountability that the process represents.

The first step in the process of meeting the accreditation review criteria consisted of re-drafting all MAP syllabi to reflect the rubric of Learning Outcomes. All lecturers participated in this process with enthusiasm.

MAP PLOs were developed by the MAP ladder faculty member who carefully examined all syllabi SLOs to determine the common threads that could be organically woven into the PLOs. Since MAP curriculum concentrates on art technique and all lecturers (as well as the visiting professor and the ladder faculty member) are practicing artists, finding commonality was deemed to be the best way to start building MAP PLOs and the plan to systematically assess them. Additionally, MAP ladder faculty member has been in the process of writing the Proposal for B.A. in Art which was to be submitted in fall 2009 but has been delayed due to fiscal considerations. Considerable research was conducted for the purposes of supporting the unique vision of the B.A. in Art (the spirit of which is reflected in the GASP and MAP Program Description on page 1.)

Minor in Art

The vision of both GASP and MAP includes the commitment to provide all students, regardless of their major, with the opportunity to experience the full range of enrichment that all forms of art have the potential to give. This mission is, in fact, singular in the UC system where most specialized art courses are open only to majors. Both GASP and MAP curricula have stated

multidisciplinary and interdisciplinary goals which are also innovative in arts education. Within these broader objectives there are more refined educational goals specific to each of the two Programs.

Nevertheless there is clear reciprocity: While GASP concentrates on art history and music studies, its curriculum also addresses the relationship of the artist to his or her oeuvre and while MAP concentrates on technique and practice, its curriculum also addresses the role of history and critical theory in the life of the artist.

The innovative mission of the two Programs (GASP and MAP) will benefit from systematic assessment of the PLOs. Level of student achievement will be judged according to the assessment plan for each PLO as elaborated below.

The Minor provides an opportunity for each student to design his or her own course of study within a multimedia and multidisciplinary framework. Students may choose to emphasize either GASP or MAP after satisfying the lower division requirement which exposes them to both history and critical theory, as well as technique and practice.

Timeline

GASP and MAP

Accomplished by the End of Spring Semester 2009

- All GASP and MAP Syllabi from Fall and Spring semesters contain Student Learning Outcomes
- GASP and MAP Program Learning Outcomes developed
- Assessment Plan to evaluate student achievement of PLOs developed with narrative summary of Program Assessment Plan
- Completed Inventory of Educational Effectiveness Indicators
- Collected Evidence of Student Learning to initiate assessment of first PLO
- MAP developed basic organizational structure for E-Portfolios (as part of E-Portfolio Pilot *Program)*

Accomplished by Start of Fall Semester 2009(MAP)

- Collect Evidence of Student Learning for MAP PLO #1 for all MAP summer session courses.
- All MAP faculty submitted Syllabi with goals and Student Learning Outcomes

To Accomplish by September 30, 2009(MAP) (Revised)

- Write narrative summary describing the evidence collected and examined during assessment of the MAP PLO #1 (during spring and summer semesters 2009). This will include each faculty member's self-reflection on what was learned
- Revise MAP Program Learning Outcomes based on the assessments of the MAP PLO#1
- All PLO assessments from Fall 2009 semester on will be collected electronically (in place of E-Portfolios)
- Create a preliminary plan for archiving student work electronically for the purposes of comparing pre-instruction, during instruction, and post-instruction achievements.

To Accomplish by January 30, 2010 (MAP) Revised

- Write narrative summary describing the course of action taken based on the evidence collected and examined during assessment of the first PLO.

To Accomplish by March 31, 2010(MAP) Revised

- Review and modify (if necessary) MAP PLOs and PLO Assessment Plan
- Update Inventory of Educational Effectiveness
- Initiate Assessment of second PLO

By May 2010 and every year after, have in place structure that assures systematic assessment of both GASP and MAP PLOs

Minor in Arts

As of August 2009, eight students graduated with the Minor in Arts. Forty students are currently enrolled in the Minor in Arts.

To Accomplish by January 30, 2010

- Analyze data collected from graduating students (with Minor in Arts) in 2009 with the assistance of SATAL
- Analyze data collected from GASP PLO #1 and MAP PLO#1 as related to the Minor in Arts
- Submit a narrative summary describing the course of action taken based on evidence examined as stated above

To Accomplish by March 31, 2010

- Review and revise Minor in Arts PLO Assessment Plan and submit a narrative summary of the revised PLO Assessment Plan
- Submit updated Inventory of Educational Effectiveness

- Submit Updated Inventory of Educational Effectiveness
- Initiate assessment of second PLOs
- Ensure all spring 2010 syllabi have been collected and include goals and SLOs

Part B: **Program Learning Outcomes**

Global Arts Studies Program

GASP PLOs have been published on the SSHA websites: ssha.ucmerced.edu and arts.ucmerced.edu

Students graduating with a Global Arts Studies Program (GASP) emphasis will be critical cultural participants, able to discern, dissect and describe creative and aesthetic endeavor in a variety of ways.

More specifically, the successful student will be able to:

1. Describe art works in technical or theoretical terms
2. Enlarge technical/theoretical vocabulary
3. Analyze art works
4. Be critically engaged with art works

Media Arts Program

MAP PLOs have been published on the SSHA websites: ssha.ucmerced.edu and arts.ucmerced.edu

Media Arts Program courses expose students to two components essential to the creation of works of art: technique and practice. The word "technique" in arts education refers to the method or the procedure which is employed in rendering a work of art as well as the degree of expertness in using the procedure or method. Arts technique ought not to be confused with practice of art. Technique can be taught to everyone and anyone, and has the potential to benefit everyone who takes the time to acquire it. The process that leads an individual to become a practicing artist is to some extent a mystery. Thus the Program Learning Outcomes listed here have to, by necessity, represent only part of a larger, to a great extent intangible, quality that makes an individual a successful artist. Furthermore, MAP is designed to benefit all students, not just those desiring to be artists. Finally, it must be understood that the assessment of teaching outcomes for art technique and practice does not fall into the same models as most other academic disciplines because of the simple fact that art technique and practice are not academic disciplines. Thus quantitative analysis cannot always be successfully utilized in PLO assessments in the arts. Consequently, it is often advisable to use more than one form of evidence gathering and analysis.

For decades, even centuries, the proper assessment of the development of technical skills in the various art disciplines has been a topic of discussion. Visual arts education on university

campuses during the latter part of twentieth century reduced the importance of technique by embracing conceptual art. One of the missions of MAP is to deemphasize current trends in the art world, and to concentrate instead on giving each student the tools to develop his/her own relationship to art.

The content of Media Arts Program (MAP) courses is designed to guide students to:

1. Demonstrate understanding and acquisition of (through hands-on projects) the principal attributes and mechanics of art technique(s) in medium of choice
2. Demonstrate enhancement of visual, aural, and physical perception and cognition through the acquisition of art technique
3. Demonstrate the ability to communicate the aesthetic, historical, cultural, social and contemporary aspects of the medium(media) they are studying
4. Express ideas through an art medium

Minor in Arts

The Minor in Arts Program Learning Outcomes consist of the Global Arts Studies Program Learning Outcomes and the Media Arts Program Learning Outcomes. This is due to the fact that the pedagogical and curriculum goals of each Program are unique due to the difference in the content.

The Program Learning Outcomes were revised twice, first in fall 2009 and also in February 2010. The process of revision is described in Faculty Accreditation Report for Media Arts Program, pages 5-8. The Learning Outcomes listed below reflect the final revision.

Students graduating with a Minor in Arts will be able to:

1. Describe art works in technical or theoretical terms (GASP)
2. Enlarge technical/theoretical vocabulary (GASP)
3. Analyze art works (GASP)
4. Be critically engaged with art works (GASP)
5. Demonstrate understanding and acquisition of (through hands-on projects) the principal attributes and mechanics of art technique(s) in medium of choice (MAP
6. Demonstrate the ability to communicate the aesthetic, historical, cultural, social and contemporary aspects of the medium(media) they are studying (MAP)
7. Demonstrate the knowledge and application of certain traits that guide artistic creativity (MAP)
8. Express ideas through an art medium (MAP)

Media Arts Program

The revised (as of February 2010) Program Learning Outcomes for Media Arts Program and Arts Minor (MAP curriculum) are as follows:

1. Demonstrate understanding and acquisition of (through hands-on projects) the principal attributes and mechanics of art technique(s) in medium of choice
2. Demonstrate the ability to communicate the aesthetic, historical, cultural, social and contemporary aspects of the medium(media) they are studying
3. Demonstrate the knowledge and application of certain traits that guide artistic creativity
4. Express ideas through an art medium

Part C: Evidence

Global Arts Studies Program

1. Describe art works in technical or theoretical terms

Assessment: locally developed exam in any GASP 00-99 course

2. Enlarge technical/theoretical vocabulary

Assessment: locally developed exam in required (2) courses

3. Analyze art works

Assessment: evaluation of short essays in required (1) course

4. Be critically engaged with art works

Assessment: evaluation of senior thesis

Media Arts Program

Below, please find description of the type of evidence that will be gathered, how it will be analyzed, and how it will be used to improve student learning. Due to the fact that MAP has a multimedia curriculum, some PLOs may require more than one form of evidence gathering.

1. **Demonstrate understanding and acquisition of (through hands-on projects) the principal attributes and mechanics of art technique(s) in medium of choice**

As described above one of the missions of MAP curriculum is to deemphasize current trends in the art world, and to concentrate instead on giving each student the tools to develop his/her own relationship to art. In the view of this goal, the relative ability to acquire a particular technique has to be balanced against the student's own vision and educational objectives. Thus an important component of the assessment of the relative success of teaching methods in technique acquisition has to be student's reflective self-evaluation. The syllabi of most art technique courses include weekly critique sessions. The purpose of these is to engage students in

systematic self-reflection as well as in peer evaluation. Another common form of assessment is independent evaluation by practicing artists of each student's end of semester portfolio or performance. This is an excellent way to assess whether the instructional goals are reached consistently and fairly. Technique acquisition usually requires a relatively close relationship between student and instructor (or "master" of a particular technique). This closeness may distort the instructor's ability to be impartial. Outside reviewers invariable help faculty as well as students to develop better ways to assess whether particular methods in instruction of acquisition of technique are successful.

a) ***Evidence I****:* For each MAP technique course, the individual instructor (under the guidance of FAO) developed a series of questions (designed appropriately for each medium) that were administered at the end of the spring semester 2009, as well as at the end of Summer Sessions 2009. Some of the questions required self-reflective responses. Some required short responsive statements, others were administered in multiple choice format.
b) *Analysis:* The MAP ladder faculty member has collected evidence from each lecturer and visiting faculty member and has been in the process of compiling the data. The faculty has been asked to write: a short summary of what they learned from the assessment of PLO #1 process and how they plan to incorporate it into their future teaching, a short proposal for how to best document electronically their students' learning process (i.e. students' art work that documents the process of technique acquisition), and proposal for changes in the MAP Program Learning Outcomes.
c) *Use of Findings:* The findings will be used to improve student learning in several ways. The narrative summary of the findings will be distributed to all lecturers and visiting faculty before the beginning of spring semester 2010. If appropriate, instructor will revise his or her syllabi.

a) ***Evidence II:*** Outside reviewers (practicing artists) willing to participate in an end of the semester portfolio or performance review will be identified and scheduled to visit upper division MAP technique and practice course. Conversely, qualified reviewers unable to visit the campus will be able to access students' work in electronic form. (It is believed that UC Merced IT is developing a way to archive student work electronically. This method is more cost effective).
b) *Analysis*: Reviewers will be asked to fill out forms assessing (numerically) the extent to which each individual student portfolio or performance meet the PLOs stated goal. They will also have the opportunity to add a short narrative. The numerical assessments will be entered into spread sheet to be analyzed. A narrative summary will be produced.
c) *Use of Findings*: The same methods as described above will be utilized.

a) ***Evidence III****:* In some visual arts MAP courses the technical and artistic level of each student may be best assessed through pre-instruction and post-instruction projects

administered on first and last day of class. This method of assessment is most successful in the visual arts, in media such as painting, sculpture, photography and architecture.

b) *Analysis*: Pre-instruction and Post-instruction projects have stronger pedagogical value if they are documented. Digital technology makes this process of documentation much more practical than it was in the past. MAP plans to set up a system in which paid student assistants will scan and photograph both the Pre-instruction and Post-instruction projects to be used for educational purposes. Students and faculty will both have artifacts visually documenting the level of each student's achievement in a given course. Images will be kept on UCMCROPS and on the arts.ucmerced.edu website (signed permission form from each student to add the projects to the website is required.)

c) *Use of Findings:* Pre-instruction and Post-instruction projects represent a very tangible assessment for the visual arts media. They are usually accompanied by student group critiques in which students are asked to reflect on their own achievement and the achievement of their peers over the course of the semester. When preserved they represent invaluable evidence of the success of various teaching methods. MAP plans to make these projects part of Evidence II (outside review by practicing artists)

2. Demonstrate enhancement of visual, aural, and physical perception and cognition through the acquisition of art technique

a) *Evidence:* For each MAP technique course, instructor (under the guidance of FAO) will develop a series of questions (designed appropriately for each medium). Some of these questions will require self-reflective responses. Some will require short responsive statements; others will be administered in the multiple choice format.

b) *Analysis:* A narrative summary of evidence collected.

c) *Use of Findings:* The same methods as described for PLO #1/Evidence I will be utilized.

3. Demonstrate the ability to communicate the aesthetic, historical, cultural, social and contemporary aspects of the medium(media) they are studying

a) *Evidence:* For each MAP technique course, instructor (under the guidance of FAO) will develop a series of questions (designed appropriately for each medium). Some of these questions will require self-reflective responses. Some will require short responsive statements; others will be administered in the multiple choice format.

b) *Analysis:* A narrative summary of evidence collected.

c) *Use of Findings:* The same methods as described for PLO #1/Evidence I will be utilized.

4. Express ideas through an art medium

a) *Evidence:* Outside reviewers (practicing artists) willing to participate in an end of the semester portfolio or performance review will be identified and scheduled to visit every upper division MAP technique and practice course. Conversely, qualified reviewers unable to visit the campus will be able to access students' work in the form of E-Portfolios. (This method is more cost effective).
b) *Analysis*: Reviewers will be asked to fill out forms assessing (numerically) the extent to which each individual student portfolio or performance meet the PLOs stated goal. They will also have the opportunity to add a short narrative. The numerical assessments will be entered into spread sheet to be analyzed. A narrative summary will be produced.
c) *Use of Findings*: The same methods as described for PLO #1/Evidence I will be utilized.

Minor in Arts

The assessment of the Minor will include analysis of GASP and MAP Program Learning Outcomes as well as exit surveys of graduating students.

Part D: Process

GASP PLO	YEAR ASSESSED
#1Describe art works in technical or theoretical terms	AY 2009-2010
#2Enlarge technical/theoretical vocabulary	AY 2010-2011
#3Analyze art works	AY 2011-2012
#4Be critically engaged with art works	AY 2012-2013
#1Describe art works in technical or theoretical terms	AY 2013-2014
#2 Enlarge technical/theoretical vocabulary	AY 2014-2015
#3 Analyze art works	AY 2015-2016
#4 Be critically engaged with art works	AY 2016-2017

MAP will assess each of the PLOs during the academic year **and summer session.** They will be ready for discussion and implementation by the end of the subsequent semester. For example: the first PLO which was assessed during spring semester 2009 (and will be again assessed during the summer session) will be discussed with the faculty by the end of fall semester 2009.

MAP PLO	YEAR ASSESSED
#1 Demonstrate understanding and acquisition of (through hands-on projects) the principal attributes and mechanics of art technique(s) in medium of choice	AY 2009-2010
#2 Demonstrate enhancement of visual, aural, and physical perception and cognition through the acquisition of art technique	AY 2010-2011
#3 Demonstrate the ability to communicate critically the aesthetic, historical, cultural, social and contemporary aspects of the medium(media) they are studying	AY 2011-

	2012
#4 Express ideas through an art medium	AY 2012-2013
#1 Demonstrate understanding and acquisition of (through hands-on projects) the principal attributes and mechanics of art technique(s) in medium of choice	AY 2013-2014
#2 Demonstrate enhancement of visual, aural, and physical perception and cognition through the acquisition of art technique	AY 2014-2015
#3 Demonstrate the ability to communicate critically the aesthetic, historical, cultural, social and contemporary aspects of the medium(media) they are studying	AY 2015-2016
#4 Express ideas through an art medium	AY 2016-2017

Minor in Arts

Minor in Arts will be assessed ever year through parallel analysis of GASP and MAP Program Learning Outcomes

2009-2010	GASP PLO #1	MAP PLO#1
2010-2011	GASP PLO #2	MAP PLO#2
2011-2012	GASP PLO #3	MAP PLO#3
2012-2013	GASP PLO #4	MAP PLO#4
2013-2014	GASP PLO #1	MAP PLO#1
2014-2015	GASP PLO #2	MAP PLO#2
2015-2016	GASP PLO #3	MAP PLO#3
2016-2017	GASP PLO #4	MAP PLO#4

Part E: Participants

GASP

ASSESSMENT PLAN ACTIVITY	IMPLEMENTED BY:
Evidence Collection	Faculty Assessment Coordinator (FAC)
Data Entry	FAC
Data Analysis	All faculty
Dissemination of Results	FAC
Implementation of findings to improve student learning	All faculty

MAP

ASSESSMENT PLAN ACTIVITY	IMPLEMENTED BY:
Evidence Collection	Faculty Assessment Coordinator

	(FAC) All lecturers and visiting faculty
Data Entry	FAC
Data Analysis	Faculty Assessment Coordinator(FAC)
Dissemination of Results	FAC
Implementation of findings to improve student learning	All faculty

Part F: Minor

All GASP PLOs and MAP PLOs apply to the Arts Minor and will be assessed according to guidelines listed above and will be assessed accordingly.

Part G: Evaluation with WASC Rubric

Comprehensive List The list of Program Learning Outcomes is *highly developed* and encompasses the student learning appropriate for the curriculum offered and according to disciplinary standards generally observed. Faculty members have agreed on the criteria for the assessment and have incorporated assessment into their teaching.

Assessable Outcomes The Assessable Outcomes are *developed*, however they need refining in the area of precise definition of demonstrable learning which is affected by challenges in the area of institutional support.

Alignment The opportunities for students to learn and to acquire increasing sophistication with respect to each outcome are *emerging*. The complexity of the task of aligning the pedagogy, grading, and curriculum with the existing resources (both in regards to faculty and facilities) have affected the advancement of this rubric.

Assessment Planning The Program has a *developed* multi-year assessment plan that identifies when each outcome will be assessed. However, the future of this plan is uncertain due to the challenges in the area of institutional support.

Student Experience This rubric is *emerging.* Students have some knowledge of program outcomes but there is no formal and fully functioning communication of the Program Outcomes.

SECTION III: ALIGNMENT OF INSTITUTIONAL AND PROGRAMGOALS/OUTCOMES-FOR GASP, MAP AND ARTS MINOR

Part A: Program and Institutional Goals/Outcomes

<u>Media Arts Program revised PLO Alignment with the UC Merced Eight Guiding Principles of General Education is as follows (all courses satisfy the Minor requirements):</u>

MAP PLOs	Scientific Literacy	Decision Making	Communication	Self & Society	Ethics & Responsibility	Leadership & Teamwork	Aesthetic Understanding & Creativity	Development Of Personal Potential
#1		**X**				**X**	**X**	**X**
#2			**X**	**X**	**X**		**X**	**X**
#3		**X**	**X**	**X**	**X**		**X**	**X**
#4		**X**	**X**	**X**	**X**	**X**	**X**	**X**

Media Arts Program PLO Alignment with the UC Merced Eight Guiding Principles of General Education

MAP PLOs	Scientific Literacy	Decision Making	Communication	Self & Society	Ethics & Responsibility	Leadership & Teamwork	Aesthetic Understanding & Creativity	Development Of Personal Potential
#1		**X**				**X**	**X**	**X**
#2			**X**				**X**	**X**
#3		**X**	**X**	**X**	**X**		**X**	**X**
#4		**X**	**X**	**X**	**X**	**X**	**X**	**X**

Arts Minor PLO Alignment with the UC Merced Eight Guiding Principles of General Education

PLOs	Scientific Literacy	Decision Making	Communication	Self & Society	Ethics & Responsibility	Leadership &Teamwork	Aesthetic Understanding & Creativity	Development Of Personal Potential
GASP #1		X	X	X	X	X	X	X
GASP #2		X	X	X	X	X	X	X
GASP #3		X	X	X	X	X	X	X
GASP #4		X	X	X	X	X	X	X
MAP #1		X				X	X	X
MAP #2			X				X	X
MAP #3		X	X	X	X		X	X
MAP #4		X	X	X	X	X	X	X

Part B: Program and School Goals

Global Arts Studies Program PLO Alignment with the School of Social Sciences, Humanities and Arts Educational Mission (as described on SSHA Website)

GASP PLOs	Study Diverse Realities	Research Social Institutions	Understand the By Examining	Use the Latest Technology	Appreciate Diverse

	&Complex Social Issues	&Cultural Systems & Their Impact	Its Past & Exploring Its Future	To Investigate Human Thought, Behavior & Interactions	
GASP 21	**X**	**X**	**X**		**X**
GASP 34	**X**	**X**	**X**	**X**	**X**
GASP 135	**X**	**X**	**X**	**X**	**X**
GASP 141	**X**	**X**	**X**		**X**

<u>Media Arts Program PLO Alignment with the School of Social Sciences, Humanities and Arts Educational Mission (as described on SSHA Website)</u>

MAP PLOs	Study Diverse Realities &Complex Social Issues	Research Social Institutions &Cultural Systems & Their Impact	Understand the World By Examining Its Past & Exploring Its Future	Use the Latest Technology To Investigate Human Thought, Behavior & Interactions	Appreciate Diverse Cultures by Learning About and Taking part in Their Creative Expressions
#1	**x**			**x**	
#2	**x**				
#3	**x**	**x**	**x**		**x**
#4	**x**	**x**	**x**		**x**
#5			**x**		**x**
#6				**x**	**x**
#7				**x**	**x**
#8					

C: Program and Course (Student) Learning Outcomes

GASP

All GASP courses satisfy the Minor requirements and include PLO alignment.

Program Learning Alignment between Media Arts Program learning Outcomes and courses offered (all courses satisfy the Minor requirements)

MAP

Media Arts Program revised PLO Alignment with Media Arts Courses is as follows (all courses satisfy the Minor requirements):

Arts Course#	PLO #1	PLO #2	PLO#3	PLO#4

001A	X	X	X	X
002A	X	X	X	X
002B	X	X	X	X
002C	X	X	X	X
002D	X	X	X	X
003	X	X	X	X
003B	X	X	X	X
004A	X	X	X	X
004B	X	X	X	X
005A	X	X	X	X
009A	X	X	X	X
010		X	X	
012		X	X	
015		X	X	
020	X	X	X	X
021	X	X	X	X
023	X	X	X	X
026A	X	X	X	X
027B	X	X	X	X
036	X	X	X	X
042A	X	X	X	X
070	X	X	X	X
071	X	X	X	X
101		X	X	

102		X	X	
103		X	X	
104	X	X	X	X
115	X	X	X	
121A	X	X	X	X
129	X	X	X	X
150	X	X	X	X
159	X	X	X	X
170	X	X	X	X
171	X	X	X	X
180	X	X	X	X
181	X	X	X	X
183	X	X	X	X
190	X	X	X	X

REVISED FACULTY ACCREDITATION REPORT

History Program

University of California, Merced

April 13, 2010

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ADDENDUM: Summary of Assessment Plan Revisions

The history program is satisfied with the PLOs that we established, and do not have any plans to revise them at the moment. We are, however, planning to change the rubric by which we engage in assessments. Finally, we will collect evidence (senior theses) in May and engage in the assessment in the summer or at the beginning of Fall Semester.

ADDENDUM: ABSTRACT DESCRIBING ASSESSMENT PLAN UPDATES

As stated above, the history program spent a great deal of time developing its five PLOs and is satisfied with them. We plan on two overall changes: (1) Change the rubric we use to something that is more easily assessable, as we felt that the last rubric was too broad, and (2) collect evidence (senior theses) in May and engage in the assessment in the summer or at the beginning of Fall Semester.

SECTION I: PROGRAM DESCRIPTION - MAJOR AND/OR MINOR

A searching, open-ended, and skeptical spirit of inquiry animates the contemporary historical profession and shapes both our research and our teaching. As scholars and teachers we believe that the goal of history education goes beyond the desire to impart to our students a fixed body of historical knowledge. By its very nature, historical knowledge on any given subject is never fixed, but rather open to continuing acts of discovery and redefinition. This reflects not simply the process of unearthing previously hidden historical evidence, but also the fact that historians are constantly reexamining our understanding of what constitutes such evidence. Consequently, it is impossible to fix and standardize the production or dissemination of historical

knowledge. Given the constantly evolving nature of our work, a spirit of open and critical inquiry--the lifeblood of the historical profession--is essential. Therefore, our major seeks to develop the habits of historical thinking that students can use throughout their lives.

The UC Merced history faculty have developed strengths in three relatively new and rapidly evolving areas of the discipline: world history, focusing on cross-cultural, comparative and global approaches to the past; recent American history, emphasizing the history of the Cold War; and public history, examining the presentation, representation and preservation of the human record in museums, heritage sites, digital media, and civic discourse.

A knowledge and understanding of history is useful in a wide variety of professions and career paths. The ability to collect, analyze, and present the evidence behind a persuasive argument, whether verbally or in writing, is recognized as an essential skill in law, business, and diplomacy – and, indeed, in life itself – for, as Thucydides wrote many centuries ago, the study of history is of value to any "who desire an exact knowledge of the past as an aid to the interpretation of the future. . . ."

The leading professional organization in the discipline, the American Historical Association, has developed a publication entitled Careers for Students of History. Targeted at students graduating with BAs in history, this publication presents an optimistic picture of the opportunities for graduates. The authors suggest that History BAs may find employment related to their degrees in schools; museums; editing and publishing; archives; historic preservation; federal, state and local agencies; and as consultants and contractors.

For students who wish to go to graduate school, History, with its emphasis on research, writing, and argumentation, as well as knowledge about this past, is well known as an excellent preparation for law school. Students who wish to go to graduate school in history can select from dozens of existing doctoral programs throughout North America alone.

SECTION II: ASSESSMENT PLAN – MAJOR AND/OR MINOR

Part A: Timeline & Goals

We will implement one of our Program Learning Outcomes each year. Our goal is that by the end of a five-year period, we will have gone through each of our PLOs, assessed the learning outcomes, and be able to plan another five-year program.

Part B: Outline of PLOs

We plan to publish our Program Learning Outcomes on our History Program website, where current and prospective students, and other stakeholders, will have easy access to this information. The History program website will be up and running by March, 2009. Furthermore, course syllabi will have individual learning outcomes on them, which relate to our Program Learning Outcomes.

Program Learning Outcomes

Upon successful completion of the History major, students will be able to:

(1) Recognize the processes by which societies, cultures, and institutions change over time

(2) Describe particular historical developments and explain their wider historical context

(3) Critically read, analyze, and synthesize primary and secondary sources

(4) Use methods of narrative and analysis appropriately for communicating historical phenomena

(5) Identify the various contexts that shape the construction and use of historical sources and knowledge.

Part C: Evidence

In all courses, instructors will have students submit all papers through the UCM Crops site to provide a record of student work. Similarly, student theses will be submitted electronically. Final exams will be kept on file. Each year a sample of documents relevant to that goal (usually taken from both lower division and upper division courses) will be chosen for analysis.

In order to perform the analysis, the faculty will develop a set of rubrics that indicate the qualities associated with student work at different levels. Sample documents will be used for norming purposes. Evidence to be gathered and examined for each PLO is as follows:

Outcome (1): Short papers and projects, analytical papers and projects, and exams

Outcome (2)**:** Short papers and projects, analytical papers and projects, exams, senior thesis

Outcome (3)**:** Short papers and projects, analytical papers and projects, exams, senior thesis

Outcome (4): Short papers and projects, analytical papers and projects, exams, internship projects, reports, and presentations

Outcome (5): Short papers and projects, analytical papers and projects, exams, internship

Analysis of Data

Data will be analyzed by a sub-committee of history faculty members who will interpret the evidence through evaluating samples of the types of evidence listed above.

Use of Findings

We expect to use our findings to improve student learning in numerous ways. These include, but are not limited to, improving the assessment process, improving our curriculum, examining curriculum content, examining skill development, stimulating faculty discussion, and re-examining our PLOs.

Part D: Process

A brief plan for each year's assessment for student achievement of each PLO is as follows:

Year 1 PLO #1. Evidence will be collected in March, data will be analyzed in April, results disseminated on our website and findings begin to be implemented for the following year in May.

Year 2 PLO #2. Evidence will be collected in March, data will be analyzed in April, results disseminated on our website and findings begin to be implemented for the following year in May.

Year 3 PLO #3. Evidence will be collected in March, data will be analyzed in April, results disseminated on our website and findings begin to be implemented for the following year in May.

Year 4 PLO #4. Evidence will be collected in March, data will be analyzed in April, results disseminated on our website and findings begin to be implemented for the following year in May.

Year 5 PLO #5. Evidence will be collected in March, data will be analyzed in April, results disseminated on our website and findings begin to be implemented for the following year in May.

Part E: Participants

Participants involved in implementing our assessment plan are as follows:

Evidence collection: All those who teach undergraduate history courses at UC Merced.

Data analysis: A subcommittee of history faculty members will analyze the data.

Dissemination of results: Our history program webmaster will upload our results on our history website.

Implementation of findings: All those who teach undergraduate courses at UC Merced will implement the findings to improve student learning.

Part F: Minor

We expect the same learning achievements for our minors as our majors, and minors will be assessed the same way as our majors. The minor in history requires two lower division history courses and four upper division history courses. There are no restrictions on course distribution, and there are no required induction or capstone courses. A student who has taken four upper division history courses will have a Developed understanding of the Learning Outcomes for the program, but will not have achieved the Mastery expected of majors.

Part G WASC Rubric for Assessing the Quality of Academic Program Learning Outcomes

Comprehensive list: Highly Developed. Our list of PLOs is comprehensive and encompasses the broad scope of student learning we expect from our majors, and our faculty have agreed on explicit criteria for assessing students' level of mastery of each outcome.

Assessable outcomes: Developed. While our faculty have agreed on explicit criteria statements, such as rubrics, and we have identified examples of student performance at varying levels for each outcome, we feel that our rubrics could use some improvement.

Alignment: Developed. The history curriculum is designed to provide opportunities for students to learn and to develop increasing sophistication with respect to each outcome. We are reworking the capstone course and talking about ways in which to rework our lower division survey course in order to allow students to become increasingly sophisticated in their use of historical method and expression.

Assessment planning: Developed. Our program has a clearly stated, multi-year assessment plan that identifies when each outcome will be assessed. Our plan includes sections on analysis and implementation of improvements. Indeed, we have already started such activity.

Student experience: Developed. Our students have a good grasp of program outcomes, due to the fact that outcomes are included in all of our syllabi and are readily available in the catalog and on our web page.

SECTION III: ALIGNMENT OF INSTITUTIONAL AND PROGRAM GOALS/OUTCOMES –MAJOR AND/OR MINOR

Part A: Program and Institutional Goals/Outcomes

Although the history program addresses nearly all of UC Merced's eight guiding principles in various ways, history is uniquely suited to address directly three of the eight principles: decision making, communication, and self and society. History as an academic discipline teaches students to examine evidence--in our case, documentary or other evidence from the past--and learn how to use that evidence in a critical fashion in

order to understand that past. In other words, we teach students to be good critical thinkers. Although these skills have an immediate use in the field of history, they extend way beyond classroom learning. Learning to read a primary source in historical context, for example, will help students read a newspaper, watch the evening news, or read a website in a critical fashion. This in term will allow them to make their own independent and reasoned decisions.

In addition to critical thinking, history teaches effective written communication. All of our history courses include required written assignments, and instructors critique that writing for its effectiveness both in terms of language and content. Students in the history program have the opportunity to write a variety of pieces ranging from long research papers as part of the senior thesis requirement to short critical analyses of primary sources.

The study of history is the study of the human past in all of its richness and diversity. The UC Merced program provides both depth, in examining the history of a particular nation, for example; and breadth, in our world history and thematic courses which take a comparative approach.

Finally, the UC Merced history program places a great deal of emphasis on student-centered research. Many of our courses, ranging from the introductory level to our upper-division courses, require student research papers. Indeed, implicit in our program learning outcomes is the goal for students to be able to engage in research and communicate the results of that research in a meaningful way. Several of our advanced courses, such as History 191, which all history majors must take, requires students to write a lengthy research paper on a topic of their choice with faculty guidance.

Table I: A curriculum map representing the alignment between the History Program Learning Outcomes and the Eight Guiding Principles of General Education.

PLOs	Scientific Literacy	Decision Making	Communi-cation	Self & Society	Ethics & Respons-ibility	Leadership & Teamwork	Aesthetic Understandin g Creativity	Development of Personal Potential
1		X	X	X	X			X
2		X	X	X	X			X
3		X	X	X	X			X
4		X	X	X	X			X
5		X	X	X	X			X

Part C: Program & Course (Student) Learning Outcomes

The curriculum map below addresses the question as to how our curriculum supports our Program Learning Outcomes.

Table II: Curriculum Map

Course	**Outcome 1**	**Outcome 2**	**Outcome 3**	**Outcome 4**	**Outcome 5**
5	I	I	I	I	I
10-11	I	I	I	I	I
16-17	I	I	I	I	I
20-21; 30-31	I	I	I	I	I
60	I	I	I	I	I
70-71	I	I	I	I	I
90x	I	I	I	I	I
95	I	I	I	I	I

98	I	I	I	I	I
99	I	I	I	I	I
100	D	D	D	D	D
108; 109	D	D	D	D	D
111	D	D	D	D	D
117-120	D	D	D	D	D
120	D	D	D	D	D
124	D	D	D	D	D
130	D	D	D	D	D
132	D	D	D	D	D
134-135	D	D	D	D	D
139	D	D	D	D	D
150	D	D	D	D	D
165	D	D	D	D	D
170	D	D	D,	D	D
172	D	D	D	D	D
179	D	D	D	D	D
191	M	M	M	M	M
193	M	M	M	M	M
194	M	M	M	M	M
195	M	M	M	M	M
198	M	M	M	M	M
199	M	M	M	M	M

I=Introduction, D=Develop, M=Mastery at a level appropriate for graduation

Faculty Assessment Report – Literature and Cultures—Proposed Revisions, April 2010

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Summary of Proposed Revisions:

Given that Literature and Cultures has merely piloted one rubric, it is premature to make changes to the plan. However, this report proposes some changes for faculty consideration; other proposed changes may be added after we run our first full assessment in May, 2010. After revising these proposed revisions in May, the FAO will forward the proposal to the LIT faculty for consideration. Ideally, the faculty will be able to agree to changes through an electronic discussion and will be able to implement the changes for next semester. If the changes prove controversial and require a meeting, we will delay implementation. Please notice that the proposed changes entail one addition to the structure of the major (pp ___, in blue) and require minor changes in course assignments, especially in upper-division courses.

1) *Delete any reference to spoken presentation in any PLO and delete the fifth PLO as a separate outcome.* The current lack of a platform for portfolios means that it will be inordinately difficult to collect direct evidence of student abilities in oral presentation. Thus, we will use only written work as direct evidence of student achievement. The experience of developing and using a rubric on the first PLO suggests that the quality of the writing is inseparable from the quality of the content. Thus, assessment of any PLO will also entail an assessment of the fifth PLO.
2) *Add portfolio requirements to each syllabus.* Without a stable portfolio program in CROPS, it will be more difficult to collect and organize direct evidence. Students will have to maintain their portfolios independently, and since these will not be on an accessible platform, faculty will have trouble ensuring student progress on portfolios. Thus, students will need to be told explicitly in each class to maintain their portfolios,

and a brief portfolio review will have to be required as well. It may be necessary to work portfolio requirements into the advising system, too.

3) *In each upper-division course other than LIT 100, require a long (at least 15 pages) paper.* Preliminary review of senior projects shows that students have not had enough experience with longer essays to be able to handle the more complex rhetorical and argumentative structures necessary to a paper of fifteen pages or more.

4) *Require in LIT 100 and LIT 190 submission of at least one paper in draft and final form for use in portfolio.* In order to evaluate student mastery of intellectual and rhetorical skills, we need to be able to evaluate how well they use processes of intellectual and rhetorical engagement. The best way to measure such engagement is to look at how a student develops an essay in the transition from draft to final form.

SECTION I: PROGRAM DESCRIPTION - MAJOR AND MINOR

The Literatures and Cultures programs (both major and minor) seek to ensure both that students understand the basic notion of cultural production and reception, and that they are, through a variety of courses, familiarized with the relationships between society and literature, between reading and thinking, and between self and societal forms of expression.

Literary study asks questions of history and culture, of gender and minority thought and discourse. In these ways, our program is of a piece with current practices and trends in literary studies. We differ in that we are not carrying legacy practices from the twentieth century and so we unabashedly name our program Literatures and Culture, insisting that our students do not see the study as a simply an exercise in aesthetics without connecting that study to the larger intellectual and ethical worlds, and that students do not see literature as bounded by nation or language. While we currently have faculty to provide courses only in English or Spanish, we do not separate these into two majors. Furthermore, our faculty encourage our students to envision the study literature and as a profoundly interdisciplinary task, not simply combining textual with contextual study, but also looking at literature through lenses such as those provided in fields like cognitive science, museum studies, information science, environmental studies, etc.

In addition to adhering to the UC Merced and School of Social Science, Humanities and Arts requirements, the Literature and Cultures major, B.A., will require the following:

A. Lower Division Major Requirements [16 units]:

1. Two Lower Division survey courses, LIT 20/21, 30 /31, 40/41, or 50/51, (preferably within a sequence)
2. Two additional Lower Division LIT electives

B. Upper Division Major Requirements [20 units]:

1. LIT 100 (Engaging Texts: Introduction to Critical Practice)
2. LIT 190 (Senior Project)
3. At least three Concentration-Specific Upper Division Courses, as listed in "Concentrations" [12 units]

C. Language Requirements [8 – 16 units]:

1. Literature of the English Speaking World (at least 2 semesters of college level foreign language)
2. Literature of the Spanish Speaking World (at least 4 semesters of college level Spanish)

Breadth Requirement [8 units]

Two non-Literature courses from within the student's chosen concentration (outlined below). These be may either upper- or lower-division courses. Temporary exception: Literature of the Spanish-speaking world gives students the choice of taking two non-literature courses in Latin American or US Latin culture, or two upper-division courses either in Peninsular or Hispanic Transatlantic cultures or literatures.

