Faculty Accreditation Report

Anthropology Major* and Minor

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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

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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

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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.

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Part A: Timeline and Goals

The Anthropology minor was launched in Fall 2007 and the major was launched in Fall 2008. Thus, the number of Anthropology majors (n=4) and minors (n=12) is currently small, although this is expected to grow steadily 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 will use the next three years to put in place an assessment plan 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 Year 2, Year 1 will focus on developing appropriate course and program assessment tools, while these tools will be applied, assessed, and, as necessary, revised in subsequent years.

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

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- 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).

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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

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- 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

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        - 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.
- *Student Portfolios*: the faculty assessment of individual student portfolios will be evaluated as a whole and an average score will be given for each representative learning outcome.
- *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

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program goals and assessment plans.

- A centralized electronic repository will be 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: Faculty will review 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 are appropriate to our program. A central electronic repository of course syllabi and documents relating to learning objectives and program assessment has been created to facilitate both faculty review and collaboration in integrating learning goals and objectives.

- Faculty will develop a specific assessment rubric(s) for courses that will serve as a direct measure of whether or not our Learning Objectives are being met.
- Faculty will develop the critical reflection prompts that will guide graduating student's review and written critical reflection of own portfolio (see below), this portfolio narrative to be included in all portfolios submitted to Anthropology faculty for review beginning year 2.
- Faculty will develop a standardized form that will be used in reviewing graduating students' portfolios (see below) for considering the adequacy of the portfolio to demonstrate achievement of each Learning Outcome.
- Faculty will develop an exit survey for graduating majors and minors. 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.

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Year 2: 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 apply a specific assessment rubric(s) to courses being taught.
- Graduating students majoring or minoring 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.
- All new majors will be required to assemble an electronic portfolio composed of materials from coursework completed in the Anthropology program. The portfolio will be a direct measure of student's achievement of Learning Outcomes. Items in the portfolio will include written materials that represent coursework in the three sub-fields: archaeological anthropology, biological anthropology, and socio-cultural anthropology and may include term papers, exams, evidence of research, essays, annotated bibliographies, and multimedia presentations. Students may consult with faculty to ensure that the written materials included in the portfolio have the potential to demonstrate achievement of the Learning Outcomes. Students will be asked to reflect upon their accumulated portfolio and respond in writing to prompts provided by faculty in a portfolio narrative aimed at eliciting reflection on student achievement of Learning Outcomes. The portfolios will be submitted at the end of the senior year and evaluated by at least two faculty members in the Anthropology program for evidence of Learning Outcomes. Faculty members reviewing portfolios will collect data on a standardized form that considers the adequacy of the portfolio to demonstrate each Learning Outcome.

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Year 3: All majors will be required to assemble an electronic portfolio composed of materials from course work completed in the Anthropology program as described above. The portfolios, including a written portfolio narrative, will be submitted at the end of the senior year and evaluated by at least two members of the faculty in the Anthropology program for evidence of achieving Learning Outcomes.

- 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 or minors have entered a graduate program or a career. If employed, graduates will be asked whether their education as an anthropology major or minor is of value in their current position and how; whether the study of anthropology 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, graduating senior portfolios, and exit 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.

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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.

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.

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 Guieing 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

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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.

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

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

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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

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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.

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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
146	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

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172	D	D	M	D	M	D, M
174	D, M	D, M		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

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1.0 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.

2.0 Assessment Plan

2.1 Timeline & Goals

Through a five-year assessment schedule, data gathered will determine the degree to which students achieve the desired 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 Midterm and Final 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 exam question will be assessed using the rubric agreed upon by the applied mathematics faculty appropriate for each level.

- **Capstone Course. By fall 2012, we will have developed the Capstone course in applied mathematics.** This course will serve several functions. One such function is to provide a unique experience for the major students and present them with 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

industry. Other functions include avenues to assess the program through projects, presentations, and research.

- **Senior Exit Survey. Using the graduating senior survey administered through Alumni and Career Services, data** gathered will provide 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 PLO 1: Embedded exam questions in Math 22, Math 24, and Math 131 will be identified

and assessment rubrics will be created, senior exit survey data gathered, alumni surveys administered.

- 2010-2011 Academic Year – Develop and implement measures to assess PLO 2: Embedded exam questions in Math 22, Math 131, and Math 132, senior and alumni surveys.

- 2011-2012 Academic Year – Develop and implement measures to assess PLO 3: Embedded exam questions in Math 32 and Math 131, senior and alumni surveys.

- 2012-2013 Academic Year – Develop and implement measures to assess PLO 4: Capstone course, embedded exam questions in Math 24, senior and alumni surveys.

- 2013-2014 Academic Year – Develop and implement measures to assess PLO 5: Capstone course, senior and alumni surveys.

2.5 Participants

The Mathematics Coordinator will compile senior exit and alumni survey responses and collect embedded exam questions of applied math majors for faculty review. All applied math faculty will be included in the interpretation of evidence through a series of three 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.

3.0 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.

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

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

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Section II: 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. Most of the assessment will be carried out by the Curriculum Assessment Subcommittee, which has been formed for this purpose and is a three-member panel composed of members of the Life Sciences Curriculum Committee. The following five sections (Parts A through E) will detail our proposed Assessment Plan.

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 report prepared regarding the achievement of that PLO in relation to the overall state of the Biology major. 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. 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.

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 at the level of the whole organism to sustain life in 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 at the level of the whole organism to sustain life in functioning ecosystems.

This PLO is quite broad and will be assessed by using embedded questions on exams in several Biology courses. The Curriculum Assessment Subcommittee that prepares the assessment of this PLO will issue a call for exam questions to the general 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 the following upper division courses, which in aggregate will include students from every emphasis track:

BIO 110 ("The Cell")

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 Curriculum Subcommittee will assess the success of the students both on an individual level as well as on the level of the whole group. The Subcommittee 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 course stand out in either a negative or positive way? Is there general, overall success by the students in answering these prepared questions?

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 when possible break down the results by sub-discipline and/or emphasis track 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.

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. It will be assessed by the Curriculum Assessment Subcommittee using several methods. The first method will be embedded exam questions that have been prepared by the Subcommittee in conjunction with the whole Biology faculty. 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 Subcommittee 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 are BIO 101 (“Biochemistry”), BIO 120 (“Microbiology”), BIO 150 “Genes and Development”, and others at the Subcommittee’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 Subcommittee for evaluation.

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 Curriculum Assessment Subcommittee. The committee will choose at least one lab from each 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”). The labs will be carefully chosen to include a wide variety of instrumentation and skills, including computational skills. The Assessment Subcommittee 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 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 Assessment Subcommittee, possibly in conjunction with the professors of the course who may have collaborated with the subcommittee 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).

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 Assessment Subcommittee 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 Subcommittee 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. <u>The PLOs will be assessed by a standing subcommittee, composed of three of the six members of the Life Sciences Curriculum</u>

committee. This committee will be referred to as the