Concentrations

Within the broad requirements outlined above, students are expected to choose a concentration. All required courses for the concentration count toward fulfilling the 52-60 units for the major. Students may take additional literatures and cultures courses within their

concentration or in another concentration (if qualified). Currently, two concentrations are available:

Literatures of the English-speaking World :

Two lower-division literature survey courses (LIT 30, 31 or LIT 40, 41);

Three upper-division courses in American Literature or British Literature (LIT 120, 130, 131, 133, 135, 165, 167, 168, 169, 180, 181, 183);

Two non-Literature classes exploring indigenous, colonial, or post colonial identity and life in the U.S. or Great Britain (such as HIST 16 and 17, ARTS 120, ANTH 125). For a complete list of applicable courses, see the Literature web site);

Two semesters of Foreign Language (any language).

Literatures of the Spanish-speaking World :

Lower-division Hispanic Literature (LIT 50, 51);

Three upper-division courses in Peninsular, Transatlantic, Latin American or US Latino literatures (such as LIT 120, 150, 151, 152, 153, 155,156, 157,158,159,167, 168, 169). In at least two of these three courses the language of instruction must be Spanish;

Two non-Literature courses that will inform the student's understanding of the Latin American World or US Latino (such as SPAN 100, SPAN 101, LIT 155, LIT 158); or Two Peninsular or Transatlantic literature upper division courses;

Four semesters of Spanish language (not those used to fulfill breadth requirement).

These two formally constituted concentrations engage three overlapping interdisciplinary areas, each of which can be understood as a distinct geographic, intellectual, linguistic, and aesthetic territory, and which can also be studied in relation to the others. Literatures and Cultures of the Hispanic World focuses on Mexico and the U.S., South and Central American countries and European countries such as Spain and Portugal; and Literatures and Cultures of the English speaking world emphasizes literatures, both oral and written, produced within the United States and England, but also encompasses geographic terrains such as Australia and South Africa.

The concentration in Literatures and Cultures of the Spanish-speaking World has global reach and interest. It will include Peninsular, American, African, and Asian literatures in Spanish, as well as a Portuguese component. It also includes a less comparative element for those wishing to focus on colonial and/or indigenous texts. Courses in this area will be taught in Spanish (with some eventually in Portuguese), and they will also be available to students interested in cultural and linguistic proficiency in Spanish.

The Literatures and Cultures of the English-speaking World concentration also has global reach and interest, and includes indigenous, colonial, and postcolonial literatures. This would also include foci on American regional literature and environmental literature, drawing on UC Merced's opportunities to develop programs in literature of the Great Central Valley, California literatures, and the literature of Yosemite, and other national parks. Literatures and Cultures of the English-speaking World assumes an inherent relationship between language and culture, and will therefore include a linguistic component.

Additionally, a third area is encompassed by an overlap both geographical and cultural, and comprises courses students take within both concentrations. This area of study, Literatures and Cultures of the Americas, will enable a bold hemispheric approach, exploring commonalities and differences between native and postcolonial cultures in North America, Central America, South America, and the Caribbean. This broad multilingual, multicultural area is seldom studied in all its complexity, as more traditional programs tend to focus on specific linguistic or geographic areas. Overall, UCM's highly comparative approach to literature enables the interdisciplinary training of students in literature, cultural studies, theory, and comparative studies, while allowing us to address the school's goal of exploring both the world at large and the immediate community. All these emphases will contribute significantly to studies of gender, ethnicity and culture, and they will enable comparative studies of issues such as diaspora, globalization, discrimination, nativism, gender roles, and other social phenomena.

Students interested in a concentration other than those listed above (such as, for example, a thematic concentration in gender or race or a geographical concentration in US literature or Literature of the Americas) may submit a petition with a proposed list of courses that would constitute their concentration.

Language Requirement

Students within the Literature and Culture major must complete at least one year of a college-level language other than English or demonstrate the equivalent. Students in the Literature of the Spanish-Speaking World concentration must complete at least two years of college-level Spanish. This requirement may be satisfied either through the completion of language courses at

UCM with a grade of C- or higher or through completion of approved college level foreign language with a C- or higher. Heritage language speakers and others who have not taken qualifying examinations or completed academic coursework should speak to the Foreign Language Coordinator about demonstrating proficiency equivalent to the requirement.

Portfolio Requirement: Each student will maintain a portfolio to document his/her learning in the major. The portfolio will be subject to regular revision and will be essential to the completion of LIT 190: Senior Project. In LIT 190, each student will select a number of documents that best show development in the major and will write an essay explaining what the documents show. Each portfolio will include at least:

- One writing sample from a lower division course, preferably from one of the survey courses (LIT 20, 21, 30, 31, 40, 41, 50, 51)
- One writing sample from LIT 100
- One writing sample from an upper-division seminar
- The senior project, including drafts with instructor's comments (and with peer comments if available)
- One sample from a course that fulfills the breadth requirement in the major
- Three other samples from any LIT classes.
- A reflective essay explaining what the samples reveal about the student's learning.
- At least two of these samples must include a preliminary draft along with the completed paper.

Requirements for the Minor

The minor in Literatures and Cultures will draw on the major as follows:

1. To complete a Literature and Cultures minor, students must complete a minimum of five Literature courses, at least four of which must be upper division. While the major requires a field of concentration, the minor may be drawn from all Literature and Culture offerings. Students are encouraged to develop a focus in consultations with faculty and with SSHA advising staff.
2. All courses must be taken for a letter grade.
    a. An exception can be made for one course with written permission from faculty.
3. A minimum overall grade point average of 2.0 (C) in upper division courses is required.
4. At least three of the five required courses must be taken at UC Merced.
5. Only one course may be used simultaneously to satisfy requirements for two minors.
6. Only one course may be used to satisfy both a minor and a major requirement.

EXPERIENTIAL LEARNING

Student research is a fundamental part of our program. Each major must complete a senior project. These are not restricted to traditional exegetical research; students may also develop projects that apply research or that engage cross-disciplinary research. Regardless, the requirement forces students to engage actively in analysis and in the production of culture. We also encourage undergraduate research presentations, both in undergraduate research journals and at conferences. Students also participate in collaborative research with faculty.

We also encourage other kinds of experiential learning, especially service learning in such ways as organizing cultural events, film series, speaker series, ethnic arts celebrations, and community outreach programs.

Support for these kinds of service learning comes either financially or in course credit. Service-learning can be supported through internships. Research can also be supported by course credit. Funding is available through faculty research accounts, through grants, through SSHA's undergraduate research fund, and through the Humanities Center. Funds have been used *ad hoc* to support conference travel and on larger scale through salary for research assistance.

PREPARATION FURTHER EDUCATION AND PROFESSIONAL LIFE:

Literary study has long supported the careers of university graduates. The skills developed in writing, critical thinking, problem solving, and inter-cultural awareness are in strong demand throughout the business and professional worlds. Indeed, even medicine has recently discovered that physicians often diagnose better and get better patient compliance by interpreting patients' stories.[1] The major will serve primarily those students who are interested careers in law, government, education, publishing, advertising, and such obviously cognate fields, and those who want to pursue advanced degrees in English, Spanish, Comparative Literature, Ethnic Studies, Gender Studies, Chicano studies, etc. The minor will serve students who, while pursing scientific, technical or professional degrees, recognize the need for a complementary skill set and knowledge base to use as they develop their careers.

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[1] See, for instance, Chatwin J., "Patient narratives: a micro-interactional analysis," Commun Med. 2006;3(2):113-23; Haidet P, Kroll TL, Sharf BF, "The complexity of patient participation: lessons learned from patients' illness narratives," Patient Educ Couns. 2006 Sep;62(3):323-9; Borges S, Waitzkin H, "Women's narratives in primary care medical encounters," Women Health. 1995;23(1):29-56; Gaydos HL., "Understanding personal narratives: an approach to practice," J Adv Nurs. 2005 Feb;49(3):254-9. Eggly S., "Physician-patient co-construction of illness narratives in the medical interview," Health Commun. 2002;14(3):339-60; Shapiro J, Ross V. "Applications of narrative theory and therapy to the practice of family medicine," Fam Med. 2002 Feb;34(2):96-100.

SECTION II: ASSESSMENT PLAN – MAJOR MINOR

Part A: Timeline & Goals

Summer 2010—develop infrastructure for electronic portfolios

Fall 2010—begin having all majors and minors establish and maintain electronic portfolios.

May 2010 and every year thereafter—assess the first four outcomes in order, according to rubrics, with evaluation of the fifth embedded in each of the other four.

We will look both for absolute achievement of these outcomes and for improvement in student work over time. Level of achievement will be judged by rubrics for each outcome.

While much assessment right now is designed simply to encourage faculty to use pedagogies of engagement, our discussions suggest that we are all aware of and practicing such pedagogies, in concert with our personal styles. Our main interest is to explore the degree to which students learn skills of literary and cultural analysis in a linear fashion or recursively. The principle of lower and upper division classes suggests that there is a flow from stage to stage and that cohorts of students moving through a curriculum will acquire skills and knowledge more or less together. On the other hand, studies of writing pedagogy often show that students learn recursively, with a slow accretion of abstract meta-principles developed through trial and error in a variety of contexts. In this sense, sequencing is not linear; development will proceed in complex social contexts with different students at different levels, regardless of cohort or sequence. Our curriculum should be based on the optimum balance between sequence and recursion.

To find this balance, we'll be assessing student work first according to models of intellectual and ethical development. If any of several models—including those of Bloom, Perry, Gilligan, Kohlberg, Dreyfus & Dreyfus[2]—adequately describe student learning in literary study, then we should see clear development of skills and of ethical, aesthetic and intellectual outlooks toward a clear end. If, as is the case with writing instruction, we see a recursive process, with students gaining abilities on one measure only to have to begin nearly again with radically different kinds of assignments, or if we find that more complex questions return students to earlier "stages" of development, or if we find that there are few or different clear stages when working with the complex questions of humanistic understanding and outlook, then we will adjust our curriculum accordingly.[3] What we learn will help us shape what we expect in our lower division surveys, our required methods course, in lower-division electives, in upper-division courses, and in the senior project. Depending on resources (the ability to use graduate students as readers and the ability of the CRTE to help us find and/or develop rubrics) we may use multiple rubrics for each assessment, basing the rubrics on different models of intellectual development.

Part B: Literature and Culture learning outcomes:

Literature and literary criticism are significant parts of an ages old, continuing conversation about what it means to be human and what value humanity has. Unlike scientific or social scientific approaches to this conversation, literary discourse emphasizes the particular in

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[2]Benjamin Bloom, *Taxonomy of Educational Objectives* (1956); W.G. Perry, Forms of Intellectual and Ethical Development in the College Years (New York: Holt, 1970); Laurence Kohlberg, *The Development of Modes of Thinking and Choices in Years 10 to 16*, (Ph. D. dissertation, University of Chicago.1958); Carol Gilligan, *In a Different Voice: Psychological Theory and Women's Development* (Cambridge: Harvard UP, 1982); Hubert & Stuart Dreyfus, *Mind Over Machine* (New York: Free Press, 1982).

[3] In this event, we could use Mary Belenky et al, *Women's Ways of Knowing* (New York: Basic Books, 1986) and Bent Flyvbjerg, *Making Social Science Matter: Why Social Inquiry Fails and How It Can Succeed Again* (Cambridge: Cambridge UP, 2001) to help us to construct alternate assessment rubrics.

the dialogue between particular and universal. It always arises out of specific times, places, and cultural traditions, and it often gives powerful voice to cultural differences and individual differences against the backdrop of larger, homogenizing forces. Moreover, literature has traditionally fore-grounded questions of value over questions of definition, or rather, sees questions of value as central to the definition of humanity itself.

The study of literature enables one to engage this conversation richly, both for personal development and for the ability it gives one to be a responsible agent in the many societies each person inhabits. Moreover, literary study gives one insight into how cultures operate in such a way as to facilitate ethical cross-cultural interactions. Literary study facilitates such agency by teaching readers how to inhabit and then critique literary artifacts, and then to apply the complex understanding—an understanding that engages intellectual, ethical and aesthetic faculties—that arises from the shift between inhabiting and critiquing.

The successful student majoring in Literature and Cultures will be able participate in this larger conversation. More specifically, the successful student will be able to:

- Interpret texts with due sensitivity to both textual and contextual cues;
- Appreciate the aesthetic qualities of texts and the cultures from which they're drawn;
- Judge the ethical value(s) of texts and contexts;
- Apply interpretive strategies developed in literary study to other contexts;
- Articulate, cogently and with sensitivity to context, in both speech and writing, her/his interpretations and evaluations.

These outcomes and their rationale will be published on the SSHA website and the Literatures and Cultures Website by the end of the 2008-2008 Academic Year.

Parts C-E: Evidence, Process, Participants

We will use direct evidence of student learning by using student portfolios in assessing each of our program learning outcomes. Portfolios will contain some work chosen by students and some work identified by faculty as required.[4] Among these latter with be the senior thesis and a reflective essay, both to be developed in the senior year for LIT 190. Each piece of writing will be accompanied by a copy of the assignment for which it was written.

A committee of three[5] will use a random sample of portfolios, evaluating a group of artifacts by rubrics developed for each outcome. The artifacts will include work from lower- and upper-division courses, with specific material from LIT 100, and, from LIT 190, both the senior thesis and a reflective essay. See section A, *supra*, for how we will use the data to improve curricular structure, and thus student learning.

Specifics on assessing each outcome follow:

- Interpret texts with due sensitivity to both textual and contextual cues.

We will use holistic grading, evaluating on a scale of 1-5 (5=highest level of achievement) those pieces of writing that require interpretation. The amount of textual and contextual interpretation required varies from assignment to assignment, so the committee will have to pull from each portfolio a number of samples that engage interpretive tasks. We will take into account cogency, subtlety, and creativity of argument; awareness of generic and other social norms that constrain meaning; sensitivity to the nuances of diction and usage, and awareness of the "conversation(s)"

[4] See Appendix B, "Portfolio Checklist."
[5] Committees for all five assessments will consist of some mix of faculty (tenure-line and, if appropriate, lecturers) and graduate students. Committees will follow the evaluation procedures used by ETS, including team norming, multiple readings, score averaging, and compensating for high deviations on specific items.

a piece of literature engages. Our rubric (attached) will be based on the Dreyfus & Dreyfus model of skill acquisition.

- Appreciate the aesthetic qualities of texts and the cultures from which they're drawn

We will use holistic grading, evaluating on a scale of 1-5 (5=highest) those pieces of writing that require aesthetic response. The degree and kind of response required varies among assignments, so the committee will have to pull from each portfolio a number of samples that include aesthetic analysis and judgment. We will look for progress from absolutist judgments (statements such as, "I like this, therefore it's good") to judgments built on understandings of the aesthetic expectations to which the literary works under study were subjected. Such aesthetic responses entail a cultural openness (culture broadly defined to include a large number of different outlooks contingent on human diversity, including not just contemporary cultures, but past cultures, and sub-cultures and identities--including those built on ethnic, racial, gender, ability, and sexual orientation). To our knowledge, none of the models of intellectual development addresses aesthetics directly; we'll probably need to blend the insights of the Perry model of intellectual and ethical development and the Dreyfus & Dreyfus model with the model of "Educational Dialectics" in Belenky *et al*. Rubric to be developed.

- Judge the ethical value(s) of texts and contexts.

Literary study may begin in interpretation and appreciation, but it also requires ethical judgment. The degree and kind of response required varies among assignments, so the committee will have to pull from each portfolio a number of samples that include such judgments. We are not looking to impose values so much as we are looking to see that students have interrogated the values they inherited and have claimed values for themselves. We will develop a rubric

following Lawrence Kohlberg's "Stages of Moral Development," and thus will accordingly use a 0-6 scale.

- Apply interpretive strategies developed in literary study to other contexts.

This is the most difficult of our assessment tasks in that relatively few of our assignments call on students to use the techniques of literary and cultural analysis outside of the classroom. Some students will work on service-learning projects with a humanistic bent or on public humanities projects. We will try to identify such projects to assess such work directly, but for this outcome we will rely mainly on the reflective essay that each student will include. We will craft the prompt to encourage students to reflect on the broader applicability of literary and cultural studies. We will use the Dreyfus & Dreyfus model to develop a rubric, with scoring on a 1-5 scale (5= highest).

- Articulate, cogently and with sensitivity to context, in both speech and writing, interpretations and evaluations.

Since this outcome is foundational to assessment of each of the other outcomes, we will embed its requirements in the other rubrics as best we can. We will try to include in each other rubric a sense of how well each piece of writing serves its purpose To do so, we will take into account cogent presentation of purpose and argument (looking at not just logos, but also ethos and pathos). Sensitivity to context will be evaluated by how well the writing takes into account its prospective audience according to the occasion. Elements of appropriate presentation include the persona projected (including voice, tone and stance), the style (including diction, syntax, figurative language and allusions as well as use of appropriate conventions of presentation and mechanics of writing). Such assessment will work best with those rubrics based on the Dreyfus & Dreyfus model of skill acquisition.

Part F: Minor

Outcomes are the same, though expectations for achievement will be lower. We have yet to decide how to collect evidence to evaluate the minor.

SECTION III: ALIGNMENT OF INSTITUTIONAL AND PROGRAM GOALS/OUTCOMES –MAJOR AND MINOR

Part A: Program and Institutional Goals/Outcomes

Our program is aligned with institution-wide goals in four ways:

- Our courses support seven of eight of UC Merced's Eight Guiding Principles of General Education. Literary study does not support the goal of developing "Scientific literacy." It does support "Decision Making" in that in asks students to "appreciate the various and diverse factors bearing on decisions and the know-how to assemble, evaluate, interpret and use [qualitative] information effectively for critical analysis and problem solving." Its emphasis on critical reading, on writing, and on speaking clearly supports the goal of improving students' skills at "Communication." Insofar as UC Merced's literature and society programs guide students to study literature in cultural context and as part of culture, they help students to "understand and value diverse perspective in both the global community contexts of modern society in order to work knowledgeably and effectively in an ethnically and culturally rich setting." Literary study is profoundly a study of "Ethics and Responsibility," not merely as abstractions but in particular, with an emphasis on emotional awareness. Insofar as literature faculty use pedagogies of engagement, students learn, both in seminars as communities of inquiry and in the development of collaborative projects, "Leadership and Teamwork." Insofar as the subject of our study is a fundamental human art form, we necessarily encourage "Aesthetic Understanding and Creativity." Finally, one of the most ancient justifications of literary study is to encourage "Development of Personal Potential," and in this respect, we are true to tradition.

- We support the university's identity as a "student-centered research university" by actively engaging students in research, both their own and that of faculty members. See section 1-B (*supra*)
- By encouraging interdisciplinary thinking, our program supports the goal of applying multiple disciplines to complex questions;
- Our emphases on Chicano/Latino Literature, the Literature of California, and Environmental Literature match the goals to serve previously underserved interests and populations in California. In particular, our university was founded to be a Hispanic serving institution. Our emphasis on Latino/a and Chicano/a literature serves this end. And the university was founded to take leadership in environmental stewardship; our emphasis on literature of the environment serves this end.

Part B: Program & School Goals (as applicable) N/A

Part C: Program & Course (Student) Learning Outcomes

How does your curriculum support your Program Learning Outcomes?

Our curriculum has two large parts with a small pivot between them. We begin with our lower division courses, heavily weighted toward surveys, each of which attempts to create large contexts in which to explore texts. These courses introduce students to critical approaches and vocabularies, engage long-term debates about cultural values, expose students to a variety of aesthetic possibilities in both genre and period, and, usually, make gestures outward to the applicability of such studies. The pivot is the required course in critical methodology, "Literature 100:Engaging Texts: Introduction to Critical Practice." While the surveys introduce

some of the terminology and practice, LIT 100 aims to crystallize and systematize such understanding in order to support upper-division study. Upper-division courses engage narrower topics in greater depth and greater sophistication. Courses demand more writing, more research, and intense classroom discussion. Most such classes require formal classroom presentations as well. The senior project should show culminating command of the skills and knowledge developed through the major as well as encourage intellectual independence. Given the recursive nature of the field, all courses address all of these issues. We are not yet in a position to create a curriculum map; indeed, our research question must be answered before we can even conceive of a useful curriculum map.

Appendices

Appendix A: Sample study plans

Sample Study Plan: Concentration in Literatures of the Spanish Speaking World

Semester 1		**Semester 2**	
CORE The World at Home	4	Natural Science/ Engineering intro course w/lab, Field work, or Studio	4
Quantitative Reasoning course	4	Foreign Language	4
WRI 10 Reading & Composition	4	Elective	4
LIT 51	4	LIT 50	4

Semester 3		**Semester 4**	
Natural Science/ Engineering Course	4	SCS course	4
Foreign Language	4	Foreign Language	4
LIT undergrad course	4	LIT undergrad course	4
Elective	4	Elective	

Semester 5		**Semester 6**	
Foreign Language	4	CORE 100 The World at Home	4
LIT 100	4	LIT upper division	4
Breadth requirement	4	LIT upper division	4
LIT 120	4	Elective	4

Semester 7		**Semester 8**	
LIT upper division	4	LIT 190	4
Breadth requirement	4	LIT upper division	4
Elective	4	Elective	4
Elective	4	Elective	4

Sample Study Plan: Concentration in Literatures of the English Speaking World

Semester 1		**Semester 2**
LIT 30	4	LIT 31
WRI 10 Reading & Composition	4	Natural Science/ Engineering intro course w/lab, Field work, or Studio
CORE The World at Home	4	Foreign Language
Elective	4	Elective

Semester 3	**Semester 4**
LIT undergrad	LIT undergrad
Foreign Language	SCS course
Quantitative Analysis course	Natural Science/ Engineering course
Elective	Elective

Semester 5	**Semester 6**
LIT 100	LIT upper division
LIT upper division	LIT upper division
Breadth requirement	CORE 100 The World at Home
Elective	Elective

Semester 7	**Semester 8**
LIT upper division	LIT 109
LIT upper division	LIT upper division
Breadth requirement	LIT upper division
Elective	Elective

Appendix B: Portfolio Checklist

One paper from a lower division course	
One paper from LIT 100	
One paper from an upper division seminar	
Senior thesis (included drafts with instructor's comments. Drafts with peer commentary may also be included)	
One paper from a course that satisfies the breadth requirement	
At least three other artifacts of your choice. At least two of the artifacts in your portfolio must include drafts. The senior thesis counts as one.	
A reflective essay describing your work as a literature major.	

Appendix C: Rubric for PLO #1

Rubric for learning outcome #1: "Interpret texts with due sensitivity to both textual and contextual cues." Interpretation is not a mechanical act, of simply applying an interpretive algorithm—it's an act of co-creation, with the critic finding marshalling appropriate strategies to salient details, or rather, of balancing different details and strategies for interpreting, and assembling from this dynamic interplay a compelling argument. Context, too, is dynamic, in that there are two simultaneous contexts: those of the author, and those of the practice of literary and cultural criticism that the critic inhabits. Powerful interpretation responds to both, with balance between the two appropriate to the critic's particular purpose.					
Level/stage	Knowledge/ indicators	Standard of work/ indicators	Autonomy/ indicators	Coping with complexity/ indicators	Perception of context/ indicators
1/novice	Minimal or "textbook" without connecting it to practice/ work shows very literal understanding of the assignment, offering nothing beyond the task, or shows misunderstanding of some or all of the assignment. In particular, grasps hold of textual or contextual details in a mechanical fashion, or applies interpretive strategies without regard to appropriateness.	Unlikely to be satisfactory unless closely supervised./ Replete with errors showing misunderstanding of interpretive strategies or misreading of textual cues, especially in misreading or weak reading of literary language.	Needs close supervision or instruction./ Examples of revision respond only to instructor's literal advice, without any extension to larger issues. Revisions may not show an understanding of instructor's advice	Little or no conception of dealing with complexity./ work shows a straightforward statement of ideas with little argument, and with no intimation of counter-arguments. Argument may lack cogency; certainly lacks subtlety and creativity. .	Tends to see actions in isolation./ work stays completely in the parameters of the assignment, showing no relevance to anything but the assignment itself. "Presentist" in interpreting generic and cultural norms. No sense of either the class as the basis for entering the conversation or of the larger cultural context of the literary and cultural conversation.

2/advanced beginner	Working knowledge of key aspects of practice./ Work shows very literal understanding of the assignment, offering little or nothing beyond the task, but shows excellent understanding of the task itself.	Straightforward tasks likely to be complete to an acceptable standard./ handles well the interpretive strategies clearly called for in the assignment, but does not connect these with other possible approaches. Shows a certain bluntness in handling literary language and other textual cues.	Able to achieve some steps using own judgment, but only in narrow context of given "rules" or interpretive strategies. / Interpretations likely to repeat instructor's, or class discussion, or of outside "expert." Examples of revision respond just to instructor's advice, but may extend that advice to multiple points in the work. Revisions show an understanding of the instructor's advice	Appreciates complex situations but only able to achieve partial resolution. / Argument is cogent, but neither subtle nor creative. Thesis may be derivative, but there may be contradictory statements that show complexity without being able to manage it. Alternative arguments may be presented poorly, perhaps as a "straw man," perhaps without balance or proportion in regard to the thesis, even to the point of undercutting the thesis.	Sees actions as a series of steps. / "Presentist" in interpreting generic and cultural norms. A sense of the class as the basis for entering the conversation, but not of the larger cultural context of the literary and cultural conversation. Work may seem mechanical in moving from point to point. Transitions may be absent or forced. Sub-parts all support thesis, but without flow, without much, if any connection to the context of the class as a whole, without drawing fluidly on knowledge or skills developed in other classes or earlier in the semester. Work

					seems isolated within the demands of the assignment.
3/Competent	Good working knowledge of areas of practice / demonstrates a understanding of the standards of the discourse community, in part by using strategies beyond those immediately called for in the assignment but clearly pertinent and useful	Fit for purpose, though may lack refinement. / Insightful, cogent, identification of pertinent details; yet presentation and support tend toward the formulaic in structure and approach	Able to achieve most tasks using own judgment. / Interpretations will show some originality, even if only in contradiction or extension of ideas already presented by the instructor, in class, or by an outside "expert." Revision shows resistance to re-thinking an idea; instead shows strong ability to bolster an idea.	Copes with complex situations through deliberate analysis and planning. / Argument is cogent and subtle, and may verge on creative. Does more than simply answer the assignment's question; may even begin to question the assignment, but certainly shows an understanding of counterargument, nuanced positions, ambiguity in evidence, etc. Feels argumentative in handling nuance and complexity—tends to debate, to resolve ambiguity tendentiously. Assertiveness feels defensive.	Sees actions at least partly in terms of longer-term goals. /Truly responsive to the conversation of the class, and beyond. May respond not just to the assignment, but to the larger goals of the course or the major, and may even explicitly engage the larger cultural conversation.
4/Proficient	Depth of understanding of discipline and area	Fully acceptable standard achieved routinely. /	Able to take full responsibility for own work.	Deals with complex situations holistically,	Sees overall "picture" and how this individual

	of practice. / Shows easy conversation with the norms of the discourse community. Interpretive strategies are apt, flexibly and skillfully applied.	Interpretation is insightful, cogent, and well-supported. Presentation is fluid, even elegant. Rhetorical forms are tools rather than constraints. .	/Revisions show full integration of advice as part of conversation in a community of inquiry; they show re-vision as a substantial re-thinking, rather than as a collection of local improvements	decision-making more confident/ Cogent, subtle, and creative. Assignment is a jumping off point for a conversation in the field. Counter arguments are nuanced, rich, and real, not tendentiously dismissed but rather honored as part of the conversation.	action fits within it/ Comfortably responds at multiple levels to the literary and cultural conversation.
5/Expert	Authoritative knowledge of discipline and deep tacit understanding across area of practice. / Not only shows easy conversation with the norms of the discourse community, but pushes on those norms, extending the boundaries or deepening the discussion within the boundaries. Interpretive	Excellence achieved with relative ease. / Shows such mastery of interpretive practices and of the rhetorical forms used to present them that the writing seems "transparent," that is, so perfectly attuned to the work's purpose, audience and argument as to seem at one with the work rather than as a medium of	Able to take responsibility for going beyond existing standards and creating own interpretations./ While the work fulfills the assignment, it is clear that the assignment served merely as a springboard into exploration. Thesis takes intellectual and aesthetic risks, pushing an interpretation	Holistic grasp of complex situations, moves between intuitive and analytical approaches with ease. / Transcends the argumentative traditions of the field, integrating the esthetic experience with the cognitive seamlessly and without needed to indulge in grandstanding or proclamation.	Sees overall "picture" and alternative approaches; vision of what may be possible; full integration of experience with norms of practice./ Not only responsive to, but creatively extends the conversation.

	strategies are apt, flexibly and skillfully inhabited, indeed transformed, from tools to extensions of the writer's persona.	expression.	beyond the obvious.		

Faculty Accreditation Report

Minor in Interdisciplinary Public Health

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SECTION I: PROGRAM DESCRIPTION - MAJOR AND/OR MINOR

Public health can be defined as an approach to promote health, prevent disease, prolong life and improve quality of life of groups of people through organized efforts of society. Focusing on the health and wellbeing of populations, public health complements medicine's concern for individuals with diseases. Public health is an interdisciplinary field drawing on the natural and social sciences as well as the humanities.

One of the most important themes in public health is the disparities in health observed in different groups. UC Merced was established in part to address challenges in the region of the Central Valley (of California). One of the major challenges is the high prevalence of most major health conditions (e.g., heart disease, diabetes, asthma, and alcohol and drug abuse) and the disparities in health experienced by specific populations defined by socioeconomic, cultural, and linguistic characteristics. A public health curriculum that focuses on health disparities in the region will make a larger portion of our college graduates knowledgeable about and interested in addressing such health disparities, either professionally or as citizens.

Many students enter UC Merced with the goal of pursuing higher education in health-related fields, such as medicine and clinical psychology. This is one reason that Biology and Psychology are the two most popular majors on campus. Yet relatively few students are able to realize this goal, but retain a strong interest in and a commitment to working in the health field. A public health curriculum can prepare students to compete for a range of health-related employment after the Bachelors degree. One such health employment market is the area of public health, where many public and private agencies seek qualified workers.

A public health curriculum can also enhance students' competitiveness for different post-college health-related education and training, such as in nursing, counseling, environmental

health, and medicine. Of course, the area of public health itself is one area of higher education that is rapidly expanding (e.g., M.P.H and related degrees). There are currently at least eight institutions in California offering this degree.

In light of the challenging budget circumstances faced by UC Merced, indeed the UC system, it is imperative that a new curriculum will require few additional resources. The proposed minor in interdisciplinary public health has been designed strongly with this in mind. Foremost, the proposed curriculum is based primarily on existing courses. This minor therefore is defined entirely based on classroom courses. As it grows and resources become available, it will be desirable to add experiential learning opportunities, such as an internship, which are common in public health curricula.

This minor was approved in late spring, 2010. Students were eligible to declare this minor starting in the fall 2010. The minor requires the addition of two new courses, Introduction to Epidemiology and health Disparities. The latter was approved in spring, 2010, and is being offered for the first time in fall, 2010. The former has yet to be approved, but is expected to be offered for the first time in spring, 2011. All other courses constituting the minor are already in the UC Merced Catalog.

Note there are as of yet no faculty primarily assigned to the area of public health at UC Merced. A faculty member in public health is expected to be hired to start in January, 2011, and will coordinate this minor. The interim coordinator is a professor in psychological sciences.

SECTION II: ASSESSMENT PLAN – MAJOR AND/OR MINOR

Part A: Timeline & Goals

AY 2010/11: The goal will be to assess PLO#1

AY 2011/12: The goal will be to assess PLO#2

AY 2012/13: The goal will be to assess PLO#3

AY 2013/14: The goal will be to assess PLO#4

AY 2014/15: The goal will be to assess PLO#5

Part B: Outline of PLOs

Students who complete the minor in Interdisciplinary Public health will demonstrate:

1. *Disciplinary Content*: Knowledge of the key substantive content regarding epidemiology, major health conditions, and health disparities.
2. *Self and Society*: Knowledge about key influences on health and disease related to differential status experienced by some population groups.
3. *Scientific Literacy*: Ability to access, understand and synthesize empirical studies from the scientific literature on public health and disparities.
4. *Decision-making*: Ability to conduct and interpret findings from basic analysis of data on health or disparity issues.
5. *Communication*: Ability to communicate orally and in writing about concepts in epidemiology and health disparities.

These PLOs are communicated in the UC Merced Catalog, the website maintained by the Centers of Excellence in Health Disparities which enlists several of the key faculty related to the minor, and in the syllabi of the two required courses (Introduction to Epidemiology and Health Disparities).

Part C: Evidence

Because all students who complete this minor only take two specific courses (PH 100 Introduction to Epidemiology and PSY 120 Health Disparities) that are required (the other four courses constituting the minor can be completed from a menu of eligible courses), the focus of the assessment is on these two courses.

Two types of evidence will be collected: (1) *Direct evidence* will be obtained from a review of a subset of completed student assignments in the two required courses. The instructor and the program coordinator will review a random selection of 20, applying an evaluation rubric scheme to be developed. (2) *Indirect evidence* will be obtained through interviews and/or focus groups conducted with a subset of student in each course by the *Students Assessing Teaching and Learning (SATAL)* program. The *SATAL* program involves trained undergraduates who conduct interviews with groups of students about this PLO in question, using a set of questions that will be developed by the instructor and program coordinator to gather information relevant to each PLO over time.

Both direct and indirect evidence will be analyzed by the Program Assessment Committee, consisting of faculty interested in the minor in interdisciplinary public health, led by the program coordinator. Findings from this assessment will be inform improvement of the assessment process and the curriculum, stimulate faculty discussion, and in time a re-examination of the PLOs.

Part D: Process

In AY 2010/11, PLO#1 will be assessed through the two processes indicated above (see Part C: (1) *Direct evidence* will be obtained from a review of a subset of completed student assignments in the course Health Disparities. The students in that course prepare a final

presentation on a health disparity issue. The instructor and the program coordinator will review a random selection of 20, applying an evaluation rubric scheme to be developed pertaining to PLO#1. (2) *Indirect evidence* will be obtained through interviews and/or focus groups conducted with a subset of student in the course Health Disparities by *SATAL* program. The SATAL program involves trained undergraduates who conduct interviews with groups of students about this PLO focusing on a set of questions that will be developed by the instructor and program coordinator to gather information relevant to PLO#1.

Both direct and indirect evidence will be analyzed by the Program Assessment Committee, consisting of faculty interested in the minor in interdisciplinary public health and led by the program coordinator. Findings from this assessment will be inform improvement of the assessment process and the curriculum, stimulate faculty discussion, and in time a re-examination of the PLOs.

A similar process will be implemented in AY 2011/12, however informed by evidence from AY 2010/11 and focused on PLO#2 in the context of the course Introduction to Epidemiology. Then each of the remaining PLOs will be assessed in AY 2012/13 through AY 2014/15, one per year (see Part A above), focusing in alternating years on the two courses Introduction to Epidemiology and Health Disparities, respectively. Direct and indirect evidence will be analyzed to inform improvements in the assessment procedures and curriculum.

Part E: Participants

Evidence will be collected as detailed in Part D by instructors and the *SATAL* program. Data will be analyzed by instructors, program coordinator, and the Program Assessment Committee. Findings will be disseminated to all instructors teaching courses that are part of the

minor curriculum. Discussions about potential revision of the curriculum and/or PLOs will involve all faculty with an interest in this minor.

Part F: Minor

Not applicable

SECTION III: ALIGNMENT OF INSTITUTIONAL AND PROGRAM GOALS/ OUTCOMES – MAJOR AND/OR MINOR

Part A: Program and Institutional Goals/Outcomes

The PLOs for the minor Interdisciplinary Public Health were developed specifically to address a subset of the UC Merced's Eight Guiding Principles of General Education, as follows:

- The Guiding Principle of Scientific Literacy is addressed in PLO#3.
- The Guiding Principle of Decision Making is addressed in PLO#4.
- The Guiding Principle of Communication is addressed in PLO#5.
- The Guiding Principle of Self and Society is addressed in PLO#2.

Part B: Program & School Goals (as applicable)

Moreover, the mission of the School of Social Sciences, Humanities and the Arts (SSHA), that is "to create a rich learning environment by looking at people and society from a variety of disciplinary perspectives," is embodied in the nature of this interdisciplinary program that is focused on the health and well-being of different groups in our society.

Part C: Program & Course (Student) Learning Outcomes

Curriculum Map

Program Learning Outcomes are:

1. Disciplinary Content: Knowledge of the key substantive content regarding epidemiology, major health conditions, and health disparities.

2. Self and Society: Knowledge about key influences on health and disease related to differential status experienced by some population groups.
3. Scientific Literacy: Ability to access, understand and synthesize empirical studies from the scientific literature on public health and disparities.
4. Decision-making: Ability to conduct and interpret findings from basic analysis of data on health or disparity issues.
5. Communication: Ability to communicate orally and in writing about concepts in epidemiology and health disparities.

The following table indicates which courses in the curriculum address which PLO

	PLO 1 *Disciplinary Content*	**PLO 2** *Self and Society*	**PLO 3** *Scientific Literacy*	**PLO 4** *Decision Making*	**PLO 5** *Communi-cation*
PH 100: Introduction to Epidemiology	X	X	X	X	X
PSY 124: Health Disparities	X	X	X	X	X
BIO 003: To Know Ourselves: Molecular Basis of Health and Disease	X	X	X	X	X
BIO 161: Human Physiology	X	X	X	X	X
BIO 175: Biostatistics			X	X	X

ECON 010: Statistical Inference			X	X	X
MATH 018: Statistics for Scientific Data Analysis			X	X	X
POLI 010: Analysis of Political Data			X	X	X
PSY 10: Analysis of Psychological Data			X	X	X
SOC 10: Statistics for Sociology			X	X	X
ANTH 5: Introduction to Biological Anthropology	X	X	X	X	X
ANTH 120: Introduction to Medical Anthropology	X	X	X	X	X
ANTH 131: Ethnomedicine	X	X	X	X	X
ANTH 150: Race and Human Variation	X	X	X	X	X
ANTH 142: Archaeology of Colonialism		X	X	X	X
ANTH 155: Paleodemography	X	X	X	X	X
BIO 1: Contemporary	X	X	X	X	X

Biology					
BIO 10: Genetics, Stem Cells and Development	X	X	X	X	X
BIO 50: Human Development	X	X	X	X	X
BIO 51: Cancer and Aging	X	X	X	X	X
BIO 60x: Nutrition	X	X	X	X	X
BIO 125: Public Health Threats	X	X	X	X	X
BIO 140: Genetics	X	X	X	X	X
BIO 185 Biomedical Ethics	X	X	X	X	X
COGS 130: Cognitive Neuroscience	X	X	X	X	X
COGS 153: Judgment and Decision Making		X	X	X	X
ECON 142: The Economics of Gender and Poverty	X	X	X	X	X
ECON 145: Health Economics	X	X	X	X	X
ES 40: Air Quality, Air	X	X	X	X	X

Resources and Environmental Health					
HIST 119: Topics in History of Migration and Immigration	X	X	X	X	X
MGMT 153: Judgment and Decision Making		X	X	X	X
POLI 127: Race, Gender, and Politics	X	X	X	X	X
POLI 106: Urban Politics	X	X	X	X	X
PSY 140: Clinical Psychology	X	X	X	X	X
PSY 142: Abnormal Psychology	X	X	X	X	X
PSY 143: Abnormal Child Psychology	X	X	X	X	X
PSY 144: Clinical Neuropsychology	X	X	X	X	X
PSY 145: Human Sexuality	X	X	X	X	X
PSY 147: Health Psychology	X	X	X	X	X
PSY 146: Alcohol, Drugs,	X	X	X	X	X

and Behavior					
PSY 150: Psychological Perspective on Culture, Racial, and Ethnic Diversity		X	X	X	X
PSY 151: The Psychology of Stereotyping and Prejudice		X	X	X	X
SOC 30: Social Inequality	X	X	X	X	X
SOC 130: Advanced Social Stratification	X	X	X	X	X
SOC 131: Urban Inequality	X	X	X	X	X
SOC 160: Sociology of Gender	X	X	X	X	X
SOC 161: Sociology of Sexuality	X	X	X	X	X
SOC 180: Advanced Issues in Race and Ethnicity	X	X	X	X	X

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PLO ASSESSMENT TABLE

Criterion	Rating	Explanation
Comprehensive List	Developed	The PLOs are well-organized and well-aligned with institutional outcomes. The PLOs fall short of a "Highly Developed" rating because they probably do not meet the standard for such a rating that says "Faculty have agreed upon explicit criteria for assessing students' level of mastery of each outcome." Among other challenges is that currently there is no designated faculty for this minor program.
Assessable Outcomes	Initial	Most of the outcomes are broad and do not specify in easily assessable form how students can demonstrate achievement of the PLOs. Moreover, this minor curriculum can be met with a broad range of courses, such that it will be difficult to identify explicit criteria for assessing students' level of mastery of each outcome.
Alignment	Emerging	Being a brand new program, the faculty needs to provide more information to students about how they can achieve the PLOs. For some PLOs this is probably clear (PLO3 probably), but for others this appears not to be the case.
Assessment Planning	Developed	A plan is articulated for several years ahead that will address one PLO in each year. However, detailed planning is not feasible until a dedicated faculty coordinator is hired and can manage the plan.
Student Experience	Initial	Because this program was just started for the Fall, 2010, there has been little attempt yet at communicating the PLOs to students. Further complicating this is that students need not declare a minor until shortly before graduation, such that direct communication will be difficult. Moreover, lacking in an identified group, students thus far has had no input into the development of the assessment plan.

Faculty Accreditation Report:
Materials Science & Engineering (MS&E) Program Learning Outcomes

Spring 2009

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1.0. Materials Science and Engineering (MS&E) Program Description

We strive to provide a top-quality educational program in MS&E that will prepare its graduates with the intellectual rigor, foundational practical skills, and independent creativity needed for successful professional careers in academic, commercial and government endeavors. Our educational objectives are guided by the values (founding Principles of Community) of UC Merced, the mission of UC Merced's School of Engineering, and the accreditation requirements of ABET.

MS&E is based on the interdisciplinary application of fundamental physics and chemistry principles to achieve an understanding of how

(i) the types of atoms and molecules present (i.e. composition), and

(ii) the way in which these atoms and molecules are organized at different length scales (i.e. structure)

together determine what mechanical, optical, electrical, magnetic, electrochemical and other properties are exhibited by a material. Also encompassed in MS&E are the methodologies by which particular atomic and molecular arrangements (nanostructures and microstructures) are achieved, the financial and environmental cost of the ingredients and processes used to produce particular materials, the effects of the environment on materials, the effects of materials and materials processing on the environment, and procedures for characterizing materials structure and properties.

Civilizations have thrived or stumbled according to the materials that they were able to acquire from nature, or through trade, or by innovation. Wood, stone, bronze, iron, steel, aluminum, cermets, plastics, semiconductors, liquid crystals and quantum dots have successively

revolutionized what types of product can be made, and what can be done with them. Nations continue to go to war over access to particular raw materials. The construction of safe dwellings, the conveniences of rapid travel, the efficiency of telecommunications, the calculating and archiving power of computers, the life-prolonging gift of surgical implants, and the dazzling performances of athletes all require dependable materials. Future technological progress will always be limited by available materials.

Given the subject's roots in applying principles from physics, chemistry and (increasingly) biology, MS&E graduates are especially versatile in the job market. Employers appreciate the ability of MS&E graduates to relate to people across a wide spectrum of expertise.

Our program steers away from a traditional focus on metals, and instead emphasizes ceramics, polymers, nanomaterials and biomolecular materials. The rationale for this emphasis is twofold: it prepares our learners to be competitive in a world where applications of these material types are increasingly prevalent, and it promotes flexible sharing of electives between MS&E and Bioengineering. We require our students to participate in Engineering Service Learning, which provides practical exposure to the interface between engineering and society, and an introduction to the design, communication, budgetary and timekeeping skills that professional engineers need.

2.0. Assessment Plan

2.1. Timeline & Goals

A rolling five-year assessment schedule focusing on one Program Learning Outcome (PLO) per year will be followed. We will gather, analyze and act on data that enable us to assess the extent to which students achieve the desired PLOs as a result of completing the MS&E major at UC Merced. The primary goal of this exercise is to ensure that our students optimally (successfully) learn and practice the interconnectivity of ideas that underpin each of the PLOs.

2.2. Program Learning Outcomes

(i) Graduates will demonstrate the ability to apply advanced science (such as chemistry and physics) and engineering principles to materials systems.

(ii) Graduates will demonstrate an integrated understanding of the scientific and engineering principles that underlie the four major elements of the field: structure, properties, processing, and performance related to materials systems appropriate to the field.

(iii) Graduates will demonstrate the ability to apply and integrate knowledge from each of the above four elements of the field to solve materials selection and design problems.

(iv) Graduates will demonstrate the ability to utilize experimental, statistical and computational methods in the context of materials systems.

(v) Graduates will demonstrate professional and ethical responsibility.

PLOs (i) through (iv) are closely aligned with ABET program criteria for Baccalaureate-level materials-focused degree programs. PLO (v) is closely aligned with one of the ABET program

outcomes (currently 'f') required of all Baccalaureate-level engineering degree programs; we have chosen this as one of our PLOs because we are keen to ensure that our graduates have learned how action and consequence are linked in their professional setting.

The MS&E faculty plan to communicate the program goals and learning outcomes in the following ways by the start of the 2009 – 2010 academic year:

- a website specific to MS&E;
- a revision of the catalog copy;
- documents included with orientation materials for lecturers and teaching assistants;
- presentation materials used in student recruitment and orientation meetings.

2.3. Evidence

The procedure for assessing achievement of the program learning outcomes will utilize four methods – two direct, and two indirect. These are:

- Embedded Midterm and Final Exam Questions. These questions will be embedded in ENGR 45 (*Introduction to Materials*) and core upper division MS&E courses to help assess students at various stages of learning – introductory, developing, and mastery levels. Each of these exam questions will be assessed using a level-appropriate rubric agreed upon by the MS&E faculty.
- Capstone Course**.** MS&E Seniors are required to take MSE 120 (*Materials Capstone Design*). This design project is an exercise in materials selection and performance evaluation, with reference to engineering standards and realistic constraints. Learners will be assessed as individuals and on their contribution to a team, and will be required to

communicate their work in a professional format through both written and oral presentations.

- The University of California Undergraduate Experience Survey (UCUES), the National Survey of Student Engagement (NSSE), and UC Merced's Graduating Student Survey. The first two surveys, UCUES (http://www.universityofcalifornia.edu/studentsurvey/) and NSSE (http://nsse.iub.edu/html/survey_instruments_2008.cfm), are respectively a census and a sample survey administered to UC Merced undergraduates in alternating years; they can be mined to provide a basis for assessing our students' learning experience in comparison to the learning experience of students at our sister and peer institutions. The Graduating Senior Survey, administered through Alumni and Career Services, will provide information about the program's success in preparing learners for subsequent graduate studies or employment. Together, there surveys will help us to gauge whether the learners in our program are acquiring knowledge and skills that they value, as well as which parts of the program work well and which areas need improvement.
- Alumni Survey. A survey will be distributed to one-, five-, and ten-year alumni to gather information on whether MS&E graduates pursue graduate degrees and obtain meaningful jobs, and on graduates' perception of their preparedness for their careers. Since our program is relatively small at present, we also expect to be able to keep in touch with our alumni informally and monitor their further progress on an individualized basis.

2.4. Process

The MS&E faculty have committed to a rolling five-year schedule to successively assess the PLOs at the rate of one per year. In other words, the first iteration of our five-year schedule is as follows:

(i) 2009-2010 Academic Year. Develop and implement measures to assess PLO(i). Embedded exam questions in ENGR 45 and core upper division MS&E courses will be identified and assessment rubrics will be created. Student performance in appropriate aspects of MSE 120 (*Materials Capstone Design*) will be assessed. Survey data will be gathered and analyzed.

(ii) 2010-2011 Academic Year. Develop and implement measures to assess PLO(ii). Methods correspond to those described above.

(iii) 2011-2012 Academic Year. Develop and implement measures to assess PLO(iii). Methods correspond to those described above.

(iv) 2012-2013 Academic Year. Develop and implement measures to assess PLO(iv). Methods correspond to those described above.

(v) 2013-2014 Academic Year. Develop and implement measures to assess PLO(v): Methods correspond to those described above.

2.5. Participants

The MS&E program faculty will appreciate interactions with, and support from, UC Merced's Center for Research in Teaching Excellence (CRTE) at all stages of the process described above. Collection and analysis of direct evidence (based on embedded exam questions and the capstone course) will be carried out by the MS&E faculty each semester as part of the

normal administration of our courses. Survey data will be interpreted with the assistance of staff in UC Merced's Office of Institutional Planning and Analysis.

The MS&E program faculty will meet annually to disseminate the results of the assessment for that year's selected learning outcome and discuss appropriate responses. These may include (i) changes to the support (office hours, tutoring, workshops) offered to students, (ii) changing course content, sequence, or prerequisites, (iii) adding or deleting courses from the curriculum, and (iv) changing the instructors assigned to particular courses. Changes in courses or program requirements must be proposed and justified by the MS&E faculty and approved by the Engineering Curriculum Committee. If such changes are substantial (and especially if changes to any Engineering Fundamentals course are required, or if there are changes in prerequisites, or if there is a significant impact on the electives taken by students in other majors), they must also be approved by vote of the full Engineering faculty, and finally by the campus-wide Undergraduate Council. Authority for making teaching assignments rests with the Dean of Engineering, delegated to the Engineering Curriculum Committee.

3.0. Alignment of Institutional and MS&E Program Goals/Outcomes

3.1. Connections between Program and Institutional Goals/Outcomes

The program learning outcomes of the MS&E major reflect seven of UC Merced's Eight Guiding Principles of General Education explicitly in the following ways:

- Scientific Literacy. MS&E is a science-based program in which learners have to demonstrate that they have acquired broad scientific knowledge.

- Decision Making. Learners in MS&E have to demonstrate that they can apply their knowledge to solve complex problems.
- Communication. Learners have to be effective communicators to demonstrate their understanding of advanced principles, and to explain how they use their knowledge to solve complex problems.
- Self & Society. Materials selection and design takes account of factors such as cost, local environment, cultural customs and tradition, and global forces that dictate the supply of raw commodities.
- Ethics and Responsibility. Ethical practices and responsible conduct are hallmarks of a professional engineer, and they are necessary components of safe, sustainable design.
- Leadership and Teamwork. Both of these attributes are also hallmarks of a professional engineer, and are honed through the capstone design process.
- Aesthetic Understanding and Creativity. Engineering design is an inherently creative process. Some designs are more elegant than others. The design process is informed by knowledge of the creativity of the giants whose shoulders we stand on.

Guiding Principles of General Education	**MS&E PLOs**				
	(i)	(ii)	(iii)	(iv)	(v)
Scientific Literacy	✓	✓	✓	✓	
Decision Making	✓		✓	✓	
Communication	✓	✓	✓	✓	
Self and Society			✓		✓
Ethics and Responsibility			✓		✓
Leadership and Teamwork			✓		✓
Aesthetic Understanding and Creativity			✓		
Development of Personal Potential					

The eighth guiding principle, Development of Personal Potential, is something that we strive for in all our students. However, we deliver this primarily by interacting with our students on an *individual* basis – in office hours, in seminar classes, in the research laboratory, at social events, and through student clubs and societies. We do not list it as a PLO, because it is tied to no particular course, and it does not lend itself to objective measure.

UC Merced is a student-centered research university. The MS&E faculty are dedicated to providing research opportunities for students, and to integrating appropriate research findings into coursework wherever possible.

3.2. Connections between Program and School Goals/Outcomes

The five learning outcomes of the MS&E program complement the School of Engineering mission of providing an exceptional technical and professional education that instills in our learners advanced problem-solving skills and effective leadership qualities.

3.3. Connections between Program and Course Learning Outcomes

The table below maps the MS&E PLOs onto the MS&E Core Curriculum. For each PLO, we identify whether a course offers learners an introduction (I), development (D) or mastery (M) en route to graduation.

MS&E Core Course	**MS&E PLOs**				
	(i)	(ii)	(iii)	(iv)	(v)
ENGR 45 Introduction to Materials	I	I	I	I	I
MSE 110 Solid State Materials Properties	D	D	D	D	D
MSE 111 Materials Processing	D	D	D	D	D
MSE 112 Materials Selection & Performance	D	D	D	D	D
MSE 113 Materials Characterization	D	D	D	D	D
MSE 120 Materials Capstone Design	M	M	M	M	M

Faculty Accreditation Report

Mechanical Engineering

March 2009

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Section I : PROGRAM DESCRIPTION - MAJOR AND/OR MINOR

Description of Program (1-3 pages double spaced)

How does your program reflect current or emerging trends in your respective field? What is distinctive about your program? Do students collaborate on research projects or engage in other distinctive learning experiences? How does your program prepare your graduates for further educational and/or professional development?

The mission of the Mechanical Engineering program at UC Merced is to provide a modern, comprehensive, and interdisciplinary educational experience to its student with the objective of preparing them for successful careers in the current and dynamically changing professional environment. To achieve this mission, the department strives to accomplish the following educational objectives:

1. To provide a solid background on the pertinent mathematical, physical, chemical and engineering concepts that make up the foundations of the discipline of mechanical engineering and its closely associated fields;
2. To provide our students with the knowledge to correctly apply the laws of nature to the creative formulation and solution of engineering problems through the use of analytical, computational and experimental techniques;
3. To educate students as independent thinkers who are prepared to work effectively with others through appreciation of the importance of continuing education, self-learning and diversity in the workplace;

4. To instill a sense of community and ethical responsibility associated with the professional use of the knowledge acquired;
5. To expand the reach of mechanical engineering to non-traditional areas by continually seeking to incorporate new methodologies and research findings to our curriculum.

Section II: ASSESSMENT PLAN

The assessment of the outcomes above will be made through the analysis of a number of measures:

i. Student class portfolios, including exams, design projects, lab reports, computer simulations, exams and special assignments;

ii. Course evaluations;

iii. Senior exit interviews;

iv. Yearly faculty meetings with the Program Advisory Board (PAB), which is composed of academic, research and industrial advisors, including representatives from major employers. These meetings are expected to provide feedback on how well our students are being prepared to enter jobs in academia, industry, research labs and the government;

v. Yearly faculty meetings with the University Advisory Board (UAB), which is composed of faculty members from the UC system in ME and other disciplines who share a vision with and interest in our Mechanical Engineering program. These meetings are expected to provide corrective measures and new visions to our program.

II.1 Timeline & Goals

In general, what is your timeline and what are your goals for your assessment plan?

We are going through our first complete assessment yearly cycle in AY 2009. We should have enough materials for forming both the PAB and the UAB. Alumni surveys will be distributed to employers one year after the first ME class graduates (on Spring 2010).

The data gathered through the assessment measures above will be compiled and analyzed to identify corrective measures and new directions to our program. A number of adjustments will be considered, including the modernization of laboratory and computational tools, removal of outdated courses and addition of new ones to the program in response to evolving new directions in engineering; change in pre-requisites, co-requisites and/or partition of laboratory, design, lecture, and computational content in existing courses; rotation of instructors; etc. Our main goal in addressing the ME PLOs is to provide an effective and modern educational experience to our graduates.

II.2 Outline of PLOs

Please outline your Program Learning Outcomes. Where will they be published or otherwise communicated to students and other stakeholders and by when? (See Question 2 of the Inventory of Educational Effectiveness Indicators.)

a. An ability to apply knowledge of informatics, mathematics, science, and engineering;

b. An ability to design and conduct experiments and numerical simulations, analyze, and interpret general scientific and engineering information;

c. An ability to design a system, component, or process to meet desired needs;

d. An ability to solve multidisciplinary problems;

e. An ability to identify, formulate, and solve engineering problems;

f. An understanding of professional and ethical responsibilities;

g. An ability to communicate effectively;

h. The broad education necessary to understand the impact of engineering solutions in a social context;

i. A sound basis and motivation to engage in life-long learning and continuing education;

j. A knowledge of contemporary issues;

k. An ability to use the techniques, skills, and modern engineering and scientific tools necessary for engineering practice;

l. A working knowledge of the principles of Mechanics and Thermodynamics and how these principles evolve into other disciplines such as Heat and Mass Transfer, Vibration and Control, Computational Engineering, Mechanical Design, etc.

m. An ability to recognize new forms of thinking and new promising directions in engineering, and an understanding of modern tools of analysis, synthesis and design (such as neural networks, genetic algorithms, adaptive and bio-mimetic design, virtual environments, uncertainty in simulations, life-cycle analysis, etc.);

n. An ability to incorporate interdisciplinary concepts from mathematics, physics, biology, chemistry and other disciplines into engineering solutions and vice-versa.

o. A culminating design experience.

II.3 Evidence

For each PLO, what kind of direct (student work) and indirect evidence (ex. surveys, focus groups) will be gathered and examined? How will data be analyzed? How will findings be used to improve student learning? (See Questions 3 & 5 of the Inventory of Educational Effectiveness Indicators.)

Class materials (representative exams, homework sets, design projects, etc.) are being collected by all instructors of all classes. Those direct evidence materials are available for perusal by the curriculum committee members, faculty, instructors and accreditation evaluators. The indirect evidence (student, alumni and employer surveys, etc.) will be used to detect imbalances in the process, after which the direct evidence will be used to design specific action items to improve the CLOs in future editions of the courses.

II.4 Process

How and when will assessment for student achievement of each PLO occur? Please outline a brief plan for each year.

Student achievement and CLOs are measured for each class during the semester, and particularly in the end of the semester during the accreditation survey. The midterm exams, homework problems, research assignments and design projects are mapped to the CLOs so that the instructor can monitor the progress as the semester develops. In the end of each course, students respond a survey indicating how the specific learning outcomes were addressed in class. Graduating seniors also participate in the exit survey where perceived success in meeting all PLOs is assessed by the Dean's office. For more details regarding the assessment process, please refer to the assessment plan above.

II.5 Participants

Who will participate in implementing your assessment plan including evidence collection, data analysis, dissemination of results, and implementation of findings to improve student learning? (See Question 4 of the Inventory of Educational Effectiveness Indicators.)

All faculty and instructors participate in the definition of the CLOs, data collection and the assessment process. The engineering accreditation database allows for full dissemination of the assessment results to all members of the campus community. Information from the different assessment processes are discussed on a semester basis, and the curriculum is re-evaluated to better serve the PLOs.

II.6 Minor

If your program involves a minor that is a reduced version of the major, please describe the learning achievements expected of the minor and how the program will assess this learning.

There are no ME minors.

Section III : ALIGNMENT OF INSTITUTIONAL AND PROGRAM GOALS/OUTCOMES –

III.1 Program and Institutional Goals/Outcomes

In what ways does your program reflect institution-wide goals? For context, please consider UC Merced's Eight Guiding Principles of General Education, and / or UC

Merced's Mission Statement[2] that identifies our campus as a "student-centered research university."

The UC Merced Eight Guiding Principles of General Education are reflected very strongly in the 15 PLOs of the Mechanical Engineering program. In fact, the core of the Eight Guiding Principles correspond generically to the first 11 PLOs, whereas the remaining 4 PLOs express specific learning outcomes that distinguish the Mechanical Engineering programmatic content from other majors (see table below).

Guiding Principle → Learning Outcome ↓	Scientific literacy	Decision making	Communication	Self and society	Ethics and responsibility	Leader-ship and team-work	Aesthetic under-standing, creativity	Development of personal potential
PLO (a)	X	X	X			X		
PLO (b)	X	X	X					
PLO (c)		X		X	X	X	X	
PLO (d)	X	X			X	X		X
PLO (e)	X	X		X		X	X	X
PLO (f)				X	X			
PLO (g)			X					
PLO (h)				X				
PLO (i)						X		X
PLO (j)				X				
PLO (k)	X	X						X
PLO (l)	X	X						
PLO (m)	X			X			X	
PLO (0)	X	X	X	X	X	X	X	X

III.2 Program & School Goals (as applicable)

How does your program complement your School's identity and learning goals?

Mechanical Engineering is one of the core engineering disciplines, and therefore carries the responsibility of a substantial component of the identity of any school of engineering. Mechanical Engineering also is strongly identified with the core courses normally referred as Fundamentals of Engineering (Dynamics, Thermodynamics, Fluid Mechanics, Vibration and Control, Heat Transfer, etc.), and therefore the ME program contributes heavily to the common part of the engineering curriculum and to the learning goals of the school.

III.3 Program & Course (Student) Learning Outcomes

How does your curriculum support your Program Learning Outcomes?

Each class in the ME curriculum was designed to contribute to specific aspects of the PLOs, and each year, the content of the curriculum is revised to ensure that the PLOs are being met. Through our assessment process, we designed a methodology to quantitatively measure the contribution of each class to each PLO. The table below shows the percentual distribution of teaching hours in each class for each PLO in the ME program.

Mechanical Engineering Course	PLO(a)	PLO(b)	PLO(c)	PLO(d)	PLO(e)	PLO(f)	PLO(g)	PLO(h)	PLO(i)	PLO(j)	PLO(k)	PLO(l)	PLO(m)	PLO(n)	PLO(o)
ENGR135	X		X	X	X				X			X		X	
ENGR57	X			X								X			
ME142	X		X			X	X				X		X		2
ENGR136	X	X		X			X						X		
ENGR155															
ME120	X		X		X	X	X				X	X		X	X
ME135	X	X		X	X		X				X	X			X
ME170	X		X			X	X				X				X
ME190	X	X	X	X	X	X	X				X	X			
ENGR130	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
ENGR151	X	X	X	X	X	X	X				X	X		X	
ENGR57	X				X	X								X	

FAO REPORT: MERRITT[1] WRITING PROGRAM, WITH GENERAL EDUCATION

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[1] All April 2010 updates are noted in blue font.

FAO REPORT: MERRITT WRITING PROGRAM, WITH GENERAL EDUCATION

APRIL 2009 / APRIL 2010 (all updated text in blue font)

FAO Report 2010 Abstract

This report revision includes updates regarding improvements to our portfolio assessment process and refined long-term planning for annual assessment. This semester, groups of about six to eight MWP faculty members have met each month to review sample portfolios for WRI 10: Reading and Composition and WRI 100: Advanced Composition.

These reviews inform development of our program-wide portfolio rubric; sample student work and project details are available at http://writingprogram.ucmerced.edu/node/30. With our rubric established, our calibration for rating High-Middle-Low portfolios has improved significantly from 40% in October 2009 to 90% in April 2010. The context for those reviews have shifted significantly from fall to spring, from asynchronous readings to in-person reading sessions guided by a rubric. Ongoing projects include developing a portfolio assignment guideline and a portfolio evidence matrix reflective of our program learning outcomes. Core 1: The World at Home faculty members continue to meet on a routine basis to discuss curriculum and the cumulative essay for that course. Having reviewed student sample work, faculty adjusted the curriculum to be cumulative in earlier low-stakes assignments, scaffolding the learning process throughout the course. This report also includes an update about our efforts to streamline formative assessment, with a successful transition to online course evaluations and the beginnings of hybrid course design.

SECTION I: Program description

The Center for Studies in Higher Education's report *General Education in the Twenty-First Century: A Report of the University of California Commission on General Education* (2007) cautions campuses against creating an unwieldy list of unassociated general education courses. It advocates, instead, a thematic or interdisciplinary bundle of courses. Ideally these courses cultivate critical thinking skills, focus on contemporary social issues, and foster advanced literacy, particularly in areas like quantitative reasoning and writing (20). UC Merced's Writing Program's Core 1 and Core 100 equivalent courses routinely attend to these recommendations.

The Writing Program's involvement in General Education at UC Merced is particularly appropriate in light of the extensive overlap between the Program's stated outcomes and the eight guiding principles of general education at UC Merced. For instance, seven of UCM's Eight Guiding Principles of General Education[2] align well with the Writing Program's five Learning Outcomes,[3] leaving just scientific literacy in general education as a potential mismatch with WP

[2] General Education Guiding Principles include scientific literacy, decision making, communication, ethics and responsibility, leadership and teamwork, aesthetic understanding, development of personal potential, and an understanding of self and society.
[3] The Writing Program's Learning Outcomes include the expectations that students analyze and apply academic and professional communication, engage with the processes of reading and writing, collaborate successfully in an academic community, apply ethical standards to academic research and public discourse, and craft language that reveals aesthetic awareness

courses. Yet specific courses for writing in the disciplines (WRI 101, 116, 117, 118, and 119) include scientific literacy as a specialized learning outcome, providing a foundation for the Writing Program to fulfill all eight principles of general education.

Since 2008, the Merritt Writing Program's responsibility for Core 100 equivalent courses has been a temporary arrangement endorsed by Divisional Council (DIVCO) that is scheduled to expire in May 2010. The MWP will likely continue staffing additional sections of upper-division writing courses to serve as Core 100 alternatives on a temporary, transitional basis; however, our focus needs to shift towards aligning and building our writing minor degree. To this end, we have reinstated our writing minor prerequisites to offer WRI 100 as a gateway course, thus providing much needed coherence for the existing creative writing and professional writing tracks. Readers will note that updates related to Core 100 equivalent courses have this focus on strengthening our writing minor curriculum. We will continue to align our curriculum to general education outcomes, though these will be framed as institutional learning principles (same outcome, higher level of alignment).

As a related matter, Core 1 is a course that we staff, but over which we do not have direct authority. Core 1 is housed in College One and should be a university-wide curricular investment among all faculty members. For practical and institutional reasons, our program learning outcome reports for the Core curriculum are now written separately. Our updates are represented in this merged report, pending transfer of FAO reporting responsibilities to College One in the near future.

This curricular relationship between the Writing Program and the university in general is manifested in Core 1, our freshman general education course. Through lecture and discussion, Core 1 is an interdisciplinary, integrated course that introduces students to UC Merced's faculty, our research, and the academic fields in which we work. It explores ways in which experts from what have been called "the two cultures" (humanist and scientist) view the world and analyze information by putting them in dialogue and amalgamating insights gained from different—even seemingly disparate—approaches. The Writing Program helps tie such material together by teaching writing intensive Core 1 discussion sections, which are designed to facilitate more intimate learning communities so as to process and advance ideas introduced in lectures. Among the questions pursued in Core 1 discussion sections are: What is a university, and what role do we have in shaping it? What counts as knowledge? How is knowledge produced and assembled? In what ways do academic disciplines intersect? In what ways do they differ? The answers to such questions provide the basis for holistic, interactive inquiry that puts students at the forefront of current scholarly debates.

Whereas Core 1 satisfies lower division general education requirements, the Writing Program's writing in the disciplines offerings meet the university's upper division general education requirement (also referred to as Core 100) by facilitating application of interdisciplinary perspectives initially explored in Core 1. Though our primary focus is on language studies, our curriculum also reflects academic fields and professions specific to our campus, including management, social sciences, natural sciences and engineering. The upper-division courses we offer in these areas potentially serve not only our writing minor but also general education as a Core 100 equivalent.

In many respects similar to the general education curriculum, the Minor in Writing is designed to enhance students' understanding of the theoretical, interdisciplinary and professional aspects of writing, helping them develop the vocabulary, syntax, style and voice appropriate to the practice of composition in diverse fields. By using the writing process to strengthen their ideas, students develop strategies for participating in research, policy-making, professional advancement, and creative expression. Also consistent with many of the principles of general education, the writing minor fosters respect for language, for the contributions of peers, and for the value of effective communication.

Key to the writing minor are courses in Writing Across the Curriculum / Writing in the Disciplines (WAC/WID), including WRI 101 (Writing for Psychology), WRI 116 (Writing for the Natural Sciences), WRI 117 (Writing for Social Sciences and Humanities), WRI 118 (Business Communication), and WRI 119 (Writing for Engineering). As previously noted, each of these courses satisfies all eight guiding principles of general education at UC Merced, including intensive attention to scientific/information literacy (both qualitative and quantitative) and recursive practice to refine writing as a professional craft and as an intellectual tool.

Given that our Core 1 / 100 courses map onto dual sets of learning outcomes (GE and WP), our assessment plan includes associated outcomes for annual review. The following chart summarizes our focus on assessing general education outcomes, which currently function as our institution-wide learning principles. While we will be providing a transition towards Core 100 course offerings beyond the MWP, the more current emphasis with this curriculum map is on institutional learning principles (same outcomes, higher level of alignment).

PLO	Scientific Literacy	Decision-making	Communication	Self & Society	Ethics	Teamwork	Aesthetics	Personal Potential
1		X	X			X		X
2	X	X	X				X	
3			X	X		X		
4		X	X	X	X			
5			X	X			X	

Appendix: Writing Program PLOs

(1) Demonstrate engagement with the iterative processes of reading, writing and speaking
(2) Analyze and apply the basic written styles, structures, and standards of academic and professional communication
(3) Collaborate successfully as members of an academic discourse community
(4) Apply ethical standards to the practice of academic research and public discourse
(5) Craft language that reveals aesthetic awareness

SECTION II: Assessment Plan – Writing Program, with General Education

(A) Timeline and Goals

(1) Overview of the Writing Program's Syllabus Alignment Project

During the fall 2008 semester, all forty-five members of the Writing Program served on a "committee of the whole" for Curriculum. In this capacity, faculty were collectively responsible for contributing towards the syllabus alignment process. During this time, the Writing Program had hired fourteen new faculty, so this committee process served as a way of including new faculty into our program and introducing them to our teaching practices. During September 2008, Creative Writing and Professional Writing faculty met separately to establish student learning outcomes for each track, and then during October met as a full committee to refine and align outcomes foundational to the Writing Minor. With these course outcomes established, all syllabi now reflect these shared expectations. Course evaluations were also modified to evaluate these outcomes (for an example of how these drafts evolved, see Appendix Item A with developments highlighted in red font).

During October and November, other faculty met on a bi-weekly basis to discuss and review outcomes for WRI 1: Academic Writing and WRI 10: Reading and Composition. Student learning outcomes had been established for these courses during AY 2005 as a syllabus template, so these meetings were opportunities to revisit these outcomes based on what we have learned about our students since then based on program-wide diagnostics (e.g., student responses on mid-term and final-courses evaluations, pre- and post timed essays, calibration sessions for grading), portfolio reviews, and shared experiences teaching WRI 1. These syllabus templates were updated with refined weekly objectives and outcomes, and a chart was developed to map the course outcomes to aligned assignments.

By December 2008, all WP syllabi templates and individual course syllabi included course outcomes. This became the basis for considering Program Learning Outcomes, which were drafted by a committee representing key faculty from these sub-committees (Creative Writing, Professional Writing, WRI 1, WRI 10). During our December WP meeting, this draft was circulated for discussion with a vote between two optional phrasings for each category of outcome. The final draft of PLOs was circulated to faculty to add to syllabi and posted on our program website <writingprogram.ucmerced.edu>. Listed in order of annual review, the Writing Program PLOs are expectations that students will, upon completion of the Minor Program:

(1) Demonstrate engagement with the iterative processes of reading, writing and speaking
(2) Analyze and apply the basic written styles, structures, and standards of academic and professional communication
(3) Collaborate successfully as members of an academic discourse community
(4) Apply ethical standards to the practice of academic research and public discourse
(5) Craft language that reveals aesthetic awareness

Our main expectation is that by promoting faculty discussions focused on examining skill development, we will gain a stronger understanding of how to develop more tailored and

responsive curriculum. All who teach these GE courses will be involved in the assessment of student learning outcomes, via respective Curriculum Committees, which involve a majority of our faculty.

During October 2009, The Merritt Writing Program's (MWP) assessed its first program learning outcome ("students will be able to demonstrate thorough engagement with the iterative processes of reading, writing, and speaking") by ranking High-Middle-Low portfolios. Our goal was to develop a portfolio rubric to define and communicate elements of an iterative writing process. Based on the narrative feedback from reviewing of electronic portfolio samples during October 2009, a preliminary portfolio rubric was drafted. To assess students' understanding of our program learning outcome, we added outcomes-focused questions to our mid- and final-course evaluations. To gain a longitudinal perspective, we also initiated a senior survey and group interview process focused on program learning outcomes. Portfolio evaluation and rubric development have increased during the spring semester, as we have re-dedicated our routine program assessment service expectations this semester (4 hours) to read portfolios rather than diagnostics. This expectation of 4 hours per semester of program assessment service does not include committee service; we do have assessment and curriculum standing committees, too. Since faculty calibration was an issue in our pilot, we have reduced what is asynchronous in the evaluation process and added shared criteria to the review process, via an evolving rubric draft.

Each month in spring 2010, groups of about six to eight faculty members have met to review student sample portfolios and revise our program-based rubric guidelines. An outline of those meetings and resulting materials can be found at http://writingprogram.ucmerced.edu/node/30. This website page includes faculty resources. Similar faculty development support efforts to include a portfolio assignment sheet workshop, offered by Anne Zanzucchi, and a portfolio technology workshop, offered by Michael Truong, on April 6 from 1-3pm. Our overall goal of achieving higher levels of agreement about how to rank sample portfolios has been achieved; in April 2010 MWP faculty members agreed on ranking at a rate of 91%. Sample meeting minutes summarizing results and action items are listed as Appendix J. Ongoing developments will include a portfolio assignment guideline and an evidence matrix aligned with our program learning outcomes.

(2) Core 1 Syllabus Alignment Project

Against this backdrop of developing program outcomes with respect to courses that students take while also taking Core 1, we developed objectives and outcomes for its curriculum. Despite the course's wide curricular reach, it enjoys a reflexive structure on which to hang its respective parts. That structure is derived from the eight guiding principles of general education at UC Merced, and is expressed in the following modules that organize the course:

Module 1 – Origins of the Universe
Module 2 – Origins of Life
Module 3 – Origins of Societies and Cultures
Module 4 – Language and Communication
Module 5 – Individuals and Societies
Module 6 – Conflict
Module 7 – The Future

During November 2008 in four meetings, faculty derived objectives and outcomes for each of the above modules (see Appendix Item G), and from those, as a larger group, developed eight course learning outcomes (which essentially define the eight guiding principles more specifically to Core 1 itself). Listed in order of review, these outcomes include the expectations that Core 1 students:

(1) **Communication, Self and Society:** (a) Critique diverse perspectives from scientific, historical, artistic, and personal standpoints; (b) Craft written arguments that draw connections between the arts and sciences
(2) **Scientific Literacy:** (a) Manage and assess information by refining study skills and cultivating scholarly habits; (b) Apply appropriate qualitative and quantitative methods in analyzing information
(3) **Decision Making, Ethics and Responsibility:** (a) Demonstrate scholarly processes characteristic of creative/critical problem-solving; (b) Appreciate ethical considerations and decision-making in local and global contexts
(4) **Leadership and Teamwork:** Collaborate in sharing expertise, making connections, and assembling knowledge
(5) **Development of Personal Potential; Aesthetic Understanding and Creativity:** Elaborate an enhanced sense of educational purpose in a broader intellectual context

These updated Core 1 outcomes will be posted on UC Merced's College One website, <https://collegeone.ucmerced.edu/>, and occur prominently on the Core 1 syllabus.

We plan to investigate each of the PLOs outlined below over the course of five years, one PLO per year as embodied in holistic student achievement/work (portfolios, pre- and post-test essays, and coordinated assignments). Simultaneously, in regular faculty meetings we will assess each of the PLOs in discussion of representative student work to calibrate grading for common assignments.

(3) Core 100 (Equivalent) Syllabus Alignment Project

Throughout AY 2008-2009, Core 100 equivalent writing instructors met on a monthly basis to design shared curricula and discuss related student learning outcomes. All Core 100 equivalent syllabi address the eight guiding principles for general education (see WRI 117 syllabus sample, Appendix Item H). During Spring 2009, WRI 116: Writing in the Natural Sciences and WRI 119: Writing in Engineering faculty created a mid-semester aligned workshop project based on a 2-3 page Watson & Crick article. The aim was to assess scientific literacy, specifically in reading practices and rhetorical analysis skills. Faculty met during April 2009 to discuss criteria for scientific literacy, based on the resulting student work from this Watson & Crick workshop. This rubric project will be the basis for ongoing assessment of other Core 100-specific WP courses (See Appendix Item B).

Our goals in assessing upper-division GE-related WP courses could be very generally summarized as providing faculty development and improving student learning in discipline-

specific upper-division writing courses. For faculty development, this assessment plan provides opportunities to establish shared expectations, criteria and standards, all of which are communicated to students through various means outlined more specifically in our assessment plan.

(4) Writing Minor Curriculum Alignment

Professional Writing Track: During fall 2009 to spring 2010, Professional Writing track faculty members have met on a monthly basis to strengthen outcome alignment among courses. As a result of these meetings, we have reviewed and revised syllabus templates, course descriptions, and course learning outcomes. For a sample meeting agenda summarizing our revision process, see Appendix Item K. We will review student work relative to PLO#2 (professional communication styles and structures) beginning in fall 2010.

Creative Writing Track: This faculty group meets on a monthly basis, primarily to plan outreach and co-curricular activities. A sub-group did convene during December 2009 to develop rubric guidelines for evaluating creative work; the resulting rubric is listed as Appendix Item L.

(5) Online Initiatives

Hybrid Courses: Beginning in summer 2010, the MWP will offer a hybrid version of our Writing across the Disciplines (WRI 100-119) courses, with 3 units face to face and 1 unit online. This unit distribution may transition to a more conventional definition of hybrid with 2 units face to face and 2 units online; however, we are assessing the hybrid design to explore related issues like faculty workload, student persistence, and online communication tools. In fall 2010, approximately one-third of our upper-division courses will be offered in this 3/1 hybrid format, with subsequent review of its benefits and impact.

The MWP faculty confirmed a new standing sub-committee of Curriculum, "Online Initiatives" with the following charge:

> To promote and support effective online initiatives, and to implement appropriate assessment of those initiatives, this subcommittee will review and advise on related policies and procedures. These might include selection of templates for online course syllabi, recommendations for training new online instructors, and juried review of web-based textbooks, writing tools and course-evaluation software. Responsibilities will also include developing or reviewing guidelines that promote effective instructional practices consistent with university policies, accreditation expectations and the Merritt Writing Program's mission.

This committee (co-chaired by Truong and Zanzucchi) convened at the end of March 2010 to determine priorities, which currently include reviewing hybrid syllabus templates for shared policies and discussing a current draft of a student self-assessment for online course enrollment.

We also keep in regular contact with local institutions that have implemented online courses, including UC Irvine's Writing Program and CSU Stanislaus' Learning Services.

We have begun to engage our faculty in professional development support related to adapting curriculum to online formats and tools. The MWP has purchased a web-based seminar hosted by Scott Warnock, author of *Teaching Writing Online: How and Why* (NCTE 2009), which includes a resulting DVD copy for ongoing reference. If this session and DVD recording are useful, we plan to continue participation in upcoming seminars on similar topics scheduled for September and October 2010.

Online Course Evaluation Process: In fall 2009, we piloted online course evaluations using SNAP, finding that in-person, online survey distribution to be the most reliable method for meaningful feedback. In spring 2010, all faculty members have distributed mid-course evaluations via CROPS, with a 45% response rate. Our goal is to have a return rate similar to paper surveys (80%), so all instructors will be offering the final course evaluation in class and online for 20 minutes. Our transition to online course evaluations provides faculty with nearly instant formative feedback about curriculum, instruction, and learning outcomes. This online format and structure will also enhance our ability to evaluate program-level survey data. For our revised format for course evaluations, please see Appendix Item M.

(B, C, D, E) Outline of Program Learning Outcomes, including Evidence, Process and Participants

** Please note that a synopsis of the Core 1 and 100 assessment plan is provided in chart form on page 15.*

For Core 1

(1) AY 2009-2010

Core 1 PLO: Critique diverse perspectives from scientific, historical, artistic, and personal standpoints

Core 1 PLO: Craft written arguments that draw connections between the arts and sciences

[Corresponding GE outcomes: Communication -- To convey information to, communicate with, and interact effectively with multiple audiences, using advanced skills in written and other forms of communication; Self and Society -- To understand and value diverse perspectives in both the global and community contexts of modern society in order to work knowledgeably and effectively in an ethically and culturally rich setting]

(A. PLO Overview and Assessment Process): During the Summer/Fall of 2009, the Core 1 curriculum committee will meet to review High-Middle-Low samples of Spring 2009 cumulative essays, the capstone assignment for the course which asks students to explore their experience of the course by identifying and elaborating connections among six course foci (see Appendix Item C). Since this sample of student work is cumulative in nature, faculty will discuss the differences within a range of samples to refine criteria for assessing information literacy, presentation, and analysis, in particular the extent to which students are able to identify, incorporate, and evaluate uses of evidence to corroborate scientific, historical, artistic, and personal critiques of course material. We have replicated this assessment process in Fall 2009 and Spring 2010, to promote discussion of the Cumulative Essay and its goals, and to practice grade norming of sample essays.

(B. Evidence and Results): The resulting data from this multi-perspectival exercise should also reveal the extent to which students can draw connections between the arts and sciences. This review will help us develop a shared rubric for assessing such student work. Cumulative essays in fall 2009 will include a standard self-assessment form paired with the assignment, which will be included in the review of samples. This will help us refine our current grading rubric, which we include in all syllabi (see Appendix Item F). With greater consensus on standards and criteria, faculty will be better able to communicate to students the benchmarks for success. Through workshop activities at the beginning of a semester students will be encouraged to apply this rubric to sample projects, gaining familiarity with evaluation standards. In Spring 2010 we have also emphasized a cumulative approach to all course material, beginning as early as the third

week of class, in reflection writing and class discussion, to promote students' immediate and regular practice of making connections among course subjects.

(2) AY 2010-2011

Core 1 PLO: Manage and assess information by refining study skills and cultivating scholarly habits
Core 1 PLO: Apply appropriate qualitative and quantitative methods in analyzing information

[Corresponding GE outcome: Scientific Literacy -- To have a functional understanding of scientific, technological and quantitative information, and to know both how to interpret scientific information and effectively apply quantitative tools]

(A. PLO Overview and Assessment Process): During Summer/Fall 2010, the Core 1 curriculum committee plans to evaluate a range-finder and random samples for an assignment such as Core 1 Quantitative Assignment #1 (for assignment sheet, see Appendix Item D) to assess quantitative aspects of study skills, information management, and scientific literacy. Based on our success in articulating and centralizing assignment expectations in the Cumulative Essay rubric, we will also develop a rhetorically informed rubric for quantitative assignments (which also rely on explanatory skills, but with respect to research methodology and statistical reporting).

(B. Evidence and Results): Assessment of sample quantitative assignments will allow us to better coordinate the teaching of qualitative and quantitative reasoning, in particular with respect to the philosophy of science and the logic of classification. We anticipate that instructors will gain (and thus be better able to communicate with students) a holistic perspective of quantitative literacy. Through increased faculty attention to quantitative literacy criteria, students will work with clearer expectations as to how to effectively apply narrative to calculations. Learning outcome results will be paired or triangulated with course evaluation feedback, which include specific questions about students' perceived skill levels in quantitative reasoning and scientific literacy. As has been the resulting practice with preparing students for the Cumulative Essay, we will circulate the quantitative assignment rubric to students early in each semester, and will conduct regular discussion and norming of sample student work.

(3) AY 2011-2012

Core 1 PLO: Demonstrate scholarly processes characteristic of creative/critical problem-solving
Core 1 PLO: Appreciate ethical considerations and decision-making in local and global contexts

[Corresponding GE outcomes: Decision-Making -- To appreciate the various and diverse factors bearing on decisions and the know-how to assemble, evaluate, interpret and use information effectively for critical analysis and problem-solving; Ethics and Responsibility -- To follow ethical practices in their professions and communities, and care for future generations through sustainable living and environmental and societal responsibility]

(A. PLO Overview and Assessment Process): During Summer/Fall 2011, the Core 1 curriculum committee plans to evaluate a range-finder and random samples for an assignment such as Core 1 Quantitative Assignment #3 (for assignment sheet, see Appendix Item E) to assess problem-solving skills associated with information management and ethical decision-making.

(B. Evidence and Results): This specific assignment merges statistical analysis with ethical considerations. Evaluating these samples of quantitative and narrative explanations will allow us to better understand students' ability to synthesize a social perspective with quantitative information. Potential outcomes of this assessment activity could include refinement of the shared assignment itself and/or a course-wide rubric specifying standards for this kind of synthesis.

(4) AY 2012-2013

Core 1 PLO: Collaborate in sharing expertise, making connections, and assembling knowledge

[Corresponding General Education outcome: Leadership and Teamwork -- To work effectively in both leadership and team roles, capably making connections and integrating their expertise with the expertise of others]

(A. PLO Overview and Assessment Process): During Summer/Fall 2012, the Core 1 WP faculty committee plans to evaluate student collaboration in shared assignments requiring group interaction. These may include a collaborative assignment yet to be determined, and/or group work (such as peer review, class presentations, student questionnaires regarding knowledge, or role-playing scenarios with respect to decision making).

(B. Evidence and Results): Like the Core 100 assessment focus, we aim to gain consensus about key learning challenges with group work and develop an effective shared assignment. Course evaluation data specific to rating the value of peer review work and confidence ratings in group work skills will also be considered.

(5) AY 2013-2014

Core 1 PLO: Elaborate an enhanced sense of educational purpose in a broader intellectual context

[Corresponding General Education outcomes: Development of Personal Potential -- To be responsible for achieving the full promise of their abilities, including psychological and physical well-being; Aesthetic Understanding and Creativity -- To appreciate and be knowledgeable about human creative expression including literature and the arts]

(A. PLO Overview and Assessment Process): To assess the extent to which Core 1 helps students articulate a graduated sense of scholarly identity that can be applied to study in other disciplines.

(B. Evidence and Results): Likely evidence will include assessment of reflection papers and revisiting the cumulative essay (as indicators of integrated learning and application).

For Core 100 (Equivalent) Writing Across the Disciplines Courses

(1) AY 2009-2010

WP PLO: Demonstrate engagement with the iterative processes of reading, writing and speaking

GE PLO (Self and Society): To understand and value diverse perspectives in both the global and community contexts of modern society in order to work knowledgeably and effectively in an ethically and culturally rich setting

(A. PLO Overview and Assessment Process): During April 2009, all WRI 116 faculty met to review High-Middle-Low samples of our Watson & Crick aligned assignment (for assignment sheet, see Appendix Item B). From discussing the differences within a range of samples, we were able to determine criteria for scientific literacy, in particular the extent to which students are able to identify and evaluate uses of evidence (for sample rubric, see Appendix Item H). This assessment work creates the foundation for further investigation of the scientific literacy GE outcome in Year 2. Our WP PLO was also incorporated into discussion, in particular the ways that students are able to analyze the written style and structure of the Watson & Crick sample. To investigate the iterative processes of writing, portfolios best feature the drafting process and associated reflection process. Core 100 faculty will meet during October 2009 to review High, Middle, Low portfolio samples from the previous academic year. Special attention will be paid to evidence of a student's ability to value diverse perspectives and understand cultural diversity. In this process, faculty will share examples of successful curriculum to pilot across sections. During spring 2010, this portfolio rubric development process transitioned into a focus on WRI 10: Reading and Composition and WRI 100: Academic Writing sample portfolios. This sample student work reflects our focus on writing minor tracks; the process is archived at <http://writingprogram.ucmerced.edu/node/30>.

(B. Evidence and Results): By building and sharing a rubric with students, we aim to familiarize them with our shared criteria and standards. The mid-semester diagnostic serves to give faculty perspective on attainment at scientific literacy. As this is formative assessment, faculty will have opportunities to employ tailored strategies to improve understanding. Similarly, students will have opportunity to apply the rubric to peer work to gain a stronger understanding of expectations. Portfolio review will serve as a means for grading calibration for faculty, which will be particularly useful as a means for introducing new faculty to the standards of these courses. Discussing and archiving successful assignments focused cultural understanding will have a similar benefit, allowing faculty to pilot new materials. Student learning outcome results will be paired or triangulated with course evaluation feedback, which include specific questions about students' perceived skill levels in quantitative reasoning and scientific literacy. Some of this indirect evidence can be formative assessment, as the WP also administers mid-course evaluations on skill levels. During the first week of April 2010, all MWP faculty members received a finalized copy of the program-wide portfolio guidelines to integrate into their portfolio curriculum and share with their students for further discussion.

(2) AY 2010-2011

WP PLO: Analyze and apply the basic written styles, structures, and standards of academic and professional communication

GE PLO (Scientific Literacy): To have a functional understanding of scientific, technological and quantitative information, and to know both how to interpret scientific information and effectively apply quantitative tools

(A. PLO Overview and Assessment Process): During fall 2010, WRI 100, and WRI 116-119 faculty will administer a mid-semester scientific literacy diagnostic from among possible prompts, with an emphasis on scientific literacy. The scientific literacy rubric developed during spring 2009 will be applied and revised (as needed). The broader framework of the review will be on the WP PLO with attention to academic style and structure. Rather than continued focus on Core 100 equivalent courses for program learning outcome assessment, we will plan to focus on WRI 30: Professional Writing and WRI 130: Advanced Topics in Professional Writing to attend to the "professional communication" components of PLO#2. Since we also seek to strengthen WRI 100: Advanced Composition as a gateway to our minor, we will attend to student work in this course to address academic communication styles, structures, and standards.

(B. Evidence and Results): The Core 100 curriculum committee will evaluate upper-division electronic portfolios demonstrating stages of writing, including self-assessment cover letter. Special attention will be paid to literature reviews which tend to feature a students' ability to evaluate and interpret representative scholarly articles about a given subject. Instructor-specific rubrics for these assignments will be shared and discussed to improve alignment of criteria, with the goal of building course-specific rubrics representative of shared expectations. Indirect evidence will include the portfolio cover letter, which will address perceived skill levels and proficiency within stages of writing. As anticipated here, we will continue to focus on portfolio materials as this provides us with the richest information about student engagement with this program learning outcome.

(3) AY 2011-2012

WP PLO: Collaborate successfully as members of an academic discourse community

GE PLO (Leadership and Teamwork): To work effectively in both leadership and team roles, capably making connections and integrating their expertise with the expertise of others

(A. PLO Overview and Assessment Process): As writing classrooms tend to be workshop-oriented, group work is a fundamental skill in our program. Working in groups is not intuitive to many students (or faculty), so our aim is to gain consensus about some basic practices and structures that are recommendable across courses. Some examples might be assigning roles, including self and group assessment, and providing instructor feedback on peer review feedback.

(B. Evidence and Results): The Core 100 curriculum committee will evaluate peer review

workshop materials, group work activities, and collaborative grant proposals (WRI 116, WRI 119). Gain consensus about key learning challenges associated with collaboration and group work to build an archive of successful assignments and activities to share with current and future faculty. By promoting effective and creative approaches to the challenge of teaching group work, we will implement a stronger set of aligned activities to build teamwork skills. Course evaluation data specific to rating the value of peer review work and confidence ratings in group work skills will also be considered.

(4) AY 2012-2013

WP PLO: Apply ethical standards to the practice of academic research and public discourse

GE PLO (Ethics and Responsibility): To follow ethical practices in their professions and communities, and care for future generations through sustainable living and environmental and societal responsibility

(A. PLO Overview and Assessment Process): Our approach to this PLO is to work with ethics from an information literacy standpoint. Literature reviews very effectively illustrate a student's ability to summarize and analyze major research around a given topic. The extent to which students adhere to principles of academic honesty, like accurate citation use, is part of what we will measure as well.

(B. Evidence and Results): Evaluate literature reviews for uses of scholarly evidence. First and final drafts of annotated bibliographies will be reviewed with attention to the development of summary and analysis skills. Faculty will collaborate with librarians to improve information literacy activities and reference guides.

(5) AY 2013-2014

WP PLO: Craft language that reveals aesthetic awareness

GE PLO (Aesthetic Understanding and Creativity): To appreciate and be knowledgeable about human creative expression, including literature and arts

(A. PLO Overview and Assessment Process): During fall 2009, WRI 117 course development will benefit from a UC Humanities Institute grant, focused on implementing a digital media component. Four speakers, who are digital media theorists or artists at Research I institutions, will provide workshops to WRI 117 students in the rigors of aesthetic understanding. UCM WP faculty will also partner with these visiting scholars to publish their findings and classroom innovations in a peer-reviewed collection. Hopefully, this grant initiative will provide an ongoing investigation as to how to foster and define aesthetic awareness. More grant details are available as Appendix Item I.

(B. Evidence and Results): Review digital media initiative in WRI 117 via electronic portfolio evidence. Partner science writing with creative writing faculty to discuss how creativity can be assessed and evaluated. Students and faculty will gain a more holistic perspective on how creativity and aesthetic understanding can be evaluated.

Assessment Plan, Program Learning Outcome Chart

Timeline	Program Learning Outcome	Evidence	Analysis & Results
AY 2009-2010	(GE: Self & Society) To understand and value diverse perspectives in both the global and community contexts of modern society in order to work knowledgeably and effectively in an ethically and culturally rich setting (WP) Demonstrate engagement with the iterative processes of reading, writing and speaking	Core 1: Cumulative essays (H, M, L samples) WRI 116: Watson & Crick reading assignment (H, M, L) WRI 100/116-119: mid-semester scientific literacy diagnostic	Core 1: refine criteria for assessing information literacy, presentation and analysis, develop shared rubric for cumulative essay, refine Core 1 grading rubric Core 100: develop and apply scientific literacy rubric, review portfolios with attention to understanding societal values Writing Minor: develop program-based portfolio rubric to represent the iterative aspects of writing
AY 2010-2011	(GE: Scientific Literacy): To have a functional understanding of scientific, technological and quantitative information, and to know both how to interpret scientific information and effectively apply quantitative tools (WP) Analyze and apply the basic written styles, structures, and standards of academic and professional communication	Core 1: Quantitative assignment Core 100: Electronic portfolios w/ attention to literature reviews	Core 1: evaluate a range-finder set of sample student work, attention to study skills, information management and scientific literacy Core 100: evaluate sample portfolios for academic communication Writing Minor: review WRI 30 and 130 sample student work as professional communication
AY 2011-2012	(GE: Ethics & Responsibility) To follow ethical practices in their professions and communities, and care for future generations through sustainable living and environmental and societal responsibility (GE: Decision-making) To appreciate the various and diverse factors bearing on decisions and the know-how to assemble, evaluate, interpret and use information effectively for critical analysis and problem-solving (WP) Apply ethical standards to the practice of academic research and public discourse	Core 1: Quantitative assignment Core 100: peer review workshop materials, group work activities, collaborative grant proposals	Core 1: evaluate a range-finder set of sample student work, attention to problem-solving skills Core 100: focus on summary / analysis skills, collaborate with librarians on information literacy skills
AY 2012-2013	(GE: Leadership & Teamwork) To work effectively in both leadership and team roles capably making connections and integrating their expertise with the expertise of others (WP) Collaborate successfully as members of an academic discourse community	Core 1: group work, collaborative writing assignment, peer review materials Core 100: literature reviews, annotated bibliographies	Core 1: develop collaborative writing assignment and evaluate in terms of group work Core 100: gain consensus about key learning challenges with group work, archive successful curricula
AY 2013-2014	(GE: Aesthetics) To appreciate and be knowledgeable about human creative expression, including literature and arts (WP) Craft language that reveals aesthetic awareness	Core 1: reflection papers, cumulative essay Core 100: comparable essay assignments	Core 1: discussion of evidence of integrated learning and application Core 100: discussion of how creativity is assessed and evaluated, rubric development

D. Self-Evaluation

(1) CRTE Rubric for PLO Assessment Report

	Rating	Explanation
Assessable PLO	Emerging	Rubric is in early stages of development; otherwise the PLO itself is measurable; Rubric available for instructional use in April 2010; faculty will need to decide on a clearer phrasing for "iterative" for this PLO to be understandable to those beyond our discipline; rubric indicates benchmarks though PLO #1 itself may need a more specific verb than "demonstrate."
Valid Evidence	Developed	Varied evidence (direct & indirect)
Reliable Results	Emerging / Developed	Calibration needs improvement; With the fall 2009 program rubric development process and in-person review sessions, we have achieved about 90% levels of agreement about how to rank H-M-L portfolios.
Results Summary	Developed	Clear charts to indicate data trends
Conclusions & Recommendations	Developed	Results have been reviewed carefully and faculty engaged with stages of assessment process

(2) WASC Academic Program Learning Outcome Rubric

	Rating	Explanation
Comprehensive List	Developed	PLOs interface with UCM's eight guiding principles and reflect national disciplinary standards (College Composition & Communication, Writing Program Administration)
Assessable Outcomes	Emerging	Most of our outcomes indicate how the skills are demonstrated; we are in the process of matching skills with activities for PLO #1 (See Appendix Item K)
Alignment	Highly Developed	Our curriculum provides opportunities for students to engage with these PLOs and is summarized in our curriculum maps. We also partner with the library to assess student learning and provide co-curricular writing events (grammar workshops, undergraduate research journal, professional writing series, and creative writing projects)
Assessment Planning	Developed	We have a reasonable, multi-year assessment plan. Further resources are necessary for us to fully examine student learning via a portfolio system.
Student Experience	Developed	Based on course evaluation data and surveys, students report an understanding of learning outcomes.

(3) Narrative Explanation

PLO Assessment Report Updates: In the past few months we have progressed considerably in achieving reliable and valid results, thanks to a shared rubric and meeting in person. This high level of agreement is characteristic of our evaluation of diagnostic essays and paper portfolios in prior years, so this current reading process provided a productive context for effective reviews. Although in many respects our validity and reliability might match a "high developed category," it is listed as "developed" at this point to acknowledge a workload limitation in our method. Ideally our faculty would read beyond pre-selected samples, with a double-blind method to show calibration and rates of student achievement. Given our resource limitations, we have not been able to fund our faculty to do this intensive review process.

We have a strengthened awareness of our program learning outcome, in particular what the benchmarks for iterative writing processes are as articulated in our rubric guidelines. Our PLO will need revision. In particular, "iterative" will need to be defined for a broader audience. "Demonstrate engagement" should be more specific to be a measurable skill. Although our understanding of our PLO has strengthened considerably, it will remain "emerging" until the PLO itself is revised.

WASC Academic Program Learning Outcome: Our progression with assessing PLO #1 aligns with our long-term goals on an academic program level. We will continue to strengthen our program learning outcome statements to be more measurable. Our strategy is to link activities to the skill, so as to better articulate to students how classroom work connects to broader skills (in syllabi, MWP website, course catalogs, classroom instruction, etc.). In an area like outcome alignment, we would consider our efforts highly developed as we have offered many co-curricular options for students to strengthen their writing skills. Other strengths include our long-term planning, as assessment is a routine practice among all full-time faculty and embedded in our committee service expectations.

Resources: For our assessment process to indicate direct evidence of student needs, we should expand this portfolio review process to include random samples. We would like to be able to assess the prevalent issues within a majority of portfolios; however, this is labor-intensive and beyond routine service standards. Our MWP lecturers are all Unit 18 employees, so by contract we are required to supplement salary for additional service. Consistent with WASC expectations, this salaried assessment activity would involve instructional faculty in the assessment of student learning. To study WRI 10: Reading and Composition portfolios, we would need to involve twelve MWP lecturers to review portfolios for two days, assuming a double-read and 30 minutes per portfolio. With 600 portfolios, we would be able to read about 200 portfolios – with 33% of the portfolios evaluated, we could derive valid and reliable conclusions about areas of student learning needs. The total cost of this faculty activity would be $4000[4].

[4] An instructor's hourly wage for teaching is $21.24, based on a lecturer salary of $43,336 divided by 2040 working hours.

SECTION III: Alignment of Institutional and Program Goals/Outcomes

A. Program and Institutional Goals / Outcomes

Our Core 1 and Core 100 curriculum supports our campus-wide mission of a student-centered research university, as these courses prepare students to write and communicate in their elective and professional fields. Our general education curriculum is writing-intensive, which by definition includes a small classroom environment (no more than 20 students) and 5000 words (or 20 pages) of final text. A writing-intensive approach to general education supports a students' ability to synthesize knowledge. This is of particular importance in an interdisciplinary context here at Merced, as students are asked to connect the "two cultures" within the sciences and arts. Students also blend quantitative and traditional literacy, as Core 1 quantitative assignments and Core 100 workshop assignments require narrative to explain data. Beyond written assignments, Core 100 courses also include oral presentations, in which students gain skills in presenting complex ideas to multiple audiences through poster sessions and traditional speeches. In sum, our writing-intensive approach to general education promotes a rigorous approach to critical thinking and communication.

Additionally, nearly all of these general education courses have a portfolio outcome, which provides students will opportunities to reflect on the iterative process of writing and critical thinking. Increasingly, these portfolio projects have been developed on our course management system, SAKAI, giving students opportunities to share these projects with graduate school admission committees and future employers.

The following chart summarizes our focus on assessing general education outcomes, which currently function as our institution-wide learning principles.

PLO	Scientific Literacy	Decision-making	Communication	Self & Society	Ethics	Teamwork	Aesthetics	Personal Potential
1		X	X			X		X
2	X	X	X				X	
3			X	X		X		
4		X	X	X	X			
5			X	X			X	

Appendix: Writing Program PLOs

(1) Demonstrate engagement with the iterative processes of reading, writing and speaking
(2) Analyze and apply the basic written styles, structures, and standards of academic and professional communication
(3) Collaborate successfully as members of an academic discourse community
(4) Apply ethical standards to the practice of academic research and public discourse
(5) Craft language that reveals aesthetic awareness

Part C. How does your curriculum support your Program Learning Outcomes?

Institutional Learning Principles Curriculum Map

The following chart summarizes a student's mastery of an institutional-level guiding principle outcome, upon completing a given course. ~~Note that I = Introductory and A = Advanced~~. Note that I = Introduced, P = Practiced, and A = Applied.[5] Categories have been revised to show greater range within "advanced" category. To clarify a distinction, "practiced" is as directed by an instructor and "applied" is done independently by the student.

	Scientific Literacy	Decision-making	Communication	Self & Society	Ethics	Teamwork	Aesthetics	Personal Potential
Core 1	I	I	I	I	I	I	I	I
WRI 100: Advanced Composition	I	P	P	P	I	I	P	I
WRI 101: Psychology	P	A	A	P	P	A	I	P
WRI 116: Natural Sciences	A	A	A	P	P	A	I	P
WRI 117: Social Sciences	P	A	A	P	P	P	P	P
WRI 118: Management	I	A	A	P	P	P	I	P
WRI 119: Engineering	A	A	A	P	P	A	I	P

Program Learning Outcome Curriculum Map

The following chart summarizes a student's mastery of a program learning outcome, upon completing a given course. Note that I = Introduced, P = Practiced, and A = Applied. To clarify a distinction, "practiced" is as directed by an instructor and "applied" is done independently by the student.

[5] We have adapted the curriculum map levels from Mary Allen's *Assessing Academic Programs in Higher Education* (Jossey-Bass, 2003)

	PLO #1: Iterative Process	PLO #2: Style & structure	PLO #3: Collaboration	PLO #4: Ethical standards	PLO #5: Aesthetic awareness
Core 1	I	I	I	I	I
WRI 1: Academic Writing	I	I	I	I	I
WRI 10: Reading & Composition	P	I	I	P	I
WRI 25: Creative Writing	I	P	I	I	P
WRI 30: Professional Writing	I	P	I	P	I
WRI 100: Advanced Composition	P	P	P	P	I
WRI 101: Psychology	P	A	A	P	I
WRI 105: Grammar & Style	P	A	P	P	P
WRI 116: Natural Sciences	P	A	A	A	I
WRI 117: Social Sciences	P	P	A	P	I
WRI 118: Management	P	A	A	P	I
WRI 119: Engineering	P	A	A	A	I
WRI 125: Special Topics CW	P	A	P	I	A
WRI 130: Special Topics PW	P	A	P	A	I
WRI 131: Journal Production	P	P	P	I	I
WRI 150: Seminar in CW	A	A	A	P	A

APPENDIX ITEM A

WRI 30: Introduction to Professional Writing
Mid-Semester Course Evaluation (Spring 2008)

Instructions: Please take about 15 minutes to respond to this evaluation. Your comments are considered essential to the development and improvement of this course. Writing Program course evaluations are intended to improve student experiences in our courses, regardless of the instructor of record.

Q1 Self Assessment

	Not at all	*Rarely*	*Occasionally*	*Sometimes*	*Frequently*	*Always*
I complete the assigned readings and homework on schedule.	q	q	q	q	q	q
I participate actively in class discussions and activities.	q	q	q	q	q	q
I have made use of the instructor's office hours to get assistance with my writing.	q	q	q	q	q	q

Q2 Overall Satisfaction

	Unsatisfactory	*Very low*	*Low*	*Moderate*	*High*	*Very high*
How interested were you in taking this course at the beginning of the semester?	q	q	q	q	q	q
Now that you are mid-way through the course, how would you rate your level of improvement as a writer?	q	q	q	q	q	q

Please describe your progression as a writer: _____

Q3 This course is designed to help me improve as a writer

Not at all ..... q
Strongly disagree ..... q
Disagree ..... q
Uncertain ..... q
Agree ..... q
Strongly agree ..... q

Please describe: _____

Q4 This course has provided information and support in developing the following skills:

	Not at all	*Strongly disagree*	*Disagree*	*Uncertain*	*Agree*	*Strongly agree*
Analyzing readings	q	q	q	q	q	q
Thinking creatively	q	q	q	q	q	q
Developing a topic	q	q	q	q	q	q
Understanding disciplinary conventions	q	q	q	q	q	q
Composing an argument	q	q	q	q	q	q
Crafting an essay (writing process)	q	q	q	q	q	q
Writing in my profession (strategies)	q	q	q	q	q	q
Integrating evidence	q	q	q	q	q	q

Q5 The following activities have been useful to me:

	Strongly disagree	*Disagree*	*Uncertain*	*Agree*	*Strongly agree*
Peer review	q	q	q	q	q
Assessing my own writing	q	q	q	q	q
Class discussions	q	q	q	q	q
Feedback from instructor	q	q	q	q	q
Formal paper drafting	q	q	q	q	q
In-class activities	q	q	q	q	q
I have made use of the instructor's office hours to get assistance with my writing	q	q	q	q	q

WRI 30: Introduction to Professional Writing, Final Course Evaluation (Fall 2008)

Instructions: Please take about 15 minutes to respond to this evaluation. Your comments are considered essential to the development and improvement of this course.

Q1 Self-Assessment

	Not at all	*Rarely*	*Occasionally*	*Sometimes*	*Frequently*	*Always*
I complete the assigned readings and homework on schedule.	q	q	q	q	q	q
I participate actively in class discussions and activities.	q	q	q	q	q	q
I have made use of the instructor's office hours to get assistance with my writing.	q	q	q	q	q	q

Q2 Overall Satisfaction

	Unsatisfactory	*Very low*	*Low*	*Moderate*	*High*	*Very high*
How interested were you in taking this course at the beginning of the semester?	q	q	q	q	q	q
Now that you are mid-way through the course, how would you rate your level of improvement as a writer?	q	q	q	q	q	q

Please describe your progression as a writer:

Q3 How clear are instructions for:

	Not at all	*Rarely*	*Occasionally*	*Sometimes*	*Frequently*	*Always*
Formal papers	q	q	q	q	q	q
In-class activities	q	q	q	q	q	q

Q4 My instructor discusses writing in ways that help me to improve:

Not at all ..... q
Strongly disagree ..... q
Disagree ..... q
Uncertain ..... q
Agree ..... q
Strongly agree ..... q

Please explain:

Q5 My instructor seems:

	Not at all	*Strongly disagree*	*Disagree*	*Uncertain*	*Agree*	*Strongly agree*
Available to answer questions	q	q	q	q	q	q
Enthusiastic in teaching writing	q	q	q	q	q	q
Organized	q	q	q	q	q	q
Knowledgeable about writing	q	q	q	q	q	q
Respectful	q	q	q	q	q	q
Fair	q	q	q	q	q	q

Q6 This course has provided information and support in developing the following skills:

	Not at all	*Strongly disagree*	*Disagree*	*Uncertain*	*Agree*	*Strongly agree*
Defining and understanding audience	q	q	q	q	q	q
Identifying and developing clear objectives for written projects	q	q	q	q	q	q
Distinguishing between correct usage alternatives	q	q	q	q	q	q
Editing according to standard style	q	q	q	q	q	q
Assessing peer writing and providing constructive feedback	q	q	q	q	q	q
Demonstrating an ability to evaluate feedback	q	q	q	q	q	q
Demonstrating an ability to self-evaluate and reflect	q	q	q	q	q	q

APPENDIX ITEM B

The Embedded Assignment:
Exploring Scaffolding, Learning Outcomes, and Scientific Literacy

Authored by Nuno Sena and Paul Gibbons (April 2009)

Issues at Hand

Although there is no true consensus of what constitutes scientific literacy, many authorities in the field, whether in the disciplines of Education, Science or Math cite the ***National Science Education Standards*** (1996). Thus, definitions typically emphasize science and math content areas without detailed discussion of scientific literacy in terms of writing, writing in the disciplines (WID) or professions. Exploring the literacy aspect of scientific literacy, that is in the context of competencies in writing, reading, speaking, and listening within a communication perspective is warranted.

Scientific Literacy According to the National Science Education Standards

The passage in the NSES text has been reduced.

Description: Scientific literacy is the knowledge and understanding of scientific concepts and processes required for personal decision making, participation in civic and cultural affairs, and economic productivity. It also includes specific types of abilities …

Scientific literacy means that a person can ask, find, or determine answers to questions derived from curiosity about everyday experiences. It means that a person has the ability to describe, explain, and predict natural phenomena.

Scientific literacy entails being able to read with understanding articles about science in the popular press and to engage in social conversation about the validity of the conclusions.

Scientific literacy implies that a person can identify scientific issues underlying national and local decisions and express positions that are scientifically and technologically informed. A literate citizen should be able to evaluate the quality of scientific information on the basis of its source and the methods used to generate it.

Scientific literacy also implies the capacity to pose and evaluate arguments based on evidence and to apply conclusions from such arguments

(p. 22)

Source http://www.literacynet.org/science/scientificliteracy.html

Embedded Assignment

The embedded assignment and the practice of scaffolding learning of competencies by chaining assignments give us the opportunity to both build scientific literacy of students while developing a model to explore learning outcomes both in the short- and long-term.

The assignment of the short article by Watson and Crick is useful because it is short, emphasizing argument while making claims when using evidence sparsely. An article on DNA later published in a chain of works by the same takes up the argument, the proposed model, and provides a wealth of evidence to support major claims. In chaining these two readings, it is possible to build on scientific literacy while preparing students for looking at argument, claims, evidence, perspectives, and eventually building on critical thinking abilities so that they may do reviews of literature or research papers.

The selection of examples is taken from a pool of responses from the Writing 116 classes taught by Paul Gibbons. Three levels are represented, high, medium, and low, although there is no intention to prescribe a grade on an in-class assignment as this one. The breakdown of the criteria applied in rating the students' work will be discussed in the WRI 116 meeting. Questions four (4) and five (5) are of greatest interest to us because they focus more on critical and rhetorical concerns while the other questions are more informational. The prompt and student examples are given below.

Example Prompt

Respond to the following questions that address the article, "A structure for Deoxyribose Nucleic Acid."

(1) According to the article, what are the different models for the structure of nucleic acid that have been proposed?
(2) How does the model proposed by Watson and Crick differ?
(3) With respect to their own model, what shortcomings or limitations do Watson and Crick indicate?
(4) Find and highlight all the language that suggests that the Watson and Crick model should be favored and that the other model should not be favored. Using the language you've highlighted as quoted evidence, state how Watson and Crick build their argument that their model is the correct one and that the others are not.
(5) Aside from your answer to #4, what other ways have Watson and Crick created favor for their model within their article?

WRI 116: Writing in the Natural Sciences
Scientific Literacy Rubric
April 2009
Authors: Paul Gibbons, Nuno Sena & Anne Zanzucchi

	Interpretation	**Analysis**	**Technical Writing Skills w/in Context**	**Scientific discourse**	**Synthesis** [6]
High	correct identification of main ideas, demonstrates rich and complete understanding of original text	all claims are supported by direct or paraphrased evidence, able to explain the significance of detail and main ideas	mixture of simple and complex sentence structures, virtually error free punctuation, spelling and format	strong vocabulary with deliberate and specific word choice, reflects strong audience-awareness	
Middle	basic argument is identified though may not distinguish significant categories or topics within argument	includes supporting evidence or paraphrased detail though not for all claims, may generalize, generally interprets major argumentative patterns	occasional usage errors, repetitive syntax, contains several common punctuation, spelling and format issues	occasionally inconsistent diction and tone, includes some professional vocabulary but may lack precision	
Low	may misunderstand basic claims in text or attends to ancillary details rather than main guiding ideas	evidence is not embedded in interpretation, lacks full perspective on implications, tends to generalize	minimal sentence variety, non-specific verbs, frequent grammatical errors that impede meaning	inappropriate diction, weak command of professional vocabulary. inaccurate uses of passive or active voice	

[6] Watson Crick workshop assignment does not include a synthesis step. In Fall 2009, WRI 116 instructors will evaluate literature reviews to develop synthesis criteria.

APPENDIX ITEM C

Core 1: The World at Home Cumulative Essay Assignment

To guarantee it's your own work, don't forget to submit your work to turnitin.com.

The Cumulative Writing Assignment is an integrative "capstone" essay in which you'll address a common theme (or thread) in the course and trace it through examples from across term. **The cumulative essay should be about 1800 words (roughly 6-8 pages), with at least 2/3 of a page devoted to each example/focus. It must *examine SIX examples/foci from at least FOUR different modules*, must be guided by *a thesis paragraph* that elaborates your theme/thread and gives an overview of your essay, and must *conclude gracefully* (with a well-elaborated parting comment).**

Specify a thread that you see running through the course. This could reflect a combination of a few lectures and readings, or a common idea that appears in each module. (A topic might be, for example, "the unintended consequences of innovation," or the extent to which a series of lectures/readings relate to a specific place, time, item, artwork, etc.) Because of the distinct challenge of such an assignment—in a sense, your job is to connect human history from its origins to its uncertain future—you are encouraged to start looking for and developing threads as soon as possible. The following are some suggestions for how you might brainstorm a thread to explore in your essay:

- Browse through your reflection papers: Are there any interesting patterns of thought, connections between materials, and/or implicit themes between entries?
- Check out the Core 1 syllabus and the "Topics Synopses" document on CROPS for brief descriptions of the modules and lectures (see Resources Folder). What recurring themes do you see?
- Look over your weekly assignments. Which ideas or assignments interested you the most? Is there a way to expand a smaller project into a larger one? Do any of the projects fit together in some way?

Note: As long as it is germane to your theme, you may draw upon (and/or integrate material from) your previous writings in CoreOne.

Support your thesis/theme with specific discussions of documented examples. Avoid making blanket statements; use the body of the essay to elaborate particular foci in depth—using quotes, data, and concepts that are fluidly explained.

Please come to class with drafts of your cumulative essay to workshop in late April and early May.

APPENDIX ITEM D

Core 1: The World at Home Quantitative Assignment 1

[Note: In addition to performing these calculations correctly, you'll be graded on how well you present and explain the processes you perform, step-by-step, in terms of their respective purposes.]

Quantitative assignment 1a:

The newly demoted dwarf planet Pluto has 3 moons: Charon, Nix and Hydra. Using Newton's laws one can derive the mass of Pluto from observations of the orbit of one these moons.

Assuming a circular orbit, Newton's law of gravitation ($F = GMm/r^2$) and Newton's second law of motion ($F = ma = mv^2/r$) can be used to calculate the mass (M) of a massive object if the velocity (v) at a radius (r) is known for another, much lighter body that is in orbit. By combining the two laws stated above, we obtain the formula

$$M = v^2 r / G$$

The velocity (v) along a circular orbit is determined by the circumference ($2\pi r$) divided by the time it takes to complete one full circle (the period, P), i.e. $v = 2\pi r / P$. Using this expression for v, one can rewrite the above formula for the mass M as

$$M = (4\pi^2 r^3) / (G P^2)$$

which is also known as Kepler's Third Law (for circular planetary motions).

Use this law to calculate the mass of Pluto from the orbit of its moon Hydra with r = 64,780 km and P = 38.2 days, and knowing that the Gravitational constant $G = 6.673 \times 10^{-11}\ m^3\ kg^{-1}\ s^{-2}$.

Express the answer in units of Earth Mass M_{Earth}, knowing that $M_{Earth} = 5.980 \times 10^{24}$ kg.

(Hint: first express r and P in standard units: meters and seconds.)

Note: This is for a circular orbit; for more accurate estimates one must use the observed elliptical orbit (see http://en.wikipedia.org/wiki/Kepler%27s_Law#Kepler.27s_third_law).

Quantitative assignment 1b: In a brief essay of 250 words, examine the significance of this calculation with respect to the current debate over Pluto's planetary status. Cite details and arguments from course readings to support your points.

APPENDIX ITEM E

Core 1: The World at Home Quantitative Assignment #3 & Skills Assignment #3

Minimum length = 600 words Due Date: Week of 4/13

To guarantee it's your own work, don't forget to submit your work to turnitin.com.

It was another lovely autumn day in Livermore, CA, with clouds scudding through a hazy blue sky, dogs barking at the mail carriers, and sunlight glinting off the glass and stucco surfaces of the Department of Homeland Security's new bio-defense facility. Unfortunately for America, however, none of the security officers on duty that day bothered to stop and search the black sedan as it glided past their checkpoints, and not until several days later did a research team report that several vials of the deadly Influenza virus strain of subtype H5N1, also known as Avian Flu, had in fact disappeared from their laboratory. Though H5N1, in some strain or other, periodically appears in North America, having been unintentionally carried here by people or poultry, the variety that was stolen in this case was being studied in the event of terroristic deployment—which, in fact, may be about to occur in this instance.

Intelligence services report that an extranational group has obtained the virus and is plotting to release it in order to infect as many Americans as possible. Where it will be released remains unknown, but intelligence agencies generally agree that the group plans to begin its attack within days. It is also recognized that once an outbreak of H5N1 appears in one area, it will have already moved on, owing to the virus's wide-ranging incubation period from 2 to 28 days and the easy availability of car and air travel.

As a prominent researcher who also serves as the head of a presidential commission on infectious diseases, you must recommend a policy for distributing the available supplies of H5N1 vaccine to the American people. In addition to the news of the virus theft and the plot detailed above, you have recently heard more bad news from scientists on your team: the herd immunity level for the U.S. population in this situation is 83.6% (see course readings for more about herd immunity). Companies capable of manufacturing the H5N1 vaccine have dedicated themselves to producing as much as possible, but the best-case scenario only has them producing enough vaccine to immunize 71% of Americans against the virus. Also worth noting: There is no natural immunity to H5N1, and, in the catastrophic outbreak in 1918 of the related strain H1N1, or Spanish Flu, the virus killed many otherwise healthy people, and not just the very young or very old. Moreover, this present strain of Avian Flu is particularly virulent: it has mutated, and is capable of being transmitted from one human to another.

The White House has asked for a proposal of not less than 600 words (including medical, geographical, demographic, etc., statistics—the more of which you purposefully incorporate the better your plan will be) in which you outline in detail a series of steps that the government should take to protect the U.S. population.

You will first need to find and cite a recent total population figure for the U.S. (and will want to think about which groups within our country that are likely to have been passed over by that particular figure). From that figure, determine the number of people who will

not be able to receive the H5N1 vaccine. Then begin deciding which segments of society and geographic regions you will vaccinate in order of priority, and which will not receive any vaccine at all. What are the possible positive and negative consequences of your plan? Explain your decisions and the logic behind them carefully. Use more specific demographic figures from a dependable source to be sure your numbers add up.

Many factors, demographic and otherwise, could play into this decision-making process: age, class, region, profession, gender, etc. Describe what additional measures you will take to slow the spread of the virus. Will you quarantine those who are infected? Will you close schools, factories, and/or some kinds of businesses? Are there services and industries you think will be essential during this crisis and that you will insist remain open? The White House, needless to say, is not merely interested in snap decisions on these matters. It expects you to consider in detail the social and economic ramifications of the policies you advocate, and also to provide sound ethical justification wherever it is appropriate.

NOTE: In order to convince the President that you know what you're talking about, you must cite three sources in your proposal.

If you need help, don't go it alone. Go to: http://ucmercedlibrary.info/criteval.html and/or http://ucmercedlibrary.info/contact/index.html

APPENDIX ITEM F

Evaluation of Core 1 Assignments

Those of us who lead discussion sections of Core 1 are often asked about how we grade assignments for Core 1. Having established point systems and criteria to govern our evaluations of these assignments, we've decided to present them to you here in hopes of demystifying, at least slightly, what some might consider a "mysterious" process.

With respect to quantitative assignments, a correct answer must be supplied in order for the assignment to receive full credit. However, we believe that process is a fundamental component of both quantitative and qualitative reasoning. Therefore, any quantitative exercise that clearly (and creatively) describes its process (and the significance thereof), uses the tools provided by the assignment, and shows evidence of sincere engagement can still receive a high grade, even if an incorrect answer is provided at the end.

Essay assignments are slightly different in nature. Essays very rarely have a "correct answer," after all. Nevertheless, we will only give top marks to essays that:

- present information accurately and make logically sound arguments;
- develop ideas fully and in an organized fashion;
- display complexity of thought and appreciation of various perspectives;
- approach issues and problems from creative angles;
- are noteworthy for their overarching focus and coherence; and
- engage course readings and/or lectures in sufficient depth.

Essays do not have to receive perfect scores in all of these areas to receive full points, but coming up short in one criterion or another will likely affect your grade.

We hope that this clarifies what we look for when evaluating these assignments. If you have any questions while working on either a qualitative or a quantitative assignment, you are of course advised to contact your section leader promptly so as to stay on the right track.

APPENDIX ITEM G

CORE 1 Module Synopses, with Associated Objectives and Outcomes

CORE 1: The World at Home covers a lot of ground—billions of years, in fact. As you read the module summaries, note that the course is structured with a very broad chronology, moving from the very beginnings of the universe to the problems of our current civilization, now and in the near future. Beyond this basic structure, the challenge of this course is for each of us to find ways our history can be linked together, to examine how the past influences the future, and to study how thought and innovation have developed over the millennia, and so on.

Background, "Points of Engagement"

During the first week of the course, you will be introduced to some of the broad themes of the course, such as the productive interplay that occurs between disciplines and the challenges of the modern university. Some of the questions we'll start out with include: What counts as knowledge? How is knowledge produced and assembled? In what ways do academic disciplines intersect? In what ways do they differ?

Objectives (instructors will):

• Provide overview of subjects, modules, lectures, discussion sections, and assignments
• Survey strategies of acquiring and managing information
• Review critical reading skills (pre-writing, annotation, finding patterns, journaling, etc.)
• Cultivate statistical savvy and quantitative awareness

Outcomes (students will be able to):

• Summarize major themes and protocols of the course
• Use course materials reflexively
• Annotate and critique short reading
• Take effective lecture notes

Module 1, "Origins of the Universe"

In developing myriad "origin myths," humankind has had to balance accounts of the natural world in terms of faith (spiritual knowledge) and reason (testable hypotheses). The conflict between these two approaches may be seen, for example, in the life of Galileo, and in debates that continue today, in rival explanations of our place in the Universe. The scope of this first module literally covers billions of years—from "scientific cosmology" and its Big Bang theory (of the formation of galaxies, stars and planets) to "functional cosmology" (which attempts to explain our personal connection to the universe)—to explore that most fundamental of questions: *How did we get here?*

Objectives (instructors will):
• Survey scientific and mythological models of the universe
• Introduce problems of classification inherent in constructions of knowledge
• Review formative moments in intellectual history
• Explore socio-historical issues that accompany the scientific imagination

Outcomes (students will be able to):
• Explain ways in which different cultures imagine the universe
• Identify cultural values embedded in the history of astronomy
• Reflect on significance of intellectual history for contemporary notions of knowledge
• Assess the idea of scientific classification (by arguing for and against Pluto's planetary status)

Module 2, "Origins of Life"

This module will extend the earlier theme of faith versus reason to today's ongoing debate over life's origins, specifically the debate between evolution and creation. To better understand what is at stake in this debate, we will consider competing theories proposed by scientists and ethicists, and their answers to the key questions: "What constitutes life?" and "What life is sacred?" Just as the life of Galileo focuses the discussion in Module 1, the life and work of Charles Darwin will do the same in this module. We will closely examine the origins and value of the scientific method, the geologic history of Earth, the genetics of natural selection, and from the opposite side, the philosophy of religion and intelligent design.

Objectives (instructors will):
• Explore earth's origins in the context of the universe's history
• Survey history of and challenges to evolutionary thinking
• Survey and critique scientific systems of classification
• Introduce biological concepts of natural selection and speciation

Outcomes (students will be able to):
• Synthesize arguments about origins of universe with those about origins of life
• Evaluate limits of scientific classification
• Explain and apply concepts of natural selection and speciation
• Analyze texts such as *Origin of Species* to assess evolutionism in historical context

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Module 3, "Origins of Societies and Cultures"

Societies tend to coalesce for pragmatic reasons—food production, shelter, companionship, and defense—evolving distinct cultures in the process. Whereas all societies eventually face the same basic challenges—resource depletion, crime, epidemics, and environmental despoliation, among them—the creative contributions of their diverse cultures, in the sciences and arts, often remain unique. In this module (perhaps the most

protean of all the modules), we will examine a wide range of topics, each a way of understanding how and why people form into groups, cities, and cultures, and the potential positive and negative consequences of such activities. Some of the challenging questions we will consider are: "What is 'culture'?" "What is art and why do we have it?" "What obligations do we have to the environment, to each other, to our successors?"

Objectives (instructors will):
• Examine history and theories of social formations and movements
• Survey aspects of intercultural communication
• Illustrate dynamics of stereotyping in psychology and media
• Explore art as a means of understanding culture

Outcomes (students will be able to):
• Critique previous course themes and foci in terms of social movements and societal change
• Articulate extents to which common classification schemes lend themselves to stereotyping
• Analyze artworks by attending to formal characteristics of painting, music, literature, etc.
• Assess parallels between artistic creation and scientific or scholarly investigation

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Module 4, "Language and Communication"

Societies, like individuals, depend upon communication—to express needs and wants, to warn of danger, and to persuade others to join their cause. This module will look at the various ways that we have learned to communicate and persuade: through words, symbols, music, and even unconscious gestures. We will examine how we acquire and develop language skills, and then progress into the use of metaphor and purely symbolic languages such as mathematics. Through the study of the languages of mathematics and music, we will cultivate an understanding of what we mean by "language."

Objectives (instructors will):
• Explore socio-historical aspects of communication
• Elaborate theories of language acquisition and communicative practice
• Survey communicational logic of—and affinities among—forms of expression (language, music, film, mathematics, etc.)
• Examine the nature of knowledge with respect to cross-disciplinary communication

Outcomes (students will be able to):
• Summarize and apply theories of language acquisition and use
• Analyze cultural values embedded in language and alternative forms of expression (literature, music, film, mathematics, etc.)
• Elaborate commonalities among forms of expression
• Explain the bases of mathematical logic

Module 5, "Needs of Individuals and Societies"

Unlike societies, individuals have unique needs and desires, many of which cannot (or should not) be met by the society at large. Unique to each individual are the ethical choices that each of us makes in fulfilling these needs. Alternately, society often makes demands on individuals—sometimes with his or her consent, sometimes without—that challenge codes of ethics we may consider implicit and universal (such as restricting the pursuit of happiness, or freedom from pain). In the absence of a truly homogenous society, we learn to manage the tension between the one and the many as best we can. In this module, we will explore this tension by looking at case studies of social experimentation, economic issues, public health crises, and theories of ethical decision-making (such as utilitarianism).

Objectives (instructors will):
• Introduce ethics as source of scholarly focus
• Examine ethical tensions between individuals and societies
• Survey ethical considerations in public health and history
• Present ethical issues in methods of scientific research

Outcomes (students will be able to):
• Apply schools of ethical thought to contemporary concerns
• Elaborate ethics implicit in common public health and historical issues
• Assess ethical considerations in scientific research designs
• Analyze statistical data from ethical standpoints

Module 6, "Conflict"

Conflict is common not only between but within societies. It comes in many forms, not just violence and war, but everyday conflicts of interest, ideology, and belief. As such, conflict may be necessary for civilization to evolve and progress. This module will consider the full spectrum of conflict—from global war to terrorism and debates over protection of the environment—to explore how and why conflicts occur, how they might be avoided or managed, and how, traditionally, they have been resolved.

Objectives (instructors will):
• Present historical and ethical contexts for contemporary conflicts
• Explore local and global implications of political issues
• Suggest means of managing or ameliorating current conflicts
• Examine science behind historical developments

Outcomes (students will be able to):
• Apply ethical frameworks to modern conflicts
• Summarize and critique a current political conflict
• Elaborate historical, ethical and scientific contexts for contemporary conflicts
• Assess primary and secondary sources for characterizations of contemporary conflicts

Module 7, "The Future"

The final module will revisit the major themes of the course, from the perspective of how they might be affected by changes already underway, or predicted in the foreseeable future. Both threats and prospects will be examined, from the possibility of a global pandemic to the implications of genetic engineering and nanotechnology. The course will conclude with reflection on what we've learned over the semester and addresses our ongoing hopes and fears for the future, speculating on what we can do with this knowledge.

Objectives (instructors will):

• Survey costs and benefits of scientific and/or technological innovation
• Examine ethical considerations in contemporary scientific research
• Identify problems of and solutions to current scientific debates
• Explore implications of technological innovation for personal identity

Outcomes (students will be able to):

• Apply concepts of evolution and ethics to current scientific debates
• Elaborate unforeseen consequences of innovation
• Assess role of technology in everyday life
• Synthesize course material by applying it to future concerns

APPENDIX ITEM H

WRI 117: Writing in the Social Sciences, Humanities and Arts syllabus template selection

COURSE GOALS (This course is intended to help you…)	**LEARNING OUTCOMES** (Upon completion of course, students should be able to…)
Scientific Literacy: To have a functional understanding of the field of social sciences and/or humanities, and to know how to effectively interpret and apply relevant information in the field.	• Read, understand, and accurately interpret scientific texts in various social sciences and humanities disciplines • Understand how arguments are constructed and what counts as evidence in various social sciences and humanities disciplines • Design and conduct a generative research project that adheres to discipline-specific conventions
Decision Making: To appreciate the various and diverse factors bearing on decisions and the know-how to assemble, evaluate, interpret and use information effectively for critical analysis and problem-solving.	• Understand the various and diverse factors bearing on the complex process of research and the know-how to differentiate information effectively for problem solving • Understand how to evaluate various types of primary and secondary evidence and employ them to make an effective argument
Communication: To convey information to, communicate with, and interact effectively with multiple audiences, using advanced skills in written and other forms of communication.	• Tailor written, oral, and other modes of communication for multiple audiences • Examine instructor's and peers' comments for written work and implement relevant feedback in the revision process • Effectively engage and reflect on the different stages of research and writing process through keeping a research journal
Self and Society: To understand and value diverse perspectives in both the global and community contexts of modern society in order to work knowledgeably and effectively in an ethnically and culturally rich setting.	• Work effectively with group members from ethnically, culturally, and/or socially diverse backgrounds • Understand the global-local connection in research projects and other course materials
Ethics and Responsibility: To follow ethical practices as observed in the professional field and scholarly communities.	• Understand and adhere to the ethics and social responsibilities involved in doing academic research and using people as sources of data • Understand and adhere to the ethics of academic integrity, especially proper citation, accurate reporting of sources, and full disclosures of methodological practices
Leadership and Teamwork: To work effectively in both leadership and team roles, capably making connections and integrating their expertise with the expertise of others.	• Facilitate and foster discussion among classmates on assigned readings or topic • Collaborate with and support classmates on group tasks and research projects • Provide helpful and relevant feedback on classmates' work
Aesthetic Understanding and Creativity: To appreciate and be knowledgeable about human creative expression as seen in the fields of social sciences and humanities.	• When appropriate, apply creative expressions in course assignments • Design and create an aesthetically nuanced learning eportfolio • Employ creative strategies to make the group oral presentation interesting and engaging
Development of Personal Potential: To be responsible for achieving the full promise of their abilities, including psychological and physical well-being.	• Learn various educational technology and use them effectively in the course • Demonstrate professional behaviors vis-à-vis academic honesty and respect for others • Use the learning eportfolio as a platform for life-long learning, preparations for graduate school, and/or career development

APPENDIX ITEM I

Center for Research in the Humanities & Arts Grant Proposal for: "Writing the Posthuman"

Writing Program Faculty: Frederick Young, Ph.D., Derek Merrill, Ph.D., Tom Hothem, Ph.D., Nick Valdez, Ph.D. Philosophy Faculty: Jeff Yoshimi, Ph.D. (Submitted: March 30, 2009)

Overview:

UC Merced--the first "completely wired" campus of the 21st century--is a distinct position to respond to the digital transformation of culture that is currently underway. We believe the relevance of the humanities hinges on its unique ability to both conceptualize the digital and partake in its transformation. This puts the humanities in an excellent position to critically assess the way technological advances transform our sense of self and our communities.

Under the auspices of the Writing Program's newly formed Critical Theory Reading Group, we propose to invite a group of internationally known scholars and digital arts practitioners to UC Merced to present their research, to hold workshops with our students, and to discuss how our new UC campus can participate in the transformations associated with digital culture. Critical theory—the examination and critique of society and social activities—unveils what appears as natural to our everyday experiences. It provides tools for asking what we are doing when we use digital technology. The scholars and digital artist practitioners we plan to invite all work on the notion of the posthuman (the self in digital culture), as a way of categorizing the transformations of self underway, by posing questions concerning the digital technology of self, what it means to be a human subject, what digitalization of culture means for ethnic, racial and gender identity, and how these questions themselves are being transformed both nationally and globally through the digital.

We see these transformations underway in such practices as social networking (e.g. Facebook), multiplayer online role-playing game like *World of Warcraft*, and modern television and internet media broadly. In his seminal work, *The Society of the Spectacle*, Guy Debord states that the *image* has now become the fabric of social relations and the productions of self. Interrogating these practices through the lens of critical theory gives us the tools to re-evaluate how traditional notions of identity, space, time, gender, race, and nationality are transformed by digital culture. We are interested in thinking though ways in which these types of technologies influence the writing practice in the classroom, and how to both create and use our existing technological resources both for pedagogy and scholarship.

We see the digital as an apparatus that by its very nature facilitates interdisciplinary activities in the university, and we see the humanities as having a unique ability to conceptualize and create writing practices for the university.

Organization:

We propose inviting four speakers (two media scholars, two media artist practitioners) to UC Merced during the 2009-10 academic year. Each speaker would give a talk open to students, faculty, and the public about their research, and would also participate in faculty and student workshops and classroom visits, allowing for greater student/faculty interactions. The speakers' work will serve to introduce the campus community to intersections between critical theory, digital media, philosophy, culture, writing, and pedagogy. We see this lecture series as a foundation for further exploration of digital culture and the humanities at UC Merced, and for facilitating and energizing interdisciplinary collaborations across disciplines and schools.

Outcomes:

We anticipate a collective "special issue" publication (assembling writings by invited speakers and UC faculty) addressing the process of developing writing courses intersecting critical theory and digital media. Possible publication venues include: *College Literature*, *New Directions for Higher Education*, or *Composition Studies*. In addition to disseminating the results of our collaborations, this will also assist us in curriculum development for Writing 117 (Writing in the Humanities and Social Sciences) and development of the Writing Major. We also plan to submit a symposium proposal for the annual Conference on College Composition and Communication to discuss the ways we have developed and instituted curriculum in the fields of writing, critical theory, and digital media at UC Merced.

Speakers:

Charlie Blake: Director of Media Studies, Liverpool University Hope. Dr. Blake serves on many international Digital Media and Critical Theory journal boards, and has published extensively in the field of Media Studies, Continental Philosophy and Critical Theory. Among his forthcoming publications includes a two volume special issue of the journal "Angelaki: Theoretical Journal of the Humanities," dedicated to work of French Philosopher Gilles Deleuze.

Ricardo Dominguez addresses Chicano culture and explores resolving conflict through the digital. He is a co-founder of The Electronic Disturbance Theater (EDT), a group who developed Virtual-Sit-In technologies in 1998 in solidarity with the Zapatista communities in Chiapas, Mexico. He was co-Director Ricardo's performances have been presented in museums, galleries, theater festivals, hacker meetings, tactical media events and as direct actions on the streets and around the world. He is an associate professor of Visual Art at University of California San Diego. **Rita Raley** researches and teaches in the areas of new media (art, literature, theory) and 20-21C literature in an "international" or "global" context. Her book, *Tactical Media*, a study of new media art in relation to neoliberal globalization, is forthcoming from the University of Minnesota Press. She also continues work on *Global English and the Academy*, excerpts of which have been published in *The Yale Journal of Criticism* and *Diaspora*. **Eugene Thacker** examines the impact biotechnology has had on the concept of the human. He is the author of *Biomedia* (University of Minnesota, 2004), *The Global Genome: Biotechnology, Politics, and Culture* (MIT, 2005), and co-author with Alexander Galloway of *The Exploit: A Theory of Networks* (University of Minnesota, 2007). Thacker is Associate Professor in the School of Literature, Communication, & Culture at the Georgia Institute of Technology.

APPENDIX ITEM J

Portfolio Review Session
10 March 2010

Participants: Ann Bliss, Amy Fenstermaker, Heather Lanser, Derek Merrill, Mary Soltis, Anne Walker, Byron Webb

In Absentia: Carol Ellis, Nahrin Mirzazadeh

Summary:

In this session, we reviewed an unrated WRI 10: Reading and Composition sample portfolio. The focus of our discussion was on the ways in which the portfolio criteria needs to be distributed more clearly between the cover letter and content descriptions. One especially useful summative statement about the intent of a portfolio is: "Did the student make a meaningful revision? Does he or she understand the significance of the revision? And, is that revision adequately explained?" The following action items summarize changes to the rubric.

Action Item:

Add "purpose" and "intentionality" to criteria descriptions

Criteria should reflect: How does evidence match claims? How relevant is the evidence?

Evidence could be more accessibly and accurately described as "course materials"

APPENDIX ITEM K

Professional Writing Track
Syllabus Alignment Project
Professional Writing Sequence
April 2010

WRI 30: Professional Writing: "Students will gain competency in professional writing and speaking, useful in developing effective communications for a variety of disciplines and fields. Assignments in this course will introduce students to a variety of genres of professional writing, emphasizing practical competencies useful for careers, with a focus on responsible and ethical practices in communicating to the professional world."

WRI 30, Course goals: This course will…

1. Introduce students to the expectations and practices of various fields of professional writing, and provide opportunities for students to adhere to standard writing, research and editorial practices
2. Improve student competency in professional writing and speaking, useful in developing effective communications for a variety of fields.

WRI 30, Student Learning Outcomes: Students will practice and refine their capacity to…

1. Understand the different styles and structures of various genres of professional writing (e.g. journalism, technical writing, entrepreneurship, public policy, new media) in preparation for advanced courses in specialized professional writing.
2. Develop oral communication practices useful for professional settings, through collaboration with peers, interviewing, and delivery of oral presentations
3. Understand and address the needs of different audiences in various rhetorical situations by adopting appropriate voice, tone, language, format, and style
4. Learn fundamentals of layout, design, and the visual rhetoric of professional documents
5. Gain experience in the process of professional writing, through invention, drafting, editing, and revision
6. Practice credible argumentative strategies designed to appeal to audiences of various professional communication genres and fields.
7. Improve research methods and gain informational literacy necessary to substantiate claims and earn credibility from professional audiences

Verbs	Skills or Content	Supporting activities
Understand	Styles and structures of various genres	
Develop	Oral communication	Collaboration with peers, interviews, oral presentations
Understand / address	Audience analysis	
Learn fundamentals	Layout, design	
Gain experience	Drafting and editing process	Project drafting process, peer review workshops

Practice	Argumentative strategies	
Improve	Research methods	

WRI 130: Topics in Professional Writing --"Specialized, practical instruction in one element or genre of professional writing, considering important factors such as clarity, tone, audience, ethics, and context. Topics include (but are not limited to) journalism, technical writing, copy-editing, writing for the Internet, and research for writers. With instructor permission, this course can be repeated for credit as topics change."

Students will practice and refine their capacity to…

1) Understand and address different audiences in various rhetorical situations by adopting appropriate voice, tone, language, and level of formality
2) Develop strategies for dealing with sensitive topics and communicating with people who may not share your culture, background, or interest in the topic (e.g. resistant, hostile audiences)
3) Identify, gather and integrate evidence to support claims
4) Apply correct usage guidelines and edit according to standard style
5) Collaborate successfully on group tasks and class projects
6) Assess peer writing and provide constructive feedback, and modify own work by integrating relevant feedback
7) Understand the basic professional styles, structures and standards of your field and demonstrate responsible and ethical practice

Verbs	Skills or Content	Supporting activities
Understand, Address	Range of audiences	
Develop	Sensitive topics, cross-cultural communication	
Identify, Gather, Integrate	Evidence and support	
Apply, Edit	Correct usage and standard style	
Collaborate	?	Group tasks, class projects
Assess, Modify	Peer and own writing	Peer review, revision
Understand	Professional styles, structures and standards	

APPENDIX ITEM L

Creative Writing Grading Guidelines

A/A-: Work shows evidence of a high level of awareness of the contemporary conventions and innovations of the genre and elements of its craft. Applies, discusses, or analyzes these conventions or innovation in a way that demonstrates a novel understanding or approach to craft. Writing is exact and exceptional in its word choice and its awareness of grammatical constructions, even if one is subverting grammatical conventions as a stylistic choice. Work is exceptionally presented and complete.

B/B+: Indicates general awareness of the conventions and contemporary conventions and innovations of the genre. Demonstrates facility of applying, discussing, or analyzing these conventions and innovations in some elements of craft, but show weaknesses in one or two areas. Writing or articulation is careful in its word choice, though not as precise as it could be. The work may be well-crafted or the discussion well-organized, but it may not always reveal original thought or ideas, or invoke individual style as often as work in the A range might. Work is professionally presented and thorough or nearly complete.

B-/C+: Demonstrates above average facility in the application, discussion, and analysis of the contemporary conventions and innovations of the genre. Some elements of craft may be weaker in their execution or facility than others. Writing or discussion is above average, though sometimes imprecise or not as fluid as it could be. Work tends to be less controlled than it might be, but there is significant evidence that it has a foundation that could flourish in revision. Work is somewhat professional and may be incomplete in some areas.

C/C-: Work shows an average facility in the application, discussion, or analysis of the contemporary conventions and innovations of the genre, with some elements of craft being less developed or discussed than others, not because of a stylistic preference, but because an incomplete understanding of those elements. Work may lack clarity in several places or may demonstrate consistent evidence of a lack of control. Work approaches professionalism and approaches completion.

D/D+: Work shows a lack of care, or a misunderstanding of the contemporary conventions and innovations of the genre and elements of its craft. The work may be incoherent, sloppy, or suffer from other writing challenges. It also may have not addressed the assignment in a sufficient way. Work lacks professionalism and completeness.

F: Work that receives an F grade is usually work that has demonstrated only minimal effort or else an absolute lack of understanding or the assignment.

All Writing Courses

Mid-Course Evaluation (Spring 2010)

Instructions: The following course evaluation will take about 20 minutes to complete. This survey provides anonymous but vital feedback to the instructor and our program. All responses are carefully analyzed to inform subsequent instruction in this course and to reshape the entire writing curriculum. Thank you for your thoughtful participation.

Rating Scale

Rarely (1)	Sometimes (2)	Frequently (3)	Always (4)	Not Applicable (0)

Part 1 - Self Assessment
The following questions are focused on self-assessment. Please rate your level of engagement and progress in the course.

1. I complete the assigned readings and homework on schedule.
2. I participate actively in class discussions and activities.
3. I have made use of the instructor's office hours to get assistance with my writing.
4. I have found this course useful in helping me improve as a writer.
5. How would you describe your writing ability now compared to the beginning of the semester? Please explain.

Part 2 - Instructor Assessment
The following questions are focused on your instructor. Please rate his/her effectiveness in helping you improve as a writer.

1. My instructor provided clear instructions for formal papers.
2. My instructor provided clear instructions for in-class activities.
3. My instructor discusses my writing and ideas in ways that help me to improve.
4. My instructor seems willing to answer questions.
5. My instructor seems available to students.
6. My instructor seems committed to helping me learn.
7. My instructor seems organized.
8. My instructor seems knowledgeable about writing.
9. My instructor seems fair.
10. In what ways has your instructor helped you improve as a writer? Please explain.

Part 3 - Skills Assessment
The following questions are focused on overall course goals. Please rate the course's effectiveness in helping you achieve these goals.

1. This course has taught me how to give and attend to feedback.
2. This course has taught me how to analyze readings.
3. This course has taught me how to develop reading skills.
4. This course has taught me how to think creatively.

5. This course has taught me how to developing a topic.
6. This course has taught me how to compose an argument.
7. This course has taught me how to craft an essay (writing process).
8. This course has taught me how to integrate evidence.
9. This course has taught me how to write to an audience.
10. This course has taught me how to speak to an audience.
11. This course has taught me how to apply professional and academic ethics.
12. How effective is the design of this course in helping you improve as a writer? Please explain.

Part 4 - Activities Assessment
The following questions are focused on various activities that are intended to help you improve as a writer. Please rate their usefulness.

1. Revising my own writing has been useful to me.
2. Peer review has been useful to me.
3. Feedback from instructor has been useful to me.
4. Listening to class discussions has been useful to me.
5. Speaking up during class discussion has been useful to me.
6. Keeping a journal has been useful to me.
7. Formal paper drafting has been useful to me.
8. Developing a portfolio has been useful to me.
9. Participating in online activities (i.e., wikis, blogs, discussion forums, etc.) has been useful to me.
10. Among the above activities, which one was the most helpful to you and why? Please explain.

Part 5 - Program Learning Outcomes Assessment
Program learning outcomes are evaluated on an annual basis. This year in the Merritt Writing Program, we are focusing on the following outcome: Students will be able to "demonstrate thorough engagement with the iterative (multi-step) processes of reading, writing and speaking."

1. How often has the course reinforced your engagement with the reading process?
2. How often has the course reinforced your engagement with the writing process?
3. How often has the course reinforced your engagement with the speaking process?
4. How often has your instructor noted specific relationships between class instruction and student learning outcomes for your course?

Part 6 – Overall Assessment
The last two questions ask for your opinion about what aspects of the course has been especially helpful and what aspects could be improved. Please be specific.

1. Identify and evaluate aspects of this course that have been especially helpful to you.
2. Describe aspects of this course that you would change, if you had the opportunity.

Natural Sciences Education (NSED) Minor FAR (Revised, 2010)

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I. Summary of Assessment Plan Revisions

Based on the first assessment administered in the Spring 2010 the program staff analyzed the process and the outcomes of the assessment and made the following revisions to the assessment plan:

1. It was decided to introduce more formal process to administer the assessment, namely in the future an assessment committee will be formed consisting of the program Faculty Director, Director/Coordinator and Lecturers. The committee will be responsible for reviewing and editing the assessment plan, assisting in administering the assessment process and reviewing the collected assessment data.
2. A closer integration with the institutional data collection and analysis and the NSED program assessment will be planned in the future. The program staff will schedule regular meetings with the corresponding institutional data and analysis personnel both in the School of Natural Sciences and university-wide office and jointly develop a more extensive data collection plan.
3. The interviews of students and program academic personnel will be conducted in a more structured and formal fashion. The assessment committee will develop a set of questionnaires for both groups of program participants and these questionnaires will be used to administer the interviews during next assessment.

4. Curriculum map has been added to the assessment plan.
5. Self-evaluation using WASC rubric is added.
6. Revised Inventory of Educational Effectiveness Indicators is attached.

II. Revised Faculty Accreditation Report for the Natural Sciences Education (NSED) Minor Program

1. NSED Minor Program Description

The Natural Sciences Education (NSED) Minor is primarily intended for students interested in teaching careers at the K-12 level. The minor is developed as part of the Science and Mathematics Initiative (SMI) also known as California Teach (CalTeach) Program. Under the governor's initiative CalTeach has been instituted as a UC-wide effort to address the severe shortage of science and mathematics teachers in California's secondary schools. The program offers courses, academic and career counseling that allows students majoring in science and engineering to explore and prepare for careers in teaching sciences and mathematics in secondary schools. NSED Minor allows leveraging SMI program to offer UC Merced students an opportunity to explore additional career options, deepen their understanding of science and mathematics, and improve their ability to communicate scientific and mathematical concepts. The 24-unit NSED minor program prepares students majoring in sciences or mathematics for direct admission into teaching credentialing programs.

Program Goal

Provide students with knowledge, skills and support to pursue careers of teaching science and mathematics at the secondary school level and assist students in building a foundation to become effective future teachers and instructional leaders.

Program Learning Outcomes

Upon completion of the NSED minor program students are expected to

1. Be able to comprehensively articulate what constitutes a profession of a science or mathematics teacher and to demonstrate familiarity with the structure of California educational system, including being able to address the following questions:
    a. What constitutes responsibilities and duties of a teacher
    b. What skills and knowledge are necessary to become a successful professional?
    c. Credentialing process,
    d. Instructional state standards and requirements,
    e. Strategies to address diverse demographics of California schools such as instruction to English Learners.

2. Demonstrate basic teaching skills and familiarity with effective teaching methodologies and learning strategies in science and mathematics, including being able to
    a. Develop a lesson plan and deliver an effective lesson at the secondary school level,
    b. Design different types of assessments to evaluate students learning,
    c. Distinguish between students with different learning abilities and needs and adapt their teaching methodology to address this diversity,
    d. Incorporate innovative teaching methodologies and to use learning-enhancing technology in the classroom.

2. NSED Program Assessment Plan

The five-year assessment plan will allow faculty and staff to evaluate the degree to which students achieve the desired program learning outcomes as a result of completing the NSED minor at UC Merced.

The assessment of the program will consist of two complementary parts:

(i) Coursework-based evaluation, and

(ii) Overall program evaluation.

Coursework-based evaluation (CB). Several assessment tools will be embedded into the current coursework. Specifically, exams and surveys focused specifically on the program learning outcomes will be developed by the courses' instructors and used to assess whether the outcomes are achieved.

Overall program evaluation (OP). This portion of the assessment will employ such tools as case studies, interviews and surveys of the current students and alumni in order to obtain a broader view of the program's effectiveness.

Timeline & Process

Based on the first assessment of the program conducted in Spring 2010 the program staff decided to form an assessment committee to assist with conducting and evaluation the NSED minor. Specifically, a group consisting of Faculty Director, the Program Director/Coordinator and Lecturers of the program will meet in the beginning of Fall 2010 semester, review the current plan, make adjustments, plan out the assessment activities and carry them out in the appropriate time frame. Once all the data is collected the group will meet to review and analyze the results and make appropriate adjustments to the program.

In addition the Assessment Committee will connect with the data collection personnel at the School of Natural Sciences and the university-wide data collection office. This will allow the program to collect more comprehensive data on the students' background, performance and achievements and put the NSED data in the context of larger spectrum of UCM students' academic statistics. Initial meetings regarding the data integration will be held in Fall 2010 and the plan of data integration will be developed in consultation with the Assessment Committee.

The following timeline will ensure that a thorough and sustainable assessment system is in place. Such plan provides an immediate assessment of whether the learning outcomes are achieved, but also ensures creation of mechanisms that help to continuously manage and improve the program. The data collected as a result of the assessment

activities will be gathered and analyzed in a report. This report will be forwarded to Associate Dean and Dean of Natural Sciences. Using this report, the program faculty and administrators can re-evaluate course structures and teaching practices, modify assessment measures, and examine student skill development for continuous quality of improvement. Below is the timeline and corresponding assessment activities to be administered over the next five years (abbreviations CB and OP stand for Coursework-Based and Overall-Program evaluation tools respectively):

2009-2010 Academic Year:

- (CB) Develop exams and surveys for one of the introductory lower division NSED courses (i.e. NSED 23/33, 43/53, 63/73), to assess PLO 1. *Participants:* faculty director, course instructor.

- (OP) Create and administer senior exit survey to assess PLO 1. *Participants:* faculty director, program coordinator.

- (CB) Develop exams and surveys for NSED 100 (Introduction to classroom management for beginning teachers) course to assess PLO 2.

- (OP) Identify several students at different stages of the program and through case study and interviews document their progress in achieving PLO 1. *Participants:* program coordinator.

2010-2011 Academic Year:

- (CB) Adapt the PLO1 assessment course exams and surveys for the introductory lower division NSED course to administer in the remaining lower division classes (i.e. include all of NSED 23/33, 43/53, 63/73 courses). *Participants:* courses' instructors.

- (CB) Develop exams and surveys for one of the introductory lower division NSED courses to assess PLO 2. *Participants:* faculty director, course instructor.

- (OP) Create and administer senior exit survey to assess PLO 2. *Participants:* faculty director, program coordinator.

- (OP) Identify several students at different stages of the program and through case study and interviews document their progress in achieving PLO 2. *Participants:* program coordinator.

2011-2012 Academic Year:

- (CB) Adapt the PLO2 assessment course exams and surveys for the introductory lower division NSED course to administer in the remaining lower division classes (i.e. include all of NSED 23/33, 43/53, 63/73 courses). *Participants:* courses' instructors.

- (CB) Collect, analyze and summarize data obtained as a result of exams and surveys administered in the NSED courses. *Participants:* faculty director, course instructor.

- (OP) Collect, analyze and summarize data obtained as a result of surveys, student case studies and interviews. *Participants:* faculty director, program coordinator.

2012-2013 Academic Year:

- (CB) Adapt the PLO3 assessment course exams and surveys for the introductory lower division NSED course to administer in the remaining lower division classes (i.e. include all of NSED 23/33, 43/53, 63/73 courses). *Participants:* courses' instructors.

- (CB) Collect, analyze and summarize data obtained as a result of exams and surveys administered in the NSED courses. *Participants:* faculty director, course instructor.

- (OP) Collect, analyze and summarize data obtained as a result of surveys, student case studies and interviews. *Participants:* faculty director, program coordinator.

- (CB-OP) Prepare a report that summarizes results obtained over the course of assessment studies. *Participants:* faculty director, program coordinator.

- (CB) Based on the report's analysis begin development of upper-division capstone courses.

2013-2014 Academic Year:

- (CB-OP) Develop exams and surveys to incorporate into the new upper division capstone courses.

- (CB-OP) Identify strong and weak points of the program and develop a plan to adjust the curriculum and program elements to improve the degree to which program learning outcomes are achieved. *Participants:* Dean of School of Natural Sciences, faculty director, program coordinator, courses instructors.

Once a year the program will also conduct interviews of NSED students and faculty. The Assessment Committee will develop a set of questionnaires targeting each of these groups of the program participants in the Fall 2010 and subsequently conduct the interviews using these guidelines. The information will be recorded and analyzed in the course of next evaluation.

Curriculum Map

Table 1: A curriculum map representing the alignment between NSED Program Learning Outcomes and the Eight Guiding Principles of General Education.

PLOs	Scientific Literacy	Decision Making	Communication	Self & Society	Ethics & Responsibility	Leadership & Teamwork	Aesthetic Understanding Creativity	Development of Personal Potential
1a)	X		X	X	X			X
1b)	X	X	X	X	X	X		X
1c)		X		X	X			
1d)	X	X		X	X			
1e)		X		X	X			X
2a)	X	X	X	X	X	X	X	X
2b)	X		X				X	X
2c)	X	X	X	X	X	X	X	X
2d)	X	X	X	X	X	X	X	X

III. Self-evaluation

WASC Rubric for Assessing the Quality of Program Learning Outcomes

Comprehensive List

The list of NSED program outcomes can be classified as developed. According to the consultations with both the program faculty and students the list is agreed to be a comprehensive and clear outline of the outcomes that such program should strive to achieve.

Assessable Outcomes

The PLOs for the program are in the developed stage from the perspective of assessable outcomes since each of the PLOs can be evaluated via the assessment tools such as exams, observations and interviews. In fact, the curriculum is closely integrated with assessable outcomes, i.e. grades in the courses strongly reflect whether the students achieved the level of skill development and knowledge required by PLOs.

Alignment

The curriculum is strongly aligned with the increased proficiency with respect to each outcome. The structure of the program includes introductory/lower division courses followed by more advanced/upper division courses, exemplifying transition to more sophisticated preparation as a teacher. In fact, students who have not achieved sufficient proficiency after completing the introductory sequence are unlikely to continue in the

program and take the upper division courses. This aspect of the rubric is in the "developed" stage for the program.

Assessment Planning

Assessment planning is limited by the personnel and financial resources available to the program. While there is a long term plan for the assessment which is well-aligned with the goals of the program, implementation of such plan requires additional personnel resources which are currently being sought out. Thus the assessment planning can be classified as "emerging".

The Student Experience

Since the curriculum and course examinations are closely aligned with the PLOs and are readily available in the catalogue and on the website, passing the courses requires the students to have a good grasp of program outcomes. The instructors for the program continuously reiterate the PLOs to the students and assess whether the outcomes have been achieved. Thus the student experience with respect to PLOs is in the developed stage.

WASC Accreditation Document: Philosophy, April 2010

Abstract of Revisions to the Original WASC Accreditation Document

We have made the following changes in this revision of the 2009 Philosophy WASC document.
Section II.B: We have revised the description of PLO 3, which was assessed in 2010.
Section II.G: We have included a self-evaluation of our assessment plan.
Section III.A: A curriculum map has been added that summarizes the alignment between the Philosophy PLOs and the UC Merced Eight Guiding Principles for General education.
Section III.C: We have revised the Philosophy Minor curriculum map that summarizes how the philosophy courses support the philosophy PLOs to incorporate newly added philosophy courses and recent revisions to existing courses.

Section I: Program Description

UC Merced currently has two ladder rank philosophers (Peter Vanderschraaf and Jeffrey Yoshimi) and offers a philosophy minor. Plans are to build out to a major as soon as possible (when at least two more tenure-track philosophers are hired), and ultimately to offer a graduate program.

How does your program reflect current or emerging trends in your respective field?

What is distinctive about your program?

A trend in philosophy in recent decades has been to work more closely with associated disciplines. Several journals have risen to prominence in interdisciplinary and applied areas. For example, *Biology and Philosophy*, *Philosophy and Public Affairs*, and *Politics, Philosophy and Economics* are all A-level journals. A number of philosophy programs have developed specializations in particular interdisciplinary linkages. For example, connections between economics, public policy, and philosophy are emphasized at Oxford University, University of Pennsylvania, University of Washington, and Duke and the University of North Carolina at Chapel Hill, among others. [1] Linkages between cognitive science and philosophy are emphasized at UC San Diego and Washington University in St. Louis, among others. [2] There are also several applied ethics centers that focus on the relation between ethics and specific social issues.[3]

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[1] These include: Oxford University's and University of Pennsylvania's long-standing undergraduate programs in Philosophy, Politics, and Economics; the *Values in Society* program at University of Washington; the program in Philosophy, Politics and Economics sponsored jointly by Duke University and the University of North Carolina at Chapel Hill.
[2] Notably, UC San Diego's joint degree in cognitive science and philosophy, Oxford University's *Psychology, Philosophy, and Physiology* program, and Washington University in St. Louis' *Philosophy Psychology, and Neuroscience* Ph.D. program.
[3]Examples of such ethics centers include the Social Philosophy and Policy Center at Bowling Green State University and the Center for Applied Philosophy and Public Ethics at the Australian National University.

UC Merced is building its program entirely around interdisciplinary approaches to philosophy, with an emphasis on formal approaches to traditional problems, including using mathematical and computer modeling. We currently focus on (1) social philosophy, with particular emphases in applied ethics and political philosophy, and (2) philosophy of mind, with particular emphasis in philosophy of cognitive science. We plan to continue building in these areas. We are also contemplating adding in the future an additional focus on (3) philosophy of art and literature. Some philosophy programs emphasize some of these interdisciplinary connections, but UC Merced's is the only philosophy program rooted in this particular combination of interdisciplinary connections, making this program unique in the discipline. Also note that this emphasis does not sacrifice traditional work in philosophy. The interdisciplinary work we emphasize builds on traditional training in political philosophy, ethics, and mind.[4]

Do students collaborate on research projects or engage in other distinctive learning experiences?

Yes. UC Merced faculty are distinctive in their use of methods from several disciplines, including disciplines outside their home programs. In philosophy, both current ladder rank faculty use formal models to address traditional philosophical questions. Vanderschraaf uses game theoretic models to address questions in moral and political philosophy, and even in analyzing historical questions. Yoshimi uses neural network models to address questions in philosophy mind and cognitive science. Both Vanderschraaf and Yoshimi make use of dynamical systems theory and computer simulations.

These distinctive aspects of our research are passed on to students. Students are expected to demonstrate mastery of the material they study in traditional ways, including critical written analyses and written exams, but are also expected to learn to use cutting edge methods and techniques. Examples include incorporating readings outside of the professional philosophy literature, giving conceptual analysis of non-philosophical texts, e.g scientific texts and policy analyses, and computer and mathematical modeling projects.

How does your program prepare your graduates for further educational and/or professional development?

There is evidence that coursework in philosophy is good preparation for students who wish to pursue graduate study, regardless of the field of graduate study. According to one source:

> A recent comprehensive study of college students' scores on major tests used for admission to graduate and professional schools shows that students majoring in Philosophy received scores substantially higher than the average on each of the tests studied. The study compared the scores of 550,000 college students who took the LSAT, GMAT, and the verbal and

[4] All the mentioned areas are included in the Leiter Report's list of 29 recognized areas of specialization in the field. The Leiter report (http://www.philosophicalgourmet.com) is the standard ranking of philosophy programs in the English-speaking world. Evidence of marketability is provided by Leiter's reports on job placements in the discipline.

quantitative portions of the GRE with data collected over the previous eighteen years and was conducted by the National Institute of Education and reported in *The Chronicle Of Higher Education.* (http://www.libarts.wsu.edu/philo/overview/Grad%20Admissions%20Tests.html)

Beyond these general advantages of training in philosophy, the philosophy program at UC Merced is especially well suited to preparing graduates for professional development in the contemporary world. As noted above, our curriculum incorporates formal tools like computer and mathematical models, as well as conceptual analysis of scientific texts, but also emphasizes traditional forms of study, e.g. close reading of historical texts. This kind of interdisciplinary literacy (that is, this ability to use techniques and methods effectively across disciplinary lines) is well suited to long term success in today's world.

Section II: Assessment Plan

Part A: Timeline and Goals

The ladder faculty with a primary appointment in philosophy expect to publish the program learning outcomes of the minor in philosophy at the start of the Fall 2009 semester. We expect to have a first annual revue meeting to discuss the progress of students minoring in philosophy in the Spring 2010 semester. Shortly after this first annual meeting, we hope to be able to record a summary of each philosophy minor's progress towards fulfilling the program learning outcomes. We will use the data from these summaries to establish both individual and aggregate statistics that will help us track the progress of individual students in the minor in each year of her undergraduate career. This data will also help us to track the effectiveness of the minor program across all the philosophy minors.

We will follow a similar timeline for the 2010-2011 academic year, again holding an annual revue meeting in the Spring 2011 semester, recording individual student summaries and deriving individual and aggregate statistics. At the end of the Spring 2011 semester, we will compare data from the 2009-2010 and the 2010-2011 academic years, both in order to gauge how well the philosophy minors have progressed over this two year period and to evaluate internally for the first time this proposed evaluation procedure. If at the end of the 2011 Spring semester we find this procedure inadequate, we will at that time propose a revised procedure for evaluating the progress of the philosophy minors and the effectiveness of the program as a whole.

Part B: Outline of Program Learning Outcomes

This section summarizes the program learning outcomes (PLOs) of the minor in philosophy. These program learning outcomes will be published in the Minor in Philosophy section of the UC Merced SSHA web site.

The Philosophy PLOs are as follows: Upon graduation, we expect students minoring in philosophy to fulfill all of the following:

1. (*Basic fluency in interpretation and criticism of arguments*) Have the ability to independently study, summarize and criticize philosophical arguments, including arguments presented in classic texts and in contemporary philosophical literature.
2. (*Ability to present and defend original arguments*) Have the ability to present well-defined claims of one's own, to give clear philosophical arguments in defense of these claims, and to respond to critical objections others might raise against these claims.
3. (*Basic fluency in logical inference*) Be able to distinguish between logically valid and invalid deductive arguments, be able to translate verbal statements into symbolic expressions having correct logical form, and be able to give proofs of elementary propositions of logic.
4. (*Interdisciplinary applications*) Be able to use philosophy in an interdisciplinary way, for example, by philosophically analyzing non-philosophical texts (e.g. texts form a literature, history, psychology, or physics course), or by using formal methodological tools, such as mathematical and computer models, in the analysis of philosophical problems.

Additionally, we expect students minoring in philosophy to fulfill at least two of the following:

5a. (*Basic fluency in inductive logic*) Be able to provide and assess evidence for causal claims and identify various fallacies in inductive reasoning (e.g. sample bias)

5b (*Ability to appraise normative claims*) Be able to distinguish between descriptive and normative philosophical claims, and to use certain descriptive claims either to support or to criticize certain normative claims.

5c. (*Historical understanding*) Have an appreciation of how the discipline of philosophy has developed over time in response to internal challenges and to advances in science and changes in social life. (E.g., the renaissance in philosophy of mind was stimulated in part by the development of contemporary artificial intelligence).

Part C: Evidence

The instructor of each course that students can count towards the philosophy minor will be expected to

1) List relevant program learning outcomes in the syllabus
2) For all philosophy minors in the course, keep copies of data recorded on course components that demonstrate their progress towards program learning outcomes. Such components may include, but are not limited to: (*i*) essays, (*ii*) written exams, (*iii*) oral presentations, (*iv*) class participation, and (*v*) projects such as computer programs or materials students may use in support of a formal presentation.
3) At the end of the semester, write up a brief statement or provide some indication of each student progress towards each relevant PLO.

These materials will then be used in assessing students in the annual meetings described in Part D. (Note that it is not required that progress towards course outcomes be explicitly factored in to the students grade in a course.) By recording data in this way, any students who declare a philosophy minor in a semester following this course will have a history of data that can be used to track her/his progress in the minor. Such summary data should include, but need not be limited to, at least one statistic per student and contributory course component. At their own discretion instructors may also record additional information such as specific verbal comments. Each instructor will be responsible for submitting this recorded data in advance of the data of the annual revue of philosophy minors.

Part D: Process

Starting in the Spring 2010 semester, the progress of students minoring in philosophy will be evaluated in a two-step process.

1) The first step will consist of the gathering and summarizing of the data described in Part C.
2) The second step will consist of a regular meeting to take place near the end of each spring semester in order to discuss the progress of each student who is minoring in philosophy and the state of the minor program as a whole.

Faculty participants in the annual revue meeting will use the data gathered in the first step together with their more informal reflections upon their experiences with their students to gauge the progress of the individual philosophy minors and the philosophy minor program as a whole.

Part E: Participants

All ladder faculty with a primary appointment in philosophy will participate in the annual review meeting. Faculty with a secondary appointment in philosophy and non-ladder faculty with a primary appointment in philosophy will be welcome to participate in the annual review meeting at their discretion.

Ladder faculty with a primary appointment in philosophy will be responsible for reviewing the data reflecting students' progress in the philosophy minor referred to above in Part C.

Part G: Self-Evaluation

Part A. Comprehensive List: Developed. The philosophy PLO's are reasonable and cover the disciplinary areas that philosophy minor students should engage in substantively during their undergraduate careers. National disciplinary standards for philosophy do not exist, but we plan to consult the standards of philosophy programs in peer institutions. In future years we hope to make some effort to see what standard are.

Part B. Assessable Outcomes: Emerging. We have learned from our first assessment of a Philosophy PLO how to make the all of the PLOs more readily assessable and clarified the assessed PLO in light of this assessment. We are confident we can improve the remaining PLOs as we assess them in the future.

Part C. Alignment: Emerging. The philosophy minor curriculum feeds into the PLOs well in some areas but not in others. This is because the philosophy program is only now able to add courses that directly support certain of the program PLOs such as historical understanding and analysis of normative claims. Program alignment with PLOs should become highly developed as we enrich our course offerings.

Part D. Assessment Planning: Emerging. We have a general plan in place for assessment, but we need to establish a timetable for assessing the PLOs we did not assess this year and specify more clearly how we will assess particular PLOs. We will apply the knowledge we have gained from our first assessment as we proceed with our assessment of the other PLOs with the aim of making our assessment planning more developed.

Part E. The Student Experience: Emerging. Student learning outcomes are included in all philosophy course syllabi. The Philosophy PLOs will be published in the university catalog and the Philosophy Minor web site, and all philosophy minors will be informed that they can study their PLOs in the catalog and minor web site. Since students at UC Merced are only now becoming aware of the notion of a PLO, the undergraduate minors are not yet applying them actively in their own self-assessment. We will discuss ways to encourage philosophy minors to engage more actively with the Philosophy PLOs when we evaluate the progress of the minor program prior to the next assessment.

Section III: Alignment Of Institutional And Program Goals/Outcomes

Part A: Program and Institutional Goals/Outcomes

In what ways does your program reflect institution-wide goals? For context, please consider UC Merced's Eight Guiding Principles of General Education, and / or UC Merced's Mission Statement2 that identifies our campus as a "student-centered research university."

Philosophy at UC Merced reflects all eight of the guiding principles of General Education at UC Merced. Philosophy as a discipline generally reflects these goals, but philosophy as taught at UC Merced is especially well suited to serving most of them. We consider each guiding principle in turn.

Scientific Literacy (To have a functional understanding of scientific, technological and quantitative information, and to know both how to interpret scientific information and effectively apply quantitative tools)

A fundamental aspect of philosophy is the application of logic and symbolic methods (e.g. mathematics) to conceptual problems. Logic is required for philosophy minors, and in all philosophy courses students are expected to apply logical technique to the analysis of specific problems. UC Merced's emphasis on applications is well suited to promoting students' ability to interpret scientific information. In relevant courses, students read about experiments and results in fields outside of philosophy—including social and natural sciences—and then critically analyze those findings. For example, in philosophy of cognitive science, students read original research by cognitive scientists, and are then asked to determine to what degree this research supports a given theoretical positions.

Decision Making (To appreciate the various and diverse factors bearing on decisions and the know-how to assemble, evaluate, interpret and use information effectively for critical analysis and problem-solving).

Rational decision making has always been a core component of Western philosophy. UC Merced's program is especially well suited to serving this principle, insofar as decision theory and game theory are two of our areas of expertise. In the 20th century mathematical methods for analyzing and modeling decision making emerged. One of our ladder rank and our current lecturer in philosophy work in this area. A course in game theory is being offered in Spring 2009, and rational choice theory is slated to be taught. In these courses student learn how to model complex decision situations, in which multiple parties with multiple interest interact, and also learn how to determine optimal courses of action within these situations.

Communication (To convey information to, communicate with, and interact effectively with multiple audiences, using advanced skills in written and other forms of communication)

A key requirement, reflected in the learning outcomes of all of philosophy courses, is that students be able to communicate complex information in a clear manner. Indeed, clarity of expression is an emphasis in contemporary philosophy, precisely because the subject matter is so complex. Students are expected to be able to read and analyze complex material, analyze them critically, and clearly present arguments describing their positions on these subject matters. In class discussion is also encouraged at the lower and upper division levels, and in these discussions clarity is again an emphasis.

Self and Society (To understand and value diverse perspectives in both the global and community contexts of modern society in order to work knowledgeably and effectively in an ethically and culturally rich setting)

Philosophy by its nature involves an interplay of diverse perspectives. The narrative unfolding of the history of Western philosophy—a sequence of competing ideas about fundamental questions—is the backdrop of almost all our courses. In philosophy courses it is common to consider an approach to an issue, and then to consider a range of competing views on the issue. Often these different approaches reflect different ideologies, ethical perspectives, and cultural understandings. Self and society are also explicit philosophical themes in philosophy, and both topics come up in the intro course and in various upper division courses.

Ethics and Responsibility (To follow ethical practices in their professions and communities, and care for future generations through sustainable living and environmental and societal responsibility)

Ethics is a core area of philosophy (alongside logic, metaphysics, epistemology, and history). Ethics considers the concepts of rightness and wrongness, and the question of how these can be determined in particular (often very complex) circumstances. As noted above, one strength of UC Merced's philosophy program is addressing traditional ethical questions using the latest techniques in decision theory and game theory. The motivating idea is that knowing how to "do the right thing" is not at all easy in many circumstances, so that the kinds of mathematical and computer modeling taught here are essential,

especially in the complex global world we are part of. Ethics is taught in a Core 1 lecture, is a component of the intro course, and upper division ethics courses are currently slated to be added to the curriculum.

Leadership and Teamwork (To work effectively in both leadership and team roles, capably making connections and integrating their expertise with the expertise of others).

Effective leadership requires an understanding of political, ethical, and logical principles. We emphasize all three, given our expertise in political theory, ethical theory, and logic. To some extent team work comes explicitly into play, in those courses that involve team projects, but this is not currently an emphasis in our pedagogy. Philosophy's contribution to this principle is, rather, to teach basic concepts in rational analysis which can be used to facilitate any leadership or team based interaction.

Aesthetic Understanding and Creativity (To appreciate and be knowledgeable about human creative expression including literature and the arts).

Aesthetics, which takes up the question of what constitutes beauty, is a classic area of philosophy, and one we hope to hire in, as noted in the strategic plan. As noted there, this would facilitate our interaction with literature and the arts at UC Merced. Currently we incorporate aesthetics into the curriculum by allowing philosophically oriented courses in arts and literature to count towards the minor (in particular, Literature 100 and, possibly some upper division GASP courses).

Development of Personal Potential (To be responsible for achieving the full promise of their abilities, including psychological and physical well-being).

The promotion of human "flourishing" (from the Greek *eudaimonia*) has been a central concern of Western philosophy since its inception. This is in part why philosophy has always been considered an essential component of a liberal education. Socrates' famous (and famously counter-intuitive) argument—which has been taught every time intro to philosophy has been offered at UC Merced—that in doing wrong one harms oneself more than one harms others, reflects the idea that by conducting oneself rationally and ethically one "develops one's soul" and thereby promotes their own well-being. This is by no means a settled or uncontroversial view, but it does reflect how deeply the concept of "personal development" is built in to the discipline. A key goal of the philosophy minor, especially the introductory course, is to help students transition from being smart high school students to being independent adult thinkers, equipped with the tools to critically evaluate the complex ideas and situations they are exposed to, and on this basis to achieve the full promise of their abilities.

Table III.1. A Curriculum Map Representing the Alignment Between the Philosophy PLOs and the Eight Guiding Principles of Education

PLO	Scientific Literacy	Decision Making	Comm-unication	Self and Society	Ethics	Team-work	Aesthetics, Creativity	Personal Potential
1:Interpretation and criticism of arguments			X	X				X
2:Presentation and criticism of			X	X		X	X	X

arguments								
3:Logical inference	X							
4:Interdisciplinary applications	X			X		X		X
5a:Inductive logic	X							
5b:Normative claims		X			X			
5c:Historical understanding				X				

Part B: Program & School Goals (as applicable)

How does your program complement your School's identity and learning goals?

Since they match those of the University, see Part A.

Part C: Program & Course (Student) Learning Outcomes

How does your curriculum support your Program Learning Outcomes?

Curriculum Map illustrating the relationship between Program Learning Outcomes and program courses. I = Introduction, D=Develop, M=mastery at a level appropriate for graduation, V = Varies by course / content.

Course	Outcomes						
	1	2	3	4	5a	5b	5c
1 (Intro)	I	I	I	I	V	V	V
5 (Logic)	D	D	I	V	V	V	V
9 (Phenomenology)	D	I	V	V	V	V	V
101 (Metaphysics)	M	M	M	V	V	V	V
103 (Mind)	M	M	M	V	V	V	V
104 (Ethics)	M	M	V	M	V	M	V
107 (Religion)	M	M	M	V	V	V	V
108 (Political)	M	M	M	V	V	V	V
110 (Cognitive Science)	M	M	M	M	V	V	V
111 (Neuroscience)	M	M	M	M	V	V	V
134 (Early Modern)	M	M	V	V	V	V	M
150 (Phenomenology)	M	M	D	V	V	V	V
170 (Math Logic)	D	D	M	V	V	V	V

Revised Physics Faculty Accreditation Report
Spring 2010

SUMMARY OF ASSESSMENT PLAN REVISIONS

The assessment plan was updated to account for changes made to the Physics curriculum in the 2009-2010 academic year. These changes primarily concerned the restructuring of the thermodynamics/statistical mechanics requirements. Minor changes to the assessment plan were also made to shift the assessment timeline forward one year.

REVISED ASSESSMENT PLAN FOR THE PHYSICS MAJOR

SECTION I: Description of the Physics Major at UC Merced

Physics is the study of nature at its most fundamental. Its scope covers everything from the tiniest particles of matter – such as atoms, electrons, and quarks -- to the structure of the entire universe, encompassing innumerable galaxies and stars.

Physicists seek to understand complex phenomena in terms of simple, unifying principles. Their queries have ranged from the seemingly innocuous, like "What causes an object to fall?", to the more elemental, like "What is the true nature of light?". Such questions led to the discovery of the gravitational force, which governs the motion of planets and stars, as well as to the biggest breakthrough of the twentieth century – quantum mechanics – which governs the very small. Answers to physicists' questions have revolutionized society, not only altering our basic

understanding of the universe, but also profoundly affecting our day-to-day lives, laying the foundation for numerous technological innovations such as the laser, computer, and cellular phone. And Physics continues to evolve and excite us, with unanswered questions from a multitude of active and emerging fields of research, such as Quantum Computation, Superconductivity, Chaos, and Biophysics, to name a few.

The physics program at UC Merced provides a strong foundation in the fundamentals of theoretical and applied physics, while also emphasizing the increasingly interdisciplinary role played by physicists in the scientific and technological community. This is reflected in the "core plus emphasis track" model of the major. The core is a rigorous grounding in fundamental physical principles, including electricity and magnetism, quantum and classical mechanics, and thermodynamics. The emphasis tracks consist of flexible specialization options which students design with the assistance of their faculty advisor. Possible emphases include Atomic, Molecular, and Optical (AMO) Physics; Mathematical Physics; Biophysics; Earth and Environmental Physics; Materials Physics; and Engineering Physics. The Physics major at UC Merced also emphasizes student research --- all students are required to complete a capstone senior research thesis.

Physics students develop excellent quantitative and analytical skills, enabling them to approach new and complex problems that arise in any field. These fundamental skills are essential preparation for a wide range of careers in such fields as aerospace, biotechnology, computers, engineering, medicine, education, law, finance, business, and consulting.

The Physics program also offers a minor, which is a reduced version of the major. Our assessment strategy for the major will serve the minor as well.

Finally, in developing the Physics program the faculty has been guided by the case studies and analysis in the American Association of Physics Teachers report: *Strategic Programs for Innovations in Undergraduate Physics: Project Report*, edited by Robert. C. Hilborn, Ruth H. Howes, and Kenneth S. Krane (AAPT, College Park, 2003).

SECTION II: Assessment plan for the Physics Major

Part A: Timeline and goals

The Physics program will graduate its first full class of Physics majors in the spring of 2010. Thus, it has only been in the 2008-09 academic year that we have been able to gather our first data on the junior level courses in the Physics program, which constitutes the core of the major. Over the next five years, as more data on student success becomes available, we shall reassess the structure of our major, in terms of the specific material covered, as well as the learning outcomes discussed below.

Part B: Physics Programmatic Learning Outcomes (PLOs)

Graduates from the Physics B.S. program will have demonstrated the following learning outcomes.

1) **Physical Principles**. Students will be able to apply basic physical principles---including classical mechanics, electricity and magnetism, quantum mechanics, and statistical mechanics---to explain, analyze, and predict a variety of natural phenomena.

2) **Mathematical Expertise**. Students will be able to apply advanced mathematical techniques (e.g., calculus, linear algebra, probability, and statistics) in their explanations, analyses, and predictions of physical phenomena.

3) **Experimental Techniques.** Students will be able to take physical measurements in an experimental laboratory setting and analyze these results to draw conclusions about the physical system under investigation, including whether their data supports or refutes a given physical model.

4) **Communication and Teamwork Skills**. Students will be able to clearly explain their mathematical and physical reasoning, both orally and in writing, and will be able to communicate and work effectively in groups on a common project.

5) **Research Proficiency**. Students will be able to formulate personal research questions that expand their knowledge of physics. Students will be able to apply sound scientific research methods to address these questions, either by researching the current literature or developing independent results.

Part C: Evidence

The following measures will be used to assess the success of the physics program in achieving the above Programmatic Learning Outcomes. (Learning objectives that are tested are included within the parentheses.)

1. Student work in formal courses. Specifics include:
    I. The performance of Physics majors on the cumulative finals of the four core courses (PHYS 110, 105, 137, 112) will be assessed by a panel of faculty. (1,2)
    II. Oral and written laboratory reports for PHYS 160 will be assessed by a faculty panel. (3, 4, 5)
2. Senior Thesis. This cumulative capstone experience is a requirement of all physics majors. The senior thesis and an accompanying oral thesis presentation will be assessed by a faculty committee. (1, 2, 3, 4, 5)
3. Student Perception Survey and Exit Interview. This survey and interview will be administered to students upon graduation (and at other appropriate times) to determine whether students believe that they have achieved the objectives of the Physics major. (1, 2, 3, 4, 5)
4. GRE data. Senior students who take the Physics GRE will be asked to voluntarily provide their scores for statistical purposes. (1, 2)
5. Student success after graduation, i.e. acceptance to graduate or professional school, or employment in a field that makes use of the student's education. Efforts will be made to

track all graduates annually for at least several years after graduation and to request their feedback in a 5-year follow up survey. (1, 2, 3, 4, 5)

6. Student "culture" activities. Participation of students in extracurricular activities such as a Physics Club, volunteering at science fares, presentation of research results at University research days and conferences will be used to assess the overall health of the program and the ability of students to communicate and work in groups, as well as an indication of the research caliber of students. (4, 5)

A critical component of the success in gathering and interpreting these measures will be the staff support to gather and organize the above date, especially items 3 – 6.

Part D: Process for assessment

2009-2010 Academic year. During the summer of 2010 the Physics faculty will hold a retreat to assess the Mathematical Expertise PLO by examining student final exams from the core physics courses. An assessment rubric has already been developed. Since the core physics courses are still small (from about 10 to 20 students), it is expected that the faculty will review the work of all the students. In the course of this assessment review, we expect to also revisit the Physical Principles PLO.

We will also be able to add a few other data streams into our assessment process, such as self-reported student GRE scores and senior theses. We expect to continue with the student perception survey as well.

The following is a tentative future projection of programmatic reviews.

2010-2011 Academic year. During the summer of 2011 the faculty will assess the Research Proficiency PLO. This will give us a chance to review the thesis program after two years of operation.

2011-2012 Academic year. During the summer of 2012 the faculty will assess the Experimental Techniques PLO.

2012-2013 Academic year. During the summer of 2012 the faculty will assess the Communication and Teamwork Skills PLO.

2013-2014 Academic year. During the summer of 2013 the faculty will revisit the Physical Principles PLO.

Part E: Participants

All physics faculty are expected to participate in the annual retreats to review and update program requirements and expectations. One faculty member will be elected by the group to coordinate this effort. The data collection, in particular items 3 – 6, will rely on the support of staff in the School of Natural Sciences and/or the CRTE. For example, the CRTE will be asked to assist with item 3 (student perception surveys).

Part E: Minor

The Physics minor is a reduced version of the Physics major. Given the reduced requirements, we shall assess the minor only according to PLOs one and two above. The assessment of these PLOs for the major thus serves the minor as well.

Part G: Self-assessment of the assessment plan

Criterion	Status	Notes
Comprehensive List	Developed	The Physics PLOs have proven to be very effective at guiding our
Assessable Outcomes	Developed	Rubrics have been established for some of the outcomes, such as
Alignment	Developed	The alignment of courses with outcomes is well established. It w
Assessment Planning	Developed	Assessment planning will continue to be better articulated as we
The Student Experience	Developed	PLOs are readily available to students both on the web and in t student focus group.

SECTION III: Alignment of program goals/outcomes for the Physics major

Part A: Program and Institutional Goals/Outcomes

The Physics program supports and realizes the university's Eight Guiding Principles of General Education. For many of the Guiding Principles, this alignment is quite obvious --- clearly, all Physics classes address Scientific Literacy and Decision Making. (See the curriculum map below for more detail.) Here we comment on two of the less obvious connections.

(i) The Physics PLOs "Physical Principles" and "Mathematical Expertise" support the Guiding Principle of "Aesthetic Understanding/Creativity". One cannot learn the basic principles of physical theory – quantum mechanics, relativity,

electromagnetism, etc. – without marveling at the intrinsic beauty of these ideas, as well as the beauty of the mathematics needed to express and utilize these physical principles. The elegance and simplicity of physical law is, in fact, one of the most powerful forces attracting students to the Physics major.

(ii) The Physics major requires that students complete a capstone senior research thesis. This project touches on all eight of the Guiding Principles. For example: by presenting their thesis research, both in writing and orally, students develop "Communication" skills; by working in research groups (particularly for experimental research), students learn the importance of "Leadership and Teamwork"; furthermore, faculty will guide students on the appropriate "Ethics and Responsibility" of Physics research; perhaps most importantly, the work necessary to complete a senior thesis, and the accompanying pride and satisfaction, will help students in the "Development of their Personal Potential".

Table: A curriculum map representing the alignment between Physics Program Learning Outcomes and the Eight Guiding Principles of General Education.

PLOs	Scientific Literacy	Decision Making	Communication	Self & Society	Ethics & Responsibility	Leadership & Teamwork	Aesthetic Understanding Creativity	Developm of Persona Potentia
1	X	X					X	X
2	X	X					X	X
3	X	X						X
4			X	X		X		X

5	X	X		X	X		X	X

Part C: Program and Course (Student) Learning Outcomes

The course alignment matrix below shows where each PLO is addressed in the Physics curriculum. The only change made here was to replace PHYS 112 with PHYS 108, reflecting changes made to the Physics curriculum.

Table 2: The alignment matrix of Physics/Math courses with the Physics PLOs

	Programmatic Learning Outcomes				
	1. Physical Principles	2. Math Expertise	3. Exp. Techniques	4.Comm. Skills	5. Research Proficiency
MATH 20		I			
MATH 21		I			
MATH 22		I			
MATH 23		I			
MATH 32		I	I		
PHYS 8	I	I	I		
PHYS 9	I	I	I		
PHYS 10	I	I			
PHYS 105	A	A			
PHYS 110	A	A			
PHYS 137	A	A			
PHYS 108	A	A			
PHYS 160	A		A	I	I
PHYS 122	A	A			
PHYS 195	A	(A)	(A)	A	A

I = initial;
A = advanced

Political Science Faculty Accreditation Report (Revised 2010)

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Summary of Revisions

* Minor revision to PLO 1.

* A self-assessment has been added to Section II.

* A formal mapping of Political Science PLOs and the Eight Guiding Principles has been added to Section III.

* Other minor revisions throughout.

I. Program Description – Major and Minor

Political science is the social scientific study of political institutions and political behavior. The study of political institutions includes topics such as the effect of the design of electoral systems on the quality of representation in government, the formal and informal elements of the legislative process and their implications for the making of law, and the impact of domestic political institutions on the incidence of international conflict. Under the rubric of political behavior, political scientists study how and why people choose to participate in politics, the determinants of vote choice, and the nature and origins of public opinion. Students studying Political science at UC Merced will develop a strong substantive understanding of both political institutions and behavior. Students will also learn the theories that help us better understand the political world and the methods by which these theories are tested and refined.

Political science majors will choose courses from three major subfields of the discipline: American Politics, Comparative Politics, and International Relations. The study of institutions and behavior is central to all three of these subfields, although the substantive emphasis differs. Courses in American Politics focus on domestic politics in the U.S., while courses in Comparative Politics examine government and politics in other nations. International Relations classes address issues in foreign policy, international conflict, and the institutions intended to govern the interactions between nations. Students will focus on one of these three subfields, although they will also be able to take courses in the two subfields outside of their focus. Due to both the broad intellectual roots of political science as a scholarly field and the interdisciplinary nature of UC Merced's School of Social Sciences, Humanities and Arts, Political Science majors will also take at least two upper division classes in either Cognitive Science, Economics, History, Philosophy, Psychology, or Sociology.

The knowledge and skills acquired with the political science major will provide a strong foundation for graduate training in law, political science, or other social sciences. Students graduating with a degree in political science can also pursue a wide variety of other careers, such as public administration, campaign management or consultation, grassroots political organization, corporate governmental affairs, Foreign Service, journalism, lobbying, or teaching. There is also an additional benefit to the study of political science in terms of citizenship. By developing a better understanding of how government works, students can be better informed participants in our democracy.

The Political Science Minor is simply a reduced form of the Major. Students minoring in Political Science will learn the same skills and substantive knowledge as those who are majors, just not to the same degree. Students who minor in political science need not specialize in a major subfield.

II. Assessment Plan – Major and Minor

A. Timeline and Goals

All syllabi now have PLOs (Program Learning Outcomes) and SLOs (Student Learning Outcomes) in place. At the end of Spring Semester 2009, we collected evidence of student learning to initiate assessment of the first PLO. At the end of Fall Semester 2009, we completed the assessment of the first PLO and have discussed possible changes to the Political Science program. Assessment of the second PLO will then be initiated in Spring 2010 and completed in Fall 2010.

B. Outline of Program Learning Outcomes (PLOs)

We expect graduates from the Political Science B.A. program to be able to:

1. Demonstrate an understanding of the processes, theories, and empirical regularities of political institutions and political behavior in the student's chosen emphasis area: American politics, comparative politics, or international relations.

2. Employ critical thinking and demonstrate social scientific literacy, including basic quantitative literacy.

3. Utilize contemporary social science research methods to conduct rigorous research on political phenomena.

4. Write effectively, particularly to convey complex concepts and information in a clear and concise manner.

5. Apply abstract theory and research methods to understand contemporary political events and public policies.

These PLOs are published on UC Merced's Political Science webpage (polisci.ucmerced.edu) and on all Political Science syllabi.

C. Evidence

1. An understanding of the processes, theories, and empirical regularities of political institutions and political behavior in the student's chosen emphasis area: American politics, comparative politics, or international relations.

Direct Evidence: Embedded questions in exams given in upper division classes. More than one upper division class should be used and the classes should span multiple areas of emphasis.

Indirect Evidence: Focus group interview with graduating seniors.

2. An ability to employ critical thinking and demonstrate social scientific literacy, including basic quantitative literacy.

Direct Evidence: Embedded questions in final exam given in POLI 10 (Statistical Inference).

Indirect Evidence: Exit survey of graduating seniors.

3. A capacity to utilize contemporary social science research methods to conduct rigorous research on political phenomena.

Direct Evidence: Sample of student research papers written in upper division classes that have a research component (e.g., POLI 102 (Judicial Politics)). Preferably, papers written by seniors will be considered.

Indirect Evidence: Focus group interview with graduating seniors.

4. Effective written communication skills, especially the ability to convey complex concepts and information in a clear and concise manner.

Direct Evidence: Sample of student papers written upper division classes.

Indirect Evidence: Exit survey of graduating seniors.

5. An ability to apply abstract theory and research methods to understand contemporary political events and public policies.

Direct Evidence: Embedded questions in exams given in upper division classes.

Indirect Evidence: Focus group interview with graduating seniors.

For each PLO, we will analyze the assessment data to identify strengths and weaknesses of the existing program. Based on the results, we will consider updates to the Political Science curriculum. For example, we might consider revisions to the content or approach to existing Political Science courses, changes to prerequisites, or changes to the requirements of the major/minor.

D. Process

PLO #2

In Spring 2010, the instructor for POLI 10 (a required course on social science methodology) will be asked to embed questions on the midterm and/or final exam tapping

student understanding of social scientific goals and methods (with an emphasis on quantitative approaches). Answers to these questions will be read and analyzed by PAC. To gather information on student perceptions of their training in social scientific methods, an exit survey will be designed and then administered to all graduating Political Science majors in Spring 2010. The answers to this survey will be compiled and analyzed by PAC.

The direct and indirect evidence will be analyzed and reported to the rest of the Political Science faculty by the end of Fall 2010. There will be a subsequent faculty discussion of the results and possible modifications to the program.

PLO #3

With the help of instructors, PAC will collect a sample of student research papers written in upper division taught in upper division classes in Spring 2011. Only research papers will be considered. The Committee will read and evaluate these papers in an effort to determine student preparedness to conduct social science research. Towards the end of Spring 2011, a group of graduating Political Science majors will be selected. PAC will conduct a focus group with these students in order to determine student perceptions regarding the achievement of PLO #3.

The direct and indirect evidence will be analyzed and reported to the rest of the Political Science faculty by the end of Fall 2011. There will be a subsequent faculty discussion of the results and possible modifications to the program.

PLO #4

In Spring 2012, PAC will collect a random sample of papers written in an upper division class. The papers will be read with the goal of determining the written communication skills of the students. To gather information on student perceptions of the marginal effect of their training on their communication skills, an exit survey will be designed and then administered to all

graduating Political Science majors in Spring 2012. The answers to this survey will be compiled and analyzed by PAC. The direct and indirect evidence will be analyzed and reported to the rest of the Political Science faculty by the end of Fall 2012. There will be a subsequent faculty discussion of the results and possible modifications to the program.

PLO #5

Instructors for select upper division classes taught Spring 2013 will be asked to embed exam questions that ask students to apply political science theories and/or methods to contemporary, "real world" political events. Answers to these questions will be read and analyzed by PAC. Towards the end of Spring 2013, a group of graduating Political Science majors will be selected. PAC will conduct a focus group with these students in order to determine student perceptions regarding the achievement of PLO #5. The direct and indirect evidence will be analyzed and reported to the rest of the Political Science faculty by the end of Fall 2013. There will be a subsequent faculty discussion of the results and possible modifications to the program.

PLO #1

Instructors for select upper division classes taught in the Spring 2014 semester will be asked to embed questions tapping relevant student knowledge on either midterm or final exams. Answers to these questions will be read and analyzed by the Program Assessment Committee (PAC). Towards the end of Spring 2009, a group of graduating Political Science majors will be selected. PAC will conduct a focus group with these students in order to determine student perceptions regarding the achievement of PLO #1. The direct and indirect evidence will be analyzed and reported to the rest of the Political Science faculty by the end of Fall 2014. There will be a subsequent faculty discussion of the results and possible modifications to the program.

E. Participants

A Program Assessment Committee composed of Political Science faculty will be responsible for collecting, analyzing, and disseminating evidence regarding the attainment of the PLOs. This evidence will be communicated to the entire Political Science faculty any changes to the program or assessment plan will originate from the entire faculty.

F. Minor

Students who minor in Political Science are expected to advance towards all five PLOs. It is not expected that will achieve these PLOs to the same extent as Political Science majors, however. Minors are not required to take POLI 10, which plays an important role in the attainment of PLOs 2 and 3. But, if a Political Science minor does not take POLI 10 they must take an equivalent course in a related field (e.g., ECON 10 or PSYCH 10) to be able to take almost any of the upper division Political Science classes.

G. Self-Assessment

Criterion	Assessment	Explanation
Comprehensive list	Developed	The PLOs are organized and reasonable in scope and expectation. They are consistent with several of the Eight Guiding Principles. There are no formal national disciplinary standards to be considered.
Assessable outcomes	Emerging-Developed	The limitation here is that some of the PLOs are not readily stated in a manner that is clearly assessable. The faculty will continue to refine the PLOs in an effort to facilitate assessment.
Alignment	Highly Developed	The PLOs pervade the general curriculum and all specific classes.
Assessment planning	Highly Developed	There is a multi-year assessment plan that is and will be regularly revised.
The student experience	Developed - Highly Developed	PLOs are included on every syllabus and are on the program website.

III. Alignment of Institutional and Program Goals – Major and Minor

A. Program and Institutional Goals

The Political Science PLOs map well onto UC Merced's Guiding Principles of General Education:

PLO	scientific literacy	decision making	comm-unication	self & society	ethics & responsib.	leadership & teamwk.	aesthetic understand.	developmnt person. pot.
1		X		X	X			
2	X	X						
3	X							
4			X					
5		X		X				

PLO #1 (an understanding of the processes, theories, and empirical regularities of political institutions and political behavior) corresponds with Decision Making, Self and Society, and Ethics and Responsibility as it includes student learning about how political decisions are made, how elite and mass policy preferences are aggregated under different institutional rules, and the connection between empirical patterns and normative (i.e., ethical) questions of power and policy choices. PLO #2 (an ability to employ critical thinking and demonstrate social scientific literacy, including basic quantitative literacy) and PLO #3 (a capacity to utilize contemporary social science research methods to conduct rigorous research on political phenomena) correspond to Scientific Literacy as they center on the students' capacity to understand and conduct social science research. PLO #4 (effective written communication skills, especially the ability to convey complex concepts and information in a clear and concise manner) clearly corresponds to Communication. PLO #5 (an ability to apply abstract theory and research methods to understand contemporary political events and public policies) corresponds to Decision Making, Self and Society, and Ethics and Responsibility much in the same that PLO #1

does, although this PLO's emphasis is on understanding the contemporary political world that the students inhabit.

B. Program and School Goals

The Educational Philosophy for the School of Social Sciences, Humanities and Arts lists three general principles. The Political Science Program and associated PLOs map onto two of these principles. "Doing is the basis for learning" corresponds with PLO #3 (a capacity to utilize contemporary social science research methods to conduct rigorous research on political phenomena). "Citizenship is founded in community" corresponds with PLO #1 (an understanding of the processes, theories, and empirical regularities of political institutions and political behavior) and PLO #5 (an ability to apply abstract theory and research methods to understand contemporary political events and public policies).

C. Program and Course (Student) Learning Outcomes

The table below illustrates the connection between the PLOs and individual Political Science courses offered. Generally speaking, introductory courses will begin to move students towards attaining the PLOs while the upper division courses will lead to a fuller achievement of these objectives. POLI 10 (a required course for all Political Science majors) plays an important role as the only introductory level course that introduces and prepares students for attainment of PLOs 2 and 3.

	Program Learning Outcome				
Course	1	2	3	4	5
1	I (AP)			I	I
2	I (AP)			I	I
3	I (CP)			I	I
5	I (IR)			I	I
6	I (IR)			I	I

9	I			I	
10		I	I		I
100	A (AP)	A	A	A	A
101	A (AP)	A	A	A	A
102	A (AP)	A	A	A	A
105	A (AP)	A	A	A	A
107	A (AP)	A	A	A	A
108	A (AP)	A	A	A	A
110	A (AP)	A		A	A
111	A (AP)	A		A	A
120	A (AP)	A	A	A	A
125	A (AP)	A	A	A	A
127	A (AP)	A	A	A	A
130	A (CP)	A	A	A	A
135	A (CP)	A	A	A	A
140	A (CP)	A	A	A	A
150	A (IR)	A	A	A	A
155	A (IR)	A	A	A	A
160	A (AP, IR)	A	A	A	A
170		A		A	A
190	Depends on topic	Depends on topic	Depends on topic	Depends on topic	Depends on topic
195	Depends on topic	Depends on topic	A	Depends on topic	Depends on topic

Note: I = introductory, A = advanced. For the first PLO, the area of emphasis is indicated, where appropriate, by AP = American politics, CP = comparative politics, IR = international relations. In Political Science, there typically are no “intermediate-level” classes.

Faculty Accreditation Report

Psychological Sciences Section of the School of Social Sciences, Humanities and Arts

Undergraduate Psychology Major and Minor

January 30, 2009

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ABSTRACT: SUMMARY OF ASSESSMENT PLAN REVISIONS

This document presents the current Psychological Sciences Program Learning Outcome Assessment plan. The plan is fundamentally the same as the report of January 30, 2009, but with the following changes:

1. The Program Learning Outcomes (PLOs) have been expanded from three to four PLOs by separating the PLO for statistics (now #3) from the PLO for research methods (still #2).

2. A curriculum map is added to summarizing the alignment between the Program Learning Outcomes and the Eight Guiding Principles;

3. The curriculum map summarizing the alignment between the Program Learning Outcomes and the Course Learning Outcomes has been expanded to add all courses now in the curriculum (the previous report listed only the courses taught in Fall 2008).

4. Section II.G. has been added evaluating the Psychology PLOs against the WASC rubric for PLOs.

5. A new indirect assessment method is proposed, the use of focus groups with graduating seniors conducted by the UC Merced SATAL (Student Assessment of Teaching and Learning) Program.

SECTION I: PROGRAM DESCRIPTION - MAJOR AND/OR MINOR

The Psychological Sciences Section of the School of Social Sciences, Humanities and Arts (SSHA) offers both a major and a minor in Psychology at the undergraduate level. Psychology was one of the original disciplines at UC Merced, originally a track in the Social and Cognitive Sciences major in Fall 2005. The Psychology major was created in Fall 2006, with the minor following in 2007. The major has consistently grown in size every year since 2005 (Fall 2006 n = 36; 2007 n = 219; 2008 n = 328; 2009 n = 373; <http://ipa.ucmerced.edu/docs/Undergraduates/>. It is the largest major in SSHA (and the second largest at the University after Biology). Psychology offered three lower division and thirteen upper division courses in the major in Fall 2009, and three lower division and eleven upper division courses in Spring 2009. These courses are offered by six ladder rank faculty who typically teach two undergraduate and one graduate course per year, and four part-time lecturers who each teach from two to six undergraduate courses per year.

The Psychology major offers an array of undergraduate courses that are typical for a UC campus, although with fewer offerings than a mature campus. The major offers a somewhat richer array of courses in developmental and health psychology—two of the three areas of emphasis in research among our faculty (the third area is quantitative psychology, and we are starting to develop a richer array of undergraduate courses in that area as well). Perhaps the most distinctive feature of the major, however, is the close contact that undergraduate students can have with faculty both in pedagogy and research. All ladder rank faculty teach undergraduate courses regularly, with regular contact with students in and out of the classroom. Many undergraduates work in faculty laboratories on research projects, with anywhere from 3 to as many as 15-20 undergraduate students

in a lab at any given time. Because of the small size of the graduate program, undergraduates play a more intense role in faculty research than at most UC campuses. This role for undergraduates at a student-centered research university is stressed on our website, which notes that "We also offer undergraduates the opportunity to work with UC faculty in research." <http://psychology.ucmerced.edu/2.asp?uc=1&lvl2=3&contentid=4>.

The university collects data about student postgraduate employment. For the graduating class of May 2008 (well before the first full graduating class of entering freshman from Fall 2005), 8 of 18 graduates responded. Of these 8 respondents, 37% were admitted to or enrolled in a graduate program, 50% were employed full time, and 13% were actively looking for a job.

For students who do not go on to graduate or professional training, we inform them both of the job options they have, and of the skills they will learn as a psychology major that can help them on the job market with a bachelor's degree. On our web site, for example, we say the following:

> The Psychology major also prepares undergraduates for many careers that do not require further graduate training. The American Psychological Association (www.apa.org) has an excellent web site to help you understand that job market (http://psyccareers.apa.org/). APA reports that about 5% of 1997 and 1998 bachelor's degree psychology major graduates had taken a job that is actually in psychology. Most psychology major graduates—about two thirds—took employment in private sector business settings. Graduates with an undergraduate psychology major are highly marketable because they are trained to have good

research and writing skills, to be effective problem solvers in both team and individual settings, and to use critical thinking skills to analyze, synthesize, and evaluate information. Specific examples of employment include administrative support, public affairs, education, business, sales, service industries, health, the biological sciences, computer programming, employment counselors, correction counselor trainees, interviewers, personnel analysts, probation officers, and writers. The same APA report finds that two thirds of psychology major graduates believe their job is closely or somewhat related to their psychology background and that their jobs hold career potential.

Our program learning outcomes aim to help our undergraduates learn these skills.

The Psychological Sciences Section also offers a minor area in Psychology to undergraduate students. Students taking the minor must complete a representative sample of the full major requirements following an explicit set of guidelines that ensure exposure to the basic lower division courses, and to upper division courses that reflect the breadth of the discipline. The most important difference between students in the minor and students in the major is that the former take fewer upper division Psychology courses.

SECTION II: ASSESSMENT PLAN – MAJOR AND/OR MINOR

Part A: Timeline & Goals

We began consideration of assessment in late Fall 2008. Between then and January 30th, 2009, we developed a tentative assessment plan, a living document that changes over time as the Psychology major develops and as we learn from assessment about ways we can best improve our undergraduate education efforts. Because we are such a new university facing so many challenges and resource constraints, we think it is

inappropriate to move quickly to a summative evaluation of the major. Rather, our goals are decidedly formative, to start with small, achievable tasks that can be initiated in the required timeframe, and with learning outcomes and assessment methods that can be expanded in the future. We hope to use this approach first to get to know the undergraduate education experience that we have created for our majors, and second to learn how we can improve that experience over time.

Part B: Outline of PLOs

The Psychological Sciences faculty began to consider PLOs for the major in mid-Fall, 2008. The faculty first consulted the American Psychological Association guidelines for the undergraduate psychology major[1]. The faculty discussed the relevance of APA's suggested student learning outcomes to our situation, a situation with far more limited resources than is the case for the mature universities for which the guidelines were written. After several drafts, the faculty voted to adopt three PLOs for the undergraduate Psychology major; and in February 2009 the faculty modified this to four PLOs to separate the PLO about statistics from that about research methods. The PLOs state that students who complete the major will:

1. Show knowledge of the key substantive content of the field of psychology, including memory and thinking, sensory psychology and physiology, developmental psychology, clinical and abnormal psychology, and social psychology.
2. Demonstrate that they understand the basic principles of and correctly interpret applications of the designs and methods that psychologists use to gather data.

[1] American Psychological Association. (2007). *APA guidelines for the undergraduate psychology major*. Washington, DC: Author. Retrieved from www.apa.org/ed/resources.html.

3. Show that they can understand and correctly interpret the statistical analyses psychologists use to analyze data.
4. Show that they understand and can apply the writing style used in psychological literature (APA style).

The faculty also discussed the desirability of increasing both the breadth and depth of these PLOs as the university matures, and as resources to do so become available to us. The four PLOs are published on the UC Merced Psychology website (http://psychology.ucmerced.edu/2.asp?uc=1&lvl2=3&lvl3=3&lvl4=18&contentid=15), and in the UC Merced General Catalog under the Psychology major.

Part C: Evidence

Assessing PLOs, especially in a large major with few faculty in a rapidly changing environment characterized by limited resources, is a major challenge. Hence, our approach to this task emphasizes starting with small, achievable methods that will provide useful outcome information in the form of both direct and indirect evidence, and then slowly over time expand the evidence sources as program need and resources allowed. Our preliminary assessment plan is as follows:

1. Content: Show knowledge of the key substantive content of the field of psychology, including memory and thinking, sensory psychology and physiology, developmental psychology, clinical and abnormal psychology, and social psychology.

a. Direct Evidence: Assessment will be by the Educational Testing Service major test on graduating seniors[2]. We will report scores at the group level for the following assessment indicators that the test provides: (1) Memory and Thinking, (2) Sensory and Physiology, (3) Developmental, (4) Clinical and Abnormal, and (5) Social. The Psychology major requires students to take courses from what are called Group A, Group B, and Group C courses. ETS subtests (1) and (2) would assess Group A learning; ETS subtests (3) and (5) would assess Group B learning; and ETS subtest (4) would assess Group C learning.

b. Indirect Evidence: For all three PLO's, we will use results from two surveys of graduating seniors.

    i. UC Merced administers University of California Undergraduate Experience Survey (UCUES) to all undergraduates biennially, the last time being Spring 2008. Because this is administered to all UC campuses except UCSF (which does not enroll undergrads), we can compare responses from graduating seniors on other campuses to responses of our graduating seniors. Specifically, we will use responses to item 2e, their rating of how well they were prepared in understanding a specific field of study.

    ii. In the years that UCUES is not administered, UC Merced will administer the National Survey of Student Engagement (NSSE),

[2] See http://www.ets.org/portal/site/ets/menuitem.1488512ecfd5b8849a77b13bc3921509/?vgnextoid=f349af5e44df4010VgnVCM10000022f95190RCRD&vgnextchannel=eddc144e50bd2110VgnVCM10000022f95190RCRD. $25 per test online.

doing so in Spring 2009 for the first time. Unfortunately, this survey does not yet have a comparable rating of their understanding of their field of study. Hence we will only have data to assess this outcome every other year.

iii. Using student interviewers from the UC Merced SATAL program (Student Assessment of Teaching and Learning), we will interview graduating seniors in focus groups to assess their perceptions of how well the major taught the content of psychology.

2. Research Methods: Demonstrate that they understand the basic principles of and correctly interpret applications of the designs and methods that psychologists use to gather data.

   a. Assessment of direct evidence will be by the ETS major test on graduating seniors. We will report scores at the group level for the Measurement and Methodology assessment indicator that the test provides.

   b. Indirect Evidence: We will use answers to selected questions from two surveys of graduating students:

      i. From the UCUES, we will use item 2f, their rating of how well they were prepared in quantitative (mathematical and statistical) skills.

      ii. From the NSSE), we will use item 11f, their rating of how well they were prepared to analyze quantitative problems.

      iii. Using student interviewers from the UC Merced SATAL program (Student Assessment of Teaching and Learning), we will interview

graduating seniors in focus groups to assess their perceptions of how well the major taught the research methods of psychology.

3. Statistics: Show that they can understand and correctly interpret the statistical analyses psychologists use to analyze data.
    a. Assessment of direct evidence will be by the ETS major test on graduating seniors. We will report scores at the group level for the Measurement and Methodology assessment indicator that the test provides.
    b. Indirect Evidence: We will use answers to selected questions from two surveys of graduating students:
        i. From the UCUES, we will use item 2f, their rating of how well they were prepared in quantitative (mathematical and statistical) skills.
        ii. From the NSSE), we will use item 11f, their rating of how well they were prepared to analyze quantitative problems.
        iii. Using student interviewers from the UC Merced SATAL program (Student Assessment of Teaching and Learning), we will interview graduating seniors in focus groups to assess their perceptions of how well the major taught the statistics used in psychology.
4. Writing: Show that they understand and can apply the writing style used in psychological literature (APA style).
    a. Assessment of direct evidence will use a to-be-developed test given to graduating seniors that will include multiple choice items on APA style,

and if resources allow, also include a test involving editing a document to locate style errors.

b. Starting in Fall 2009 Psychology majors will begin enrolling in WRI 101: Writing in the Disciplines: Psychology. Portfolios of their coursework will be collected and reviewed to confirm writing competence and to corroborate other evidence of program learning outcomes for content and research methods.

c. Indirect Evidence: We will use answers to selected questions from two surveys of graduating students:

    i. From the UCUES, we will use their responses to item 2b, their rating of how well they were prepared in the ability to be clear and effective in writing.

    ii. From the NSSE, we will use item 11c, their rating of how well they were prepared to write effectively.

    iii. Using student interviewers from the UC Merced SATAL program (Student Assessment of Teaching and Learning), we will interview graduating seniors in focus groups to assess their perceptions of how well the major taught writing in psychology.

These data will be gathered and analyzed in conjunction with various administrative offices at UC Merced, for example, the Institutional Planning and Analysis office and the SATAL program office. As we develop a working relationship with such offices, we expect that some of the analyses may be conducted by the Psychological Sciences faculty if the data can be made available to us. Given the small size of the

Psychological Sciences faculty, results of these analyses will be interpreted by the faculty as a whole initially. As the faculty grows, a Faculty Assessment Committee will assume responsibility for initial interpretation of the data for report to the entire faculty.

Given how new the Psychology major is, and how rapidly it is growing and changing, these data are likely to be used in a very wide variety of formative ways to improve the major. The results should identify areas of our curriculum are performing to our expectations, and which areas need adding or improving. They may also tell us what skills we are not training that we should be. As we learn more about what assessment methods are more or less feasible, see opportunities to add new assessment methods (e.g., alumni surveys), and find the resources to expand what we do, we will change our assessment process. Ultimately, all this will result in an iterative process by which we can re-examine our PLOs to better serve our students.

Part D: Process

We will assess one PLO each academic year, in the order the PLOs are listed earlier in this document: PLO #1 for the 2008-9 academic year, PLO #2 for 2009-2010, PLO #3 for 2010-2011 and PLO#4 for 2011-12. All graduating Psychology majors are required to take the ETS Major Field Test as a condition of graduation. This requirement was entered into the 2009-10 General Catalog, and so will take effect as a requirement for students who enter as freshman in 2009 and graduate in May 2013, or who enter as transfer students in 2009 and graduate in May 2011. Until then, the test will be administered to volunteers. Assessments are completed at the end of the Spring semester of each academic year, with subsequent analyses and interpretations done in the six

months following that. The exact schedule will be flexible to accommodate the inevitable fits and starts of this new process.

Part E: Participants

As described in Part C earlier, data will be gathered by various offices and programs of UC Merced. Analysis will take place in such offices as well, but may also be done by Psychological Sciences faculty if we are allowed to use the raw data. Results will be disseminated to the entire faculty who will, in turn, decide what changes may need to be made to the major, and how to do so. As the faculty grows, some of these duties may be assumed by a Faculty Assessment Committee consisting of a subset of the entire Psychological Sciences faculty.

Part F: Minor

The Psychology minor has the same PLOs and assessment plan as the major. The main difference between the two is that performance expectations for students in the minor will be lower than for the major.

Part G: Self-Evaluation Using the WASC Rubric

Part A. Comprehensive List. The Psychology PLOs are probably best described as “Developed” in the WASC rubric. The Faculty Accreditation Report submitted by Psychology on January 30, 2009 (also in the present report), make clear its consideration of both institution-wide outcomes and national disciplinary standards. The PLOs fall short of a “Highly Developed” rating because they probably do not meet the standard for such a rating that says “Faculty have agreed upon explicit criteria for assessing students’

level of mastery of each outcome." However, it is unlikely the faculty could take this step until the methods for assessing each PLO have been finalized.

Part B. Assessable Outcomes. The Psychology PLOs are probably at the "Emerging" level. The faculty needs to provide more information to students about how they can demonstrate learning. Some PLOs already do this (probably PLO#4), but others do not.

Part C. Alignment. The Psychology PLOs are probably at the "Developed" level. The curriculum provides ample opportunity for students to learn and develop the skills described in the PLOs, and a curriculum map outlines the relationship between the PLOs and the curriculum. However, the map does not clearly articulate increasing levels of proficiency in the PLOs, specifically lacking a mastery course such as a capstone course. This omission was intentional. With a faculty of 7 and with 373 majors, the faculty were unable to develop such a mastery course given the resources that would be required to grade in that course. The faculty should, however, continue to consider ways to in which a mastery requirement could be introduced into the curriculum.

Part D. Assessment Planning. The Psychology PLOs are probably at the "Emerging" level. While assessment plans are specified for PLO#1, #2, and #3, the faculty have not yet agreed on how PLO#4 might be assessed. Further, the assessment plans (e.g., the ETS major field test) may change over time as the faculty gains experience with present options and alternatives.

Part E. The Student Experience. The Psychology PLOs are probably at the "Emerging" level. PLOs have been published in the UC Merced catalog in the Psychology major section, they are published on the UC Merced Psychological Sciences

web site (***http://psychology.ucmerced.edu***), and are presented in the syllabi of individual instructors. The faculty should develop additional ways of ensuring student awareness of the PLOs, and see that the PLOs are incorporated into all syllabi. Students have had limited involvement in the creation and use of rubrics or in self-assessment. However, it may be premature to involve students until the assessment plan itself is further developed.

SECTION III: ALIGNMENT OF INSTITUTIONAL AND PROGRAM GOALS/OUTCOMES –MAJOR AND/OR MINOR

Part A: Program and Institutional Goals/Outcomes

The Psychology major reflects UC Merced's eight guiding principles of general education in a variety of ways, some direct and some indirect. The following table summarizes these relationships in a curricular map, followed by a narrative elaboration of these interfaces.

Table 1: A curricular map representing the alignment between Psychology Program Learning Outcomes and the Eight Guiding Principles of General Education

PLOs	Scientific Literacy	Decision Making	Communication	Self & Society	Ethics & Responsibility	Leadership and Teamwork	Aesthetic Understanding Creativity	Development of Personal Potential
#1	x		x	x	x	x	x	x
#2	x	x	x					
#3	x	x	x					
#4		x	x			x	x	

UC Merced Guiding Principle #1, Scientific Literacy: To have a functional understanding of scientific, technological and quantitative information, and to know both how to interpret scientific information and effectively apply quantitative tools. The Psychology PLOs #1, #2 and #3 reflect this guiding principle directly. The Psychology major creates literacy about the science of Psychology, and about the scientific methods that psychologists use to investigate human behavior.

UC Merced Guiding Principle #2, Decision Making: To appreciate the various and diverse factors bearing on decisions and the know-how to assemble, evaluate, interpret and use information effectively for critical analysis and problem solving. Most courses in the Psychology major require students to write papers in which they are required to do such analysis and problem solving. In addition, some students who participate in faculty laboratory research are exposed to how faculty members do these tasks, sometimes through group readings and other times through the research process itself. Portfolio reviews will also address these points.

UC Merced Guiding Principle #3, Communication: To convey information to and communicate and interact effectively with multiple audiences, using advanced skills in written and other modes of communication. PLO #3 applies directly to this principle, as do the comments about writing made in the response to principle 2 above.

UC Merced Guiding Principle #4, Self and Society: To understand and value diverse perspective in both the global community contexts of modern society in order to work knowledgeably and effectively in an ethnically and culturally rich setting. Two courses address this principle directly: PSY 150 Psychological Perspectives on Cultural, Racial and Ethnic Diversity, and PSY 151 The Psychology of Stereotyping and Prejudice.

UC Merced Guiding Principle #5, Ethics and Responsibility: To follow ethical practices in their professions and communities, and care for future generations through sustainable living and environmental and societal responsibility. Several courses include readings and classroom discussion of psychological ethics. PSY 140 Clinical Psychology reviews the ethical requirements of this profession; PSY 15 Research Methods in Psychology reviews the ethics of research using humans and animals as participants; and PSY 171 Psychological Tests and Measurement reviews ethical use of psychological tests and assessment of humans. Students who participate in faculty research are exposed to the ethical issues that are specific to that research.

UC Merced Guiding Principle #6, Leadership and Teamwork: To work effectively in both leadership and team roles, capably making connections and integrating their expertise with the expertise of others. A number of psychology courses require students to participate in group projects. In addition, students who participate in faculty research typically do so in the context of research teams in which they assume gradually increasing levels of responsibility and leadership.

UC Merced Guiding Principle #7, Aesthetic Understanding Creativity: to appreciate and be knowledgeable about human creative expression, including literature and the arts. Students who participate in faculty research are exposed to the creative process that is necessary as part of developing original research ideas and projects. Likewise, most courses review original research on the relevant topic, including discussion of creativity evidenced when addressing human and social issues through scientific methods.

UC Merced Guiding Principle #8, Development of Personal Potential: To be responsible for achieving the full promise of their abilities, including psychological and physical well-being. Students who participate in the Psychology major often do so because they have an innate interest in the psychological and physical well-being of themselves and others. Much of the psychology undergraduate curriculum addresses topics that educate students about these matters, for example, abnormal psychology, personality, clinical psychology, health psychology, developmental psychology, positive psychology, or the development of racial and ethnic stereotypes.

UC Merced also identifies itself as a student-centered research university. As discussed in several places previously, Psychology is aggressive about involving students in research. This begins in PSY 1, Introduction to Psychology, where all students have the choice to be participants in research conducted by faculty, giving them first hand exposure to the kinds of research psychologists do (for ethical reasons, they have the alternative choice of writing papers, but most students prefer the experience of being a research participant). In many subsequent classes, students are involved in either library research for writing papers, or group research projects organized by students for class projects. A number of students also participate in faculty research laboratories; these are often students interested in pursuing graduate studies for their career.

Part B: Program & School Goals

Although the School of Social Sciences, Humanities, and Arts (SSHA) does not have specific school goals, it has a mission statement:

> *SSHA serves regional, state, national, and international communities as a multi- and interdisciplinary partner within a research-intensive public university committed to innovative and substantive research, excellent teaching, and student-focused learning. SSHA is dedicated to providing depth within a broad range of outstanding undergraduate and graduate programs that prepare students for varied roles as responsible, informed citizens and leaders. Research and academic programs encourage intellectual growth, prepare students for marketable, challenging careers and professions, instill the values of lifelong learning, and encourage civic responsibility, public service, and understanding in a diverse, global society.*

Much of the previous description of Psychology earlier in this document could be repeated here to show how Psychology reflects this mission. In addition, Psychological Sciences faculty do their research in areas as close as the local school system and as distant as Asia; they engage in multidisciplinary collaborations with areas such as Cognitive Science and the many programs being started at UC Merced involving health; some faculty have won awards for their teaching and their research; and some of our undergraduates have gone on to graduate training. We look forward to tracking graduates from the Psychology major; doing so will provide valuable information about how our graduates further contribute to the SSHA mission. The logistics of how this can be done are still being worked out with the administration.

Part C: Program & Course (Student) Learning Outcomes

The Psychology undergraduate curriculum reflects the Psychology PLOs in very direct ways, as illustrated by the following curricular map.

Curricular Map Articulating The Alignment Between Program Learning Outcomes And Course Learning Outcomes For Psychology Courses

The Psychological Sciences Program Learning Outcomes state that students who complete the major will:

1. Show knowledge of the key substantive content of the field of psychology, including memory and thinking, sensory psychology and physiology, developmental psychology, clinical and abnormal psychology, and social psychology.
2. Demonstrate that they understand the basic principles of and correctly interpret applications of the designs and methods that psychologists use to gather data.
3. Show that they can understand and correctly interpret the statistical analyses psychologists use to analyze data.
4. Show that they understand and can apply the writing style used in psychological literature (APA style).

Course	Title	Program Learning Outcomes			
		#1 Content	#2 Methods	#3 Statistics	#4 Writing
1	Introduction	I	I	I	I
10	Analysis of Psychological Data		D	D	D
15	Research Methods		D	D	D
105	Advanced Research Methods		D	D	D
110	History of Psychology	D	D	D	D
123	Alcohol,	D	D	D	D

	Drugs and Behavior				
130	Developmental Psychology	D	D	D	D
131	Social Psychology	D	D	D	D
135	Language Acquisition	D	D	D	D
136	Cognitive Development	D	D	D	D
137	Conceptual Development	D	D	D	D
138	The Development of Social Mind	D	D	D	D
139	Cognitive Development and Education	D	D	D	D
140	Clinical Psychology	D	D	D	D
142	Abnormal Psychology	D	D	D	D
143	Abnormal Child Psychology	D	D	D	D
144	Clinical Neuro-Psychology	D	D	D	D
145	Human Sexuality	D	D	D	D
147	Health Psychology	D	D	D	D
150	Cultural, Racial, Ethnic Diversity	D	D	D	D
151	Stereotyping and Prejudice	D	D	D	D
158	Positive Psychology	D	D	D	D
159	Personal Psychology	D	D	D	D
160	Cognitive Psychology	D	D	D	D
161	Perception	D	D	D	D
162	Visual Perception	D	D	D	D

170	Industrial and Organizational Psychology	D	D	D	D
171	Tests and Measurements	D	D	D	D
172	Forensic Psychology	D	D	D	D
180	Physiological Psychology	D	D	D	D
199	Special Topics	Varies by course/content			

I=Introduction, D=Develop, M=Mastery at a level appropriate for graduation

Question may arise about why none of the courses are described with an M = Mastery symbol. Mastery of content, methods, and writing in Psychology is not tied to a particular course. Rather, it reflects an accumulation of knowledge, skills and abilities over time, so that seniors are expected to have greater mastery over all these matters than are juniors, juniors more than sophomores, and sophomores more than freshman. We would like to have a capstone course in which students could demonstrate mastery through, say, the design, conduct, analysis, and writing of a research project. Unfortunately, we have not found a logistically way to do so given that we have only 7 faculty to serve 373 majors, and given that the demands of teaching the existing curriculum are already so overwhelming that more than half our courses are taught by lecturers. Consequently, we have chosen to have students demonstrate mastery using the assessment techniques outlined in Section II.C., where students can demonstrate increased mastery from freshman through senior years.

FACULTY ACCREDITATION REPORT

(April, 2010)

SOCIOLOGY

SCHOOL OF SOCIAL SCIENCES, HUMANITIES AND ARTS

UNIVERSITY OF CALIFORNIA, MERCED

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SECTION I: SUMMARY OF ASSESSMENT PLAN REVISIONS

In the past year, our proposed Sociology BA was approved by appropriate campus committees and WASC. While the approval process was underway, we went ahead and began following our assessment plan for assessing both our major and minor (since students were beginning to take our core courses in anticipation of the major's inception). We also engaged in assessment of our minor in order to help us develop the curriculum for our major. Based on experiences with our initial assessment efforts, we revised several aspects of our assessment plan. Specifically, for several PLOs (specifically, numbers 1, 2, 4, 5) we added additional sources of evidence on student mastery, including assessment of open-ended exam questions in an upper division class (PLO #1), an assignment embedded in a required course and a rubric for assessing student mastery (PLO #2), incorporation of additional student surveys to include student self-assessments of skill development (PLO #4), a focus group with graduating seniors (PLO #5), and analysis of data from an alumni survey (PLO #5).

SECTION II: ASSESSMENT PLAN – MAJOR AND MINOR

Sociology currently offers a minor and a major leading to a BA in Sociology (beginning Fall, 2010). Because of their differential exposure to sociological coursework, we expect that majors and minors will have similar but not identical program learning outcomes. Therefore, we assess three of our learning outcomes for our minors and all five of them for our majors. We outline which outcomes apply to which group in Part F below.

Part A: Timeline & Goals

We aim to use the assessment process to enhance our program goals, improve our teaching, and increase the success of our students in their future education and labor market outcomes. We engaged in assessment of our minor in Academic Year (AY) 2008-09 in the process of planning our curriculum for our proposed major. We began formally implementing assessment of our minor and major in accordance with the plan outlined here in AY 2009-10 and will engage in assessment on a five-year cycle. Thus our first learning goal will be assessed in 2009-10, our second in AY 2010-11, and so on until the fifth goal is assessed in AY 2013-14. We have published our learning outcomes on the School of Social Sciences Humanities and Arts (SSHA) web page. Once we have developed a stand-alone sociology web site (by May 2010), we will publish results of our assessment of each outcome on our web site after analysis is complete. At the end of the 5-year assessment cycle, we will evaluate our goals and our assessment tools to decide whether to continue on a similar 5-year cycle or to alter our assessment plan. Sociology plans to have one faculty member serve as a "Faculty Assessment Coordinator" (FAC) who will be in charge of implementing our plan. All instructional staff, including faculty, lecturers, and teaching assistants will participate in various stages of the process.

Part B: Outline of PLOs

We have designated five key Program Learning Outcomes for the Sociology major and three of these also apply to the minor (one of these only partially). These learning outcomes are currently published on the SSHA web site and included in the course catalog. These outlets will provide students and other stakeholders ready access to information about our educational goals and expected outcomes.

Upon completion of a BA in Sociology, Students will:

1) Think critically about the causes and consequences of social inequality.
2) Design and evaluate empirical sociological research.
3) Explain and apply the major theoretical perspectives in sociology.
4) Communicate orally and in writing about sociological concepts.
5) Use their sociological education outside the undergraduate classroom, particularly in their careers or future study.

Part C: Evidence

Below we discuss each learning outcome in turn and indicate what type(s) of evidence will be gathered, how it will be analyzed, and how we will use it to improve student learning. For each learning outcome, we will collect data on student characteristics, including major/minor and class status (transfer student, freshman, etc.), in order to compare different groups of students and make

distinctions between our majors and minors. Also, all assessment tools will be developed by at least two faculty members, usually the FAC and the instructor for the class(es) in which assessment will occur.

1) **Think critically about the causes and consequences of social inequality.**

   a. *Evidence:* In all sections of our Introduction to Sociology (SOC 1) courses, we will administer a pre-test at the beginning of the semester that includes a series of questions related to this outcome. These same questions will be embedded on the final exam so that we can assess whether students gain knowledge related to this outcome over the course of the term. Further, we will use pre- and post-test methodology to assess this PLO in one related upper division class.

   b. *Analysis:* Assessment questions will be assessed by the faculty member in charge of each of the classes as well as by the FAC, who will collaborate on developing and using a rubric which specifies the criteria for excellent, good, satisfactory, and poor work. During the summer months, SSHA staff will assist in entering data from pre- and post-test exams into excel spreadsheets to be analyzed. We will then examine student growth on both the global PLO as well as on individual test items, comparing majors and minors and students at different points in their education. The FAC will produce statistical data (means and standard deviations) on the

individual and global items, as well as create graphs from these numbers to illustrate the results.

c. *Use of Findings:* These findings will be used to improve student learning in several ways. First, we will disseminate them to all instructional staff, including faculty, lecturers, and teaching assistants so that they can identify areas of strength and weakness. Second, all faculty will participate in a discussion at least once a year about whether the results from the assessment of this learning outcome suggest ways that we might be able to improve our curriculum, alter the curriculum content, enhance student skill development, or change our pedagogy.

2) Design and evaluate empirical sociological research.

a. *Evidence:* In all sections of our Statistics (SOC 10) and Sociological Research Methods (SOC 15) courses, we will administer a pre-test at the beginning of the semester that includes a series of questions related to this outcome. These same questions will be embedded on the final exam so that we can assess whether students gain knowledge related to this outcome over the course of the term. In addition, to assure that our majors and minors acquire necessary information literacy skills relevant to this PLO, we will also assess a course assignment in Sociological Research Methods (SOC 15) that requires students to locate and summarize peer-reviewed research articles relevant to a specific

research question (the assignment is attached as Appendix A). Further, we will collaborate with the Office of Institutional Planning and Analysis to analyze several relevant items from the University of California Undergraduate Experience Survey (UCUES) that is administered each year. These items capture student self-assessments (both baseline and post-UC Merced attendance) of quantitative skills, library research skills, and "other" research skills, each of which is relevant to this PLO.

b. *Analysis:* The assessment questions and assignment will be assessed by the faculty member in charge of the class as well as by the FAC who will collaborate on developing and using a rubric which specifies the criteria for excellent, good, satisfactory, and poor work. During the summer months, SSHA staff will assist in entering data from the assessment into excel spreadsheets to be analyzed. We will then examine student growth on both the global PLO as well as on individual test items, comparing majors and minors and students at different points in their education. The FAC will produce statistical data (means and standard deviations) on the individual and global items, as well as create graphs from these numbers to illustrate the results. For the UCUES items, Office of Institutional Planning and Analysis staff will prepare a report that compares the means for sociology majors on relevant items to a) all

other students and b) all other social science majors (Political Science, Economics, and Psychology).

c. *Use of Findings:* These findings will be used to improve student learning in several ways. First, the FAC will disseminate them to all instructional staff, including faculty, lecturers, and teaching assistants so that they can identify areas of strength and weakness. Second, all faculty will participate in a discussion, initiated by the FAC, at least once a year about whether the results from the assessment of this learning outcome suggest ways that we might be able to improve our curriculum, alter the curriculum content, enhance student skill development, or change our pedagogy.

3) Explain and apply the major theoretical perspectives in sociology.

a. *Evidence:* All sections of Sociological Theory (SOC 100) will include embedded questions (both multiple choice and short answer/essay) on the final exam that relate to this outcome.

b. *Analysis:* Assessment questions will be assessed by the faculty member in charge of the class as well as by the FAC who will collaborate on developing and using a rubric which specifies the criteria for excellent, good, satisfactory, and poor work. During the summer months, SSHA staff will assist in entering data from exam items into excel spreadsheets to be analyzed. We will then examine student success on both the global PLO as well as on individual test items, comparing majors and minors and students at

different points in their education. The FAC will produce statistical data (means and standard deviations) on the individual and global items, as well as create graphs from these numbers to illustrate the results.

c. *Use of Findings:* These findings will be used to improve student learning in several ways. First, the FAC will disseminate them to all instructional staff, including faculty, lecturers, and teaching assistants so that they can identify areas of strength and weakness. Second, all faculty will participate in a discussion, initiated by the FAC, at least once a year about whether the results from the assessment of this learning outcome suggest ways that we might be able to improve our curriculum, alter the curriculum content, enhance student skill development, or change our pedagogy.

4) Communicate orally and in writing about sociological concepts.

a. *Evidence:* To assess student competencies in writing, one faculty-taught upper division course will include embedded questions on the final exam which require students to write about sociological concepts. To assess verbal presentation of sociological concepts, two faculty will observe and evaluate student presentations and/or debates that are part of the course requirements in one faculty-taught upper division class. Further, we will collaborate with the Office of Institutional Planning and Analysis to analyze several relevant items from the University of California Undergraduate

Experience Survey (UCUES) that is administered each year. These items capture student self-assessments (both baseline and post-UC Merced attendance) of writing skills, speaking skills, and presentation skills, each of which is relevant to this PLO.

b. *Analysis:* Assessment questions/presentations will be graded by the faculty member in charge of the class as well as by the FAC using a rubric which specifies the criteria for excellent, good, satisfactory, or poor student work. During the summer months, SSHA staff will assist in entering data from assessment into excel spreadsheets to be analyzed. We will then examine student success on both the global PLO as well as on individual portions of the assessment, comparing majors and minors and students at different points in their education. The FAC will produce statistical data (means and standard deviations) on the individual and global items, as well as create graphs from these numbers to illustrate the results. For the UCUES items, Office of Institutional Planning and Analysis staff will prepare a report that compares the means for sociology majors on relevant items to a) all other students and b) all other social science majors (Political Science, Economics, and Psychology).

c. *Use of Findings:* These findings will be used to improve student learning in several ways. First, the FAC will disseminate them to all instructional staff, including faculty, lecturers, and teaching

assistants so that they can identify areas of strength and weakness. Second, all faculty will participate in a discussion, initiated by the FAC, at least once a year about whether the results from the assessment of this learning outcome suggest ways that we might be able to improve our curriculum, alter the curriculum content, enhance student skill development, or change our pedagogy.

5) **Use their sociological education outside the undergraduate classroom, particularly in their careers or future study.**

   a. *Evidence:* To assess student preparation for further education and careers beyond the B.A. degree, we use data from surveys administered by the UC Merced Office of Institutional Research. First, UCM conducts a Graduating Senior Survey that collects data on post-graduation work and educational plans, as well as students' self-assessment of how well their UCM education prepared them for these activities; we will use the surveys from sociology majors to identify how well-prepared students feel for their future endeavors immediately upon graduating. Second, the UCM Alumni survey queries about post-graduation work and educational experiences and asks graduates to assess the utility of their UCM educational experiences for their subsequent work and graduate study (we will use data from this survey 2-3 years after graduates have completed their BA degree). The FAC and one other faculty member will also conduct a focus group in the spring semester with 8-10 graduating

seniors to find out how well they feel their sociology coursework prepared them for their planned careers/graduate studies, and solicit suggestions for how the curriculum could be improved in this regard (see Appendix B for draft interview schedule).

b. *Analysis:* During the summer months, SSHA staff will assist in entering data from the surveys into excel spreadsheets to be analyzed. We will then examine student outcomes and responses to questions about skills. The FAC will produce statistical data (means and standard deviations) on the individual and global items, as well as create graphs from these numbers to illustrate the results. The FAC will analyze and code focus group data for relevant themes, and produce a summary report highlighting these themes.

c. *Use of Findings:* These findings will be used to improve student learning in several ways. First, the FAC will disseminate them to all instructional staff, including faculty, lecturers, and teaching assistants so that they can identify areas of strength and weakness. Second, all faculty will participate in a discussion, initiated by the FAC, at least once a year about whether the results from the assessment of this learning outcome suggest ways that we might be able to improve our curriculum, alter the curriculum content, enhance student skill development, or change our pedagogy.

Part D: Process

We will assess each of our PLOs during the academic year, depending on when the relevant course is (or courses are) being offered. During the subsequent summer, SSHA staff will enter the data and the FAC will produce results by the end of the subsequent fall semester. So, for example, the first PLO will be assessed in classes during the academic year 2009-10 and results will be disseminated and discussed with the faculty during the fall semester 2010.

PLO	YEAR ASSESSED
1) Think critically about the causes and consequences of social inequality.	AY 2009-10
2) Design and evaluate empirical sociological research.	AY 2010-11
3) Explain and apply the major theoretical perspectives in sociology.	AY 2011-12
4) Communicate orally and in writing about sociological concepts.	AY 2012-13
5) Use their sociological education outside the undergraduate classroom, particularly in their careers or future study.	AY 2013-14

Part E: Participants

Assessment Plan Activity	Who
Evidence collection	Faculty Assessment Coordinator (FAC) and at least one additional faculty member (rotates depending on which course(s) are included in the assessment plan), Office of Institutional Planning and Analysis (PLO # 2, 4, 5).
Data entry	SSHA staff
Data analysis	FAC, Office of Institutional Planning and Analysis (PLO # 2, 4, 5)
Dissemination of results	FAC will distribute to all instructional staff (faculty, lecturers, TAs)
Implementation of findings to improve student learning	All faculty

Part F: Minor

Because of their more limited exposure to sociology coursework, we expect sociology minors to achieve three of the five learning goals we have outlined above. Specifically, we expect PLOs #1 (Think critically about the causes and consequences of social inequality) and #4 (Communicate verbally and in writing about sociological concepts) to fully apply to our minors. We also expect PLO #2 (Design and evaluate empirical sociological research) to partially apply to our minors. This is because minors are not required to take courses in statistics, so we only expect them to gain knowledge related to this outcome from our sociological research methods course. We will assess these three goals for our minors using the same methods and timeline outlined above, except that PLO #2 will only be assessed in research methods (but not statistics) for our minors. Further, because student and alumni surveys on which we rely for some of our assessment data do not adequately identify student minor concentrations, these items will not be used as evidence for our minors. All of our assessment tools will collect information about student class standing and major/minor status so that we can think about our pedagogy and course requirements as they may apply differentially to each group of students.

Part G: Self-Evaluation using the WASC Rubric

Criterion	Evaluation
Part A: Comprehensive List	**Developed:** PLOs explicitly describe how students can demonstrate learning and cover the key skills and knowledge students should develop. For some outcomes, we have developed a rubric that describes specific levels of mastery to assess the PLO. For other outcomes, we have not yet done so because we have not yet assessed those outcomes.
Part B: Assessable Outcomes	**Developed:** Each outcome describes how students can demonstrate learning. For some outcomes, we have developed a rubric that describes specific levels of mastery to assess the PLO. For other outcomes, we have not yet done so because we have not yet assessed those outcomes.
Part C: Alignment	**Developed:** The curriculum is designed to provide students with opportunities to learn and develop increasing sophistication with respect to each outcome. We have not yet had time to become "highly developed" in the areas of co-curricular activities and student support.
Part D: Assessment Planning	**Developed:** We have a fully-articulated, multi-year assessment plan that describes when and how each outcome will be assessed and how improvements based on findings will be implemented. We fall short of being "highly developed" because it is not clear how "sustainable" this plan is without the promise of resources and clerical support from the administration.
Part E: The Student Experience	**Developed:** Students have a good grasp of program outcomes. Outcomes are included on all syllabi and are readily available in the catalog, on the SSHA web page, and elsewhere. There has not been time to have our students become "well-acquainted" with the program outcomes nor to involve them in the development of rubrics because we are such a new program.

SECTION III: ALIGNMENT OF INSTITUTIONAL AND PROGRAM GOALS/OUTCOMES – MAJOR AND MINOR

Part A: Program and Institutional Goals/Outcomes

Sociology at UC Merced incorporates seven of the Eight Guiding Principles of General Education that are university-wide learning goals. We discuss each relevant guiding principle in turn and, at the end of this section, include a curriculum map indicating the alignment between each of the Eight Guiding Principles and our PLOs.

Scientific Literacy: To have a functional understanding of scientific, technological, and quantitative information, and to know both how to interpret scientific information and effectively apply quantitative tools.

Scientific literacy is central to our major and minor in Sociology. Through our coursework, we help our students become critical consumers of social science research. In an era when the media, politicians, and other social commentators twist social scientific data to support any argument, we show students how to evaluate the quality of research design and the fit between evidence and rhetoric. In particular, we help students make sense of the body of evidence regarding dimensions of social inequality related to race/ethnicity, gender, class, and sexuality, with an eye toward ameliorating these inequalities. The training our students obtain in research methods and statistics particularly helps them have a functional understanding of quantitative techniques that are important for practitioners of social science research. Exposure to sociological theory throughout our curriculum helps students interpret social scientific research and relate this research to broader sociological arguments. Sociology

coursework also helps students see the fit between theory, research, and practical applications to help solve social problems related to such issues as education, housing, politics, and work. Through this preparation, we expect our students to be well-prepared for graduate studies as well as a variety of future careers. Sociology's program learning outcome 2 (Research) is directly related to this university-wide principle, and PLOs 1 (Social Inequality), 3 (Theory) and 5 (Future Study) are also related.

Decision Making: To appreciate the various and diverse factors bearing on decisions and the know-how to assemble, evaluate, interpret and use information effectively for critical analysis and problem solving.

The study of sociology involves critical analysis (assembling, evaluating, and interpreting) of social science research to engage students in the process of solving social problems. In particular, we focus on using sociological research methods and theories to analyze important social issues and think about related practical solutions. Program learning goals 1 (Social Inequality), 2 (Research), 3 (Theory) and 5 (Future Study) relate to this learning principle.

Communication: To convey information to and communicate and interact effectively with multiple audiences, using advanced skills in written and other modes of communication.

Sociology coursework fosters communication skills among our students. In many courses, students are expected to synthesize theory and research in their written work to help apply sociological scholarship to real-world problems. Some courses also emphasize developing students' verbal communication skills, through structured debates and/or discussion of sociological concepts. Further,

students must effectively communicate with one another to complete group assignments both inside and outside the classroom. Sociology's program learning outcome 4 (Communication) directly relates to this principle, and PLOs 2 (Research), 3 (Theory), and 5 (Future Study) also dovetail with it.

Self and Society: To understand and value diverse perspectives in both the global community contexts of modern society in order to work knowledgeably and effectively in an ethnically and culturally rich setting.

As a discipline, sociology is centrally concerned with integrating a variety of perspectives to understand the diversity of modern society. Many of our courses focus on the various explanations for social inequality by race/ethnicity, gender, social class, and sexuality. Through developing insight into the social-structural sources of such inequalities, students are better equipped to live and work in ethnically and culturally rich settings. Our programmatic focus on the practice and critical analysis of social science research also gives students important tools with which to understand and adjudicate between various perspectives. Sociology's PLO 1 (Social Inequality) directly relates and PLOs 2 (Research) and 5 (Future Study) also connect with this university-wide principle.

Ethics and Responsibility: To follow ethical practices in their professions and communities, and care for future generations through sustainable living and environmental and societal responsibility.

Sociology students are trained to conduct social science research in an ethical and responsible manner. In particular, students learn how to ethically treat human subjects in the research process and to protect their privacy. Beyond this, the focus of our coursework on social inequality demonstrates for

students how interconnected we are to others around the globe. Understanding the sources of social inequality helps students work toward a more equitable society in both their personal and professional lives. Program learning goals 1 (Social Inequality) and 2 (Research) correlate with this principle.

Leadership and Teamwork: To work effectively in both leadership and team roles, capably making connections and integrating their expertise with the expertise of others.

Sociology coursework helps students work with others in both leadership and team roles. Through class discussions and group projects, students learn to draw on each others' knowledge and expertise to work together to solve important problems. In some cases, course content also focuses on sociological scholarship related to group behaviors that lead to effective teamwork which will benefit students with respect to this outcome. Program learning outcomes 2 (Research), 4 (Communication) and 5 (Future Study) all relate to this principle.

Development of Personal Potential: To be responsible for achieving the full promise of their abilities, including psychological and physical well-being.

All five of Sociology's program learning goals relate to the development of students' intellectual and personal potential. The study of sociology helps students gain a better grasp of how their individual agency is affected by social institutions and social structures. This understanding will help them both recognize their place in the social system as well as envision the ways that their actions can influence their own and others' well-being.

Alignment of Sociology PLOS with UC Merced's Eight Guiding Principles

Sociology PLOs	Scientific Literacy	Decision Making	Commun-ication	Self & Society	Ethics & Respon-sibility	Leadership & Team-work	Aesthetic Under-standing	Develop-ment of Personal Potential
Inequality	X	X		X	X			X
Research		X	X	X	X	X		X
Theory	X	X	X					X
Comm.			X			X		X
Future	X	X	X	X		X		X

Part B: Program and School Goals

The program goals for the social and cognitive sciences program within the School of Social Sciences, Humanities and Arts (SSHA) are derived from the university-wide guiding principles discussed above. As such, programmatic goals in sociology support student attainment of school-wide goals as discussed above in Part A.

Part C: Program and Course (Student) Learning Outcomes

The Curriculum Map below illustrates the relationship between Program Learning Outcomes and specific courses in the Sociology program.
KEY: I=Introduction, D=Develop, M=Mastery (at a level for graduation), V=Varies by course/instructor.

COURSES	PROGRAM LEARNING OUTCOMES				
	1 (Inequality)	2 (Research)	3 (Theory)	4 (Communication)	5 (Future Study)
SOC 001 (Intro)	I	I	I	I	I
SOC 010 (Statistics)	I	M	--	D	M
SOC 015 (Methods)	I	M	I	D	M
SOC 020 (Social Problems)	D	D	D	D	D
SOC 030 (Social Inequality)	D	D	D	D	D
SOC 035 (Globalization)	D	D	D	D	D
SOC 055 (Family)	D	D	D	D	D
SOC 070 (Intro. Crime/Deviance)	D	D	D	D	D
SOC 100 (Soc. Theory)	D	D	M	M	M
SOC 110 (Social Movements)	M	M	M	M	M
SOC 115 (Political)	M	M	V	M	M
SOC 120 (Culture)	V	M	V	M	M
SOC 130 (Social Stratification)	M	M	M	M	M
SOC 131 (Urban Inequality)	M	M	V	M	M
SOC 132 (Education)	M	M	M	M	M
SOC 134 (Sport)	M	M	V	M	M
SOC 140 (Organizations)	V	M	M	M	M
SOC 150 (Self and Society)	V	M	V	M	M
SOC 160 (Gender and Society)	M	M	V	M	M
SOC 161 (Sexuality)	M	M	V	M	M
SOC 170 (Qualitative Methods)	V	M	V	M	M
SOC 180 (Race and Ethnicity)	M	M	V	M	M
SOC 191 (Honors Thesis)	V	M	M	M	M

APPENDIX A: ASSIGNMENT TO ASSESS PLO #2

SOCIOLOGICAL RESEARCH METHODS
(SOC 15)

ASSIGNMENT #2: BUILDING A BIBLIOGRAPHY

Fall, 2009

DUE DATE: Wednesday, September 23. In class.

POINTS: This assignment is worth 10 points toward your final grade [NOTE: This is a group assignment with individual components. Each group member will complete a portion of the assignment individually, but the group will turn in the final assignment as a group and will receive a group grade.]

PURPOSE:
The purpose of this assignment is:

a) To practice using the library catalogues and databases for sociological research.
b) To begin collecting journal articles for your research project.
c) To learn how to read/summarize published journal articles and assess their relevance.
d) To coordinate and collaborate with your team in completing the above.

INSTRUCTIONS:

A) **INDIVIDUALLY:** Conduct a literature review and to find at least THREE journal articles that are relevant to your approved topic and research question. Use the databases provided by the library to find articles. While you are working on this part individually, group members MUST consult with one another during this part of the assignment so no two group members have any of the same articles. You may want to discuss possible key words with each other and have different group members focus on different key words. Further, if you have questions about the relevance of an article to your research question, you should talk about it with your team members. Once you have all selected articles and verified that every group member has found three DIFFERENT articles that relate to your research question, each person should do the following:

1. Print/copy the full text of *each* article.

2. Type up a formal citation for each selected article using ASA (American Sociological Association) format (details from the ASA style guide are available on UCMCROPS). An example of a formal citation appears below:

   South, Scott J. and Glenna Spitze. 1994. "Housework in Marital and Nonmarital Households." *American Sociological Review* 59: 327-347.

3. Read each article with an eye toward identifying the article(s) which will be most helpful in developing your study, either with respect to refining your research question, which methodological approaches you might use, how to define your variables, or the theoretical arguments you might draw from in justifying your study.

Don't let any advanced statistical jargon intimidate you, you can just skim those parts and focus on the other aspects of the literature review, discussion of methods, and findings.

4. In the same document in which each individual types up the formal citations for each article, you should also take some notes on each article so that you can tell your group about the article and its relevance (or lack of relevance) to your study. These notes may be written somewhat informally, in bullet-point style. You should have at least 2-3 notes per article. Notes can focus on how a relevant variable (either dependent or independent) is measured, control variables that might be relevant to include, prior findings of relevance, theoretical arguments that may relate, etc.

B) **AS A GROUP:** Once you have each completed Part A individually, everyone in your group should meet to select one article for each group member to write an abstract for from the articles you collected above. For this, you want to identify the 4-5 articles (depending on your group size) that are *most relevant to your study*, using the notes each member made on each article. The article you are working with on Part B does not need to be one of the ones you found individually in Part A.

1. Each individual will re-read their assigned article and write a short abstract summarizing the article—its purpose, method, and results. If applicable, be sure to identify the dependent variable and key independent variable(s). Each abstract must be written in your own words and be approximately ½ page long. NOTE: Plagiarism of published abstracts will be grounds for "0" on this assignment.

2. Exchange and proofread the individual citations produced above in Part A and the abstracts produced in Part B #1 above (you can work out your own system for how you do this, just remember that all of you will be getting the same grade, so you want to minimize errors and make sure your presentation is coherent and neat).

3. When the assignment is due, turn in the following:
    - The list of formal citations with notes underneath each article for all of the articles your group looked at individually in Part A (4 points)
    - The 4-5 abstracts you wrote in Part B (5 points).
    - Photocopies of the published abstracts (12 for groups of 4, 15 for groups of 5) for each of the articles used in this assignment (1 point).
    - In your assignment heading on the first page, include all group members' names and your research question.

NOTE: As always, your professor and TA are available to answer any questions you have on the assignment; Sara Davidson, the librarian conducting your library orientation is also available to answer questions you have about using library search tools to find relevant articles.

APPENDIX B: INTERVIEW SCHEDULE FOR FOCUS GROUPS TO ASSESS PLO #5

Sociology Focus Group Questions	
Purpose of Question	**Examples**
Warm-up	● I'd like everyone to start out by stating a word or phrase that best describes your view of the program.
Issue 1: Career Preparation	● Please tell us what career and/or type of graduate study you are interested in pursuing after graduation. ● How has the program helped you prepare for your career or future studies?
Issue 2: Curriculum	● Thinking about the curriculum and the required courses, how well do you think they prepared you for upper-division work? ● What should be changed about the curriculum to better prepare you for your career or for graduate school?
Closing	● We've covered a lot of ground today, but we know you might still have other input about the program. Is there anything you would like to say about the program that hasn't been discussed already?

University of California, Merced
School of Social Sciences, Humanities and Arts

Revised Faculty Accreditation Report
Minor in Spanish

ABSTRACT

The minor in Spanish revised Faculty Accreditation Report contains the following updates:

Section II. 1. *Timelines and Goals*

-The minor in Spanish did not initiated its assessment process on the academic year 2009-2010 as indicated by our Faculty Accreditation Report submitted on January 30, 2009. We assessed our first PLO on the acedmic year of 2008-09. For this reason, the present revised Faculty Accreditation report specifies 2008-09 as the first year of our assessment period. -Because it was decided to start our assessment process on the acedemic year of 2008-09 instead that on 2009-2010, we considered that the best PLO to be assessed that academic year was the former PLO #3 (writing) instead of PLO #1 (listening and speaking). The present revised Faculty Accreditation report reflects that change on section II.1. A report on the PLO assessed on 20-8-09 academic year (writing) was submitted on January 2010

Section II. 2. *Outline of Program Learning Outcomes (PLOs)*

-As indicated previously, we changed the order in which our PLOs will be assessed. Consequently former PLO #3 is now PLO#1; former PLO#1 is now PLO#2; former PLO#2 is now PLO#3. This change should also be noticed on the following sections:

II.3 Evidence, Process and Participants
III.1 Program and Institutional Goals/Outcomes -Table 1-
III. 3 Program and Course Learning Outcomes

-Information has been added on PLOs #2, #3 and #4 in order to better describe how students can demonstrate learning.

Section II. 3. *Evidence, Process and Participants*

-In order to facilitate faculty access to materials being assessed, a minor in Spanish UCMCROPS site has been created. The existence of this new resource to assess PLO#2 direct and indirect evidence is included on the present report.

4. *Self-evaluation*

-New section.

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I. Program Description

The University of California, Merced has offered a minor in Spanish since the Fall of 2006. This minor was created in part as a response to a demand from the large number of UC Merced students who are Spanish Heritage speakers, or who have taken advanced Spanish language and literature courses in high school. While those students have the linguistic skills to take upper-division Spanish courses, they are interested in further developing those skills to use them in their professional careers, graduate education, international travel, etc. Since the minor in Spanish was implemented, many students who started their Spanish-language learning at UC Merced have also demonstrated an interest in pursuing a minor in Spanish. In order to complete the minor in Spanish students are required to take five courses from the list that appears in Table II (Sec. III, Part C). Al least four of those courses need to be upper division and only one course in which the language of instruction is English can be taken (in that case students are requested to write course research papers in Spanish). *Spanish Composition and Conversation* (SPAN 103) is a requirement for all students interested in receiving a minor in Spanish.

The minor in Spanish offers UC Merced students the opportunity to take a wide range of courses in linguistics, culture, and literature of Spain, Latin America and the Hispanic communities in the United States. The goal of the minor in Spanish is to provide students with the ability to communicate in that language, not only in the context of the family and the community, but also in the professional and academic environments. The minor offers courses that allow students to develop their oral and

writing skills and that contribute to their understanding of history, social issues, and artistic manifestations of the different communities in which Spanish is spoken. In addition, the courses that form part of our program aim to develop the student's analytical reading and writing skills, as well as critical thinking. With those goals in mind, our courses offer students ample opportunity to be involved in activities that allow them to interpret and to express their reaction to the content they are learning. Some of these activities include class discussions, collaborative learning, peer revision, and community involvement, among others.

While most of the courses that students can take to complete their minor in Spanish are comparable to those with similar goals at other postsecondary institutions, the following elements make this program distinctive:

a. The wide range of courses it offers, and the interdisciplinary approach with which they are designed.

b. The opportunity that it offers students to take courses that emphasize the acquisition of Spanish vocabulary and cultural background necessary for specific professions related to health, business, and management.

c. The service learning component that forms part of some courses and that provides students with the opportunity to learn and practice some of the course content while working for community organizations.

By completing a minor in Spanish that: a) encourages linguistic proficiency in informal and formal contexts, b) is interdisciplinary, c) keeps into account the diversity of professional goals of their students, and d) promotes community service, students will be prepared to confront the challenges of an ever more globalized world.

II. Assessment Plan

1. Timeline and Goals

The timeline for the Spanish minor assessment plan will be five years:

- **Year 1** (2008-09): Outcome 1
- **Year 2** (2009-10): Outcome 2
- **Year 3** (2010-11): Outcome 3
- **Year 4** (2011-12): Outcome 4
- **Year 5** (2012-13): Outcome 5

The goals for the Spanish minor assessment plan are:

a. Stimulate faculty discussion

b. Improve curriculum

d. Examine skill development

c. Improve the assessment process

d. Re-examine Program Learning Outcomes

2. *Outline of Program Learning Outcomes (PLOs)*

Upon finishing the Spanish minor, we expect students to have developed supporting skills in critical thinking, written expression, reading, listening and oral proficiency in Spanish, meaning that students will:

Outcome 1. Possess Spanish writing skills equivalent at least to the advanced level of the ACTFL Proficiency Guidelines: the student will be able to write about a variety of topics with significant precision and detail, and to produce organized compositions and short research papers.

Outcome 2. Possess Spanish listening and speaking skills equivalent at least to the advanced level of the ACTFL Proficiency Guidelines: Understand the main ideas of most

speech in a standard dialect and use oral Spanish to speak about a variety of everyday activities, school, and work situations, but also to support opinions, explain in detail and hypothesize. Students demonstrate in class discussions and oral presentations their ability to use Spanish in academic and professional settings.

Outcome 3. Demonstrate on reading reviews, comprehension exercises, exams, and compositions reading skills equivalent at least to the advanced level of the ACTFL Proficiency Guidelines: Understand parts of texts which are conceptually abstract and linguistically complex; demonstrate awareness of the aesthetic properties of language and of its literary styles, which permits comprehension of a wider variety of texts, including literary texts.

Outcome 4. Be able to identify on class assignments, class discussions, research papers, and exams the linguistic and pragmatic components of the Spanish language.

Outcome 5. Demonstrate in their oral presentations, compositions, research papers and other class assignments a reasonable knowledge of the ways of thinking, behavioral practices, and the cultural products of the Spanish-speaking world.

Since not all students who take upper-division Spanish and Spanish and Latin American literature pursue a minor in Spanish, the Program Learning Outcomes will not be published in the course syllabi. The Spanish minor Program Learning Outcomes will be published in the University's catalogue and will be also placed on the School of Social Sciences, Humanities and Arts website.

3. *Evidence, Process and Participants*

- **Year 1** (2008-09): Outcome 1

Direct evidence: Portfolio. Students will gather examples of the written assignments they completed in the last course they took as part of their Spanish minor. A faculty committee will collect and evaluate them using a rubric describing criteria and standards based on ACTFL expectations.

Indirect evidence: Student self-assessment. Students will write a reflective essay on how the courses they took to complete the Spanish minor contributed to the development of their skills as writers. A faculty committee will collect and interpret them.

- **Year 2** (2009-10). Outcome 2

Direct evidence: Observation of student's oral presentations. A faculty committee will attend the oral presentation of students completing their last course of the minor. In other instances, when students grant permission, oral presentations will be recorded and posted on the Spanish Minor's UCMCROPS site, which will facilitate faculty participation on the assessment process. Oral presentations will be evaluated using a rubric describing criteria and standards.

Indirect evidence: Exit interviews. Some members of the faculty will interview students that have just finished their minor in Spanish and ask them to reflect on their development of oral and listening skills during the completion of their minor. When students grant permission, interviews will be taped and posted on the Spanish Minor's UCMCROPS site, which will facilitate faculty participation on the assessment process.

- **Year 3** (2010-11). Outcome 3

Direct evidence: Portfolio. Students completing the last course of the minor will prepare a portfolio with those course assignments that show his/her abilities analyzing and understanding Spanish written texts. A faculty committee will collect and evaluate them using a rubric describing criteria and standards based in ACTFL expectations.

Indirect evidence: Student self-assessment. Students that have completed the minor in Spanish will write a reflective essay on how the work they carried out during the completion of the minor contributed to their reading skills in Spanish. Some members of the faculty will collect and interpret them.

- **Year 4** (2011-12) Outcome 4

Direct evidence: Research project. Students taking their last course for the Spanish minor will be asked to analyze a text from a linguistic perspective. A faculty committee will collect and evaluate them using a rubric describing criteria and standards based on appropriate use of linguistic terminology, correct explanations of word morphological function, etc.

Indirect evidence: Exit Interviews. Faculty will interview students that completed the Spanish minor and ask them to reflect on their understanding of Spanish language structure and pragmatic component.

- **Year 5** (2012-13) Outcome 5

Direct evidence: Portfolio. Students completing their last course for the Spanish minor will prepare a portfolio with the class assignments and projects that demonstrates their general knowledge of the ways of thinking, behavioral practices, and the cultural

products of the Spanish-speaking world. A faculty committee will collect and evaluate them.

Indirect evidence: Student self-assessment. Students that completed their minor in Spanish will write a reflective essay on how the courses they took as part of the Spanish minor contributed to their understanding of Hispanic cultures. A faculty committee will collect and interpret them.

The assessment of the minor in Spanish will be based on the work of all students taking their last course for minor. However, as the number of students taking a minor in Spanish rises, a certain number of students will be selected at random.

4. *Self-evaluation*

Part A. Comprehensive List.

The minor in Spanish PLOs are best described as "Developed" in the WASC rubric. The Faculty Accreditation Report submitted by the minor in Spanish on January 30, 2009, made clear its consideration of institution-wide outcomes and national disciplinary standards. The PLOs fall short of a "Highly Developed" rating because they probably do not meet the standards for such a rating that says "Faculty have agreed upon explicit criteria for assessing student's level of mastery of each outcome." However, it is unlikely the faculty could take this step until the methods for assessing each PLO have been finalized.

Part B. Assessable outcomes

The minor in Spanish PLOs are probably at the "Developed" level. Each outcome describes how students can demonstrate learning. The PLOs fall short of a "Highly

Developed" rating because they probably do not meet the standards for such a rating that says "Faculty have agreed on explicit criteria statements such as rubrics, and have identified examples of students performance at varying levels for each outcome." This statement is true for the PLOs assessed during the first and second year, however it is unlikely the faculty could take this step until the assessment for each PLO have been finalized.

Part C. Alignment

The minor in Spanish PLOs are probably at the "Highly Developed" level. Pedagogy, grading, the curriculum, relevant student support services and curriculum are explicitly and intentionally aligned with each outcome.

Part D. Assessment Planning

The minor in Spanish PLOs are probably at the "Developed" level. The program has a reasonable multi-year assessment plan that identifies when each outcome will be assessed. However, the plan does not include at the moment how improvement based on findings will be implemented.

Part E. The Student Experience

The minor in Spanish PLOs are probably at the "Emerging" level. As it is the case for other minors, the minor in Spanish's PLOs have not been published in the UC Merced catalog, but they are published in the School of Social Sciences, Humanities and Arts web site (http://ssha.ucmerced.edu). The faculty should develop additional ways of ensuring student awareness of the PLOs. Students have not participated in the creation of use of rubrics, however they are aware of the assessment process and they have been enthusiastically participating on it.

III. Alignment of Institutional and Program Goals/Outcomes

1. *Program and Institutional Goals/Outcomes*

Scientific literacy: Some of the courses that UC Merced students can take as part of their minor in Spanish have as a goal the study of scientific information related to linguistic and literary theory. In addition, they include content related to, for example, health sciences. Finally, technology is used in all courses as a teaching and learning tool.

Decision-making: The study of linguistics, vocabulary, and culture is a necessary tool in order to adequately create messages and interpret them in Spanish. It does require students to carry out critical analysis and problem-solving by the mere fact that they are processing and developing ideas in a foreign language.

Communication: All courses that count for the minor in Spanish have strong writing and speaking components. While students may use a less formal Spanish in class discussions, they are required to use academic Spanish in oral presentations and when writing research papers and compositions.

Self and Society: It is obvious that studying a foreign language is a necessary tool to understand and value our ethnically and culturally diverse world. In the Spanish and Literature courses that contribute to the minor in Spanish, students compare and contrast their own values, behaviors and worldviews with those of Hispanic communities and others around the world.

Ethics and Responsibility: Since practice and feedback are essential in the process of second language acquisition, most courses conducted in Spanish require attendance to class, as well as daily homework and regular participation. For this reason, our classes help students to develop their sense of responsibility and work ethic which will be helpful to them in their professional careers. Moreover, our courses require students to conduct research and to present the results of their research following professional guidelines and standards (involving, once more, ethics). Finally, some of our courses provide students with the opportunity to conduct service learning projects with community organizations.

Leadership and Teamwork: Cooperative learning is practiced in most of the courses that count for the minor in Spanish through class discussions and debates, peer revision of written work, group oral presentations, etc.

Aesthetic Understanding and Creativity: Studying Spanish provides students with many opportunities to appreciate human expression in a broader perspective. Most of our courses discuss literature and the arts in which students gain an understanding and appreciation of the human creative expression, and they become familiar with foreign writers and artists and their works.

Development of Personal Potential: Being able to communicate in a foreign language leads students to develop their potential in all areas, including academically and personally. Furthermore, to be a business man/woman, a policy maker, a scholar, a travel agent, or to pursue almost any other career in the 21st century, a foreign language is the key to success. Knowledge of a foreign language will provide students with more professional options. In the Spanish and Literature courses that students can take as part

of their minor, the ultimate goal is to impart knowledge and to prepare students to be successful in their quest for life-long learning and their chosen careers, while broadening their knowledge and understanding of other cultures.

Table I: Curriculum Map representing the alignment between the minor in Spanish Learning Outcomes and the Eight Guiding Principles of General Education.

PLOs	Scientific Literacy	Decision Making	Communication	Self & Society	Ethics & Responsibility	Leadership & Teamwork	Aesthetic Understanding Creativity	Development of Personal Potential
1		x	x	x	x	x	x	x
2	x	x	x	x		x	x	x
3		x	x	x		x	x	x
4	x	x	x	x		x	x	x
5		x	x	x	x	x	x	x

2. *Program and School Goals*

The educational mission of the School of Social Sciences, Humanities, and Arts is to create a rich learning environment by looking at people and society from a variety of disciplinary perspectives. The minor in Spanish complements adequately SSHA's identity because it emphasizes communication and the study of Hispanic cultures from an interdisciplinary perspective. In addition, it provides the students with the opportunity to carry out research not only in the creative expression of Hispanic communities

throughout the world, but also in historical and social issues relevant to those communities.

3. *Program and Course Learning Outcomes*

Table II: The following Curriculum Map illustrates the relationship between Program Learning Outcomes and program courses.

I=Introduction, D=Develop, M=Mastery at a level appropriate for graduation from the minor program.

Course	Outcomes				
	1	2	3	4	5
Lit 50	D	I	I	I	I
Lit 51	D	I	I	I	I
Lit 61	Varies by course/content				
Lit 63	Varies by course/content				
Lit 151	M	M	D,M	D	M
Lit 152	M	M	D,M	D	M
Lit 153	M	M	D,M	D	M
Lit 155	M	M	D,M	D	M
Lit 156	M	M	D,M	D	M
Lit 157	M	M	D,M	D	M
Lit 158	M	M	D,M	D	M
Lit 159	M	M	D,M	D	M
Lit 168	Varies by course/content				
Lit 169	Varies by course/content				
SPAN 103	I	D	I	D	I
SPAN 105	D	D	D	I	D
SPAN 106	M	D-M	M	I	M
SPAN 110	D	M	D	M	D
SPAN 141	M	D-M	D-M	D	M
SPAN 142	M	D-M	D-M	D	M
SPAN 180	M	D-M	D-M	D	M

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Part A: Program and Institutional Goals & Outcomes

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SECTION I: PROGRAM DESCRIPTION

The American Studies minor at UC Merced will build on the traditional understanding of an American Studies program as an interdisciplinary field of study that promotes a broad humanistic understanding of American culture, past and present. By incorporating economics, history, literature, sociology, art history, anthropology, ethnic studies, and public policy (among other areas), this traditional model encourages students and faculty within those fields to exchange ideas on scholarship as it relates to the American experience. Additionally, however, the UC Merced American Studies minor seeks to move beyond traditional limitations of American Studies, by allowing students to take relevant courses in engineering or the natural sciences. Inclusion of these courses is based on the rationale that cultural practices often stem from our understanding of and research in those sciences. Both the mission of the minor, and the individual classes within it, will benefit from the exchange of ideas not simply across fields, but across schools on campus. Thus, one of the minor's primary goals is to encourage and promote a rich exchange of ideas within the classroom, asking students from a variety of majors not generally placed with each other, to question, challenge, and learn from each other.

The nascent minor will, over time, develop into a truly interdisciplinary field of study, with a roster of courses in areas as diverse as medical ethics, western hydrology, and landscape history that, when put together with courses in race, gender, and ethnicity, will enrich students' understanding of American life in profound ways. In so doing, it will draw on the unique current expertise of many of UC Merced's faculty and their ongoing

research. Because it is open to students in all schools, it will encourage a wider understanding of a students' chosen field and offer to students the ability to present themselves professionally in ways they could not otherwise do. Thus, a second, equally important goal is to offer to students whose degree may require from them a narrow field of course work, the opportunity to take from the university and into their chosen field an understanding of ideas and concepts not required of the field, but that will add substantially to their ongoing professional, and personal, citizenship.

For students majoring in a school other than SSHA, the minor will therefore offer crucial and critical ways of reassessing their own field. For SSHA majors outside of the World Cultures and History degree, the minor will allow them to see coherently how their coursework relates to other areas of study within the school. And finally, for students in World Cultures and History emphasis, the minor will complement the bold and global reach of both the literature and history emphasis, by asking students to look at America as both a locus of study itself, and as a specific player in the international scene.

Requirements:

HIST 16 or 17 or LIT 30 or 31

One upper division American history course.

One upper division American literature course.

One non-HIST/LIT course on American topics**.**

- ANTH 135: Archaeology of Native California

- ANTH 130: Archaeology of Colonialism
- ARTS 120: American Music of the 20th Century
- GASP 175: Race and Nationalism in American Art
- NSED 120: Diversity in Education
- POLI 102: Judicial Politics
- POLI 110: Government Power and the Constitution
- SOC 110: Social Movement, Protest and Collective Action
- SOC 131: Urban Inequality
- SOC 180: Topics in Sociology (Summer 2008 Offering Only)
- SOC 185: Topics in Sociology (Fall 2008 Offering Only)

One course in American ethnicity, race or gender, either from HIST, LIT or another area.

- ANTH 110 (Anthropology of transnationalism)
- HIST 124: African American History from Slavery to Civil Rights
- HIST 133 (Topics in the History of Migration and Immigration)
- LIT 120 (Topics in the Literature of Difference)
- LIT 169 (U.S. Latino Literature)
- SCS 145 (Second Language Learning and Bilingualism)

SECTION II: Assessment Plan

Part A: Timeline & Goals

Currently, the minor has four students. This is too far below a critical mass to enable effective assessment. Moreover, the expansion of the faculty requires us to identify and convene an American Studies Faculty, who will then develop an enrollment plan as well as elaborate learning outcomes and an assessment plan. We will meet in the Spring of 2009 to develop these plans.

SECTION III: Alignment of Institutional and Program Goals/Outcomes

1. Part A: Program and Institutional Goals & Outcomes

The interdisciplinary nature of American Studies is perfectly congruent with the institutional drive to support interdisciplinary thinking and problem solving at all levels of instruction and research. The minor also mirrors the Eight guiding principles of general education, enabling students to integrate all aspects of their education around a single area of inquiry.

2. Part B: Program and School Goals. n/a

3. Part C: Program and Course Learning Outcomes. Pending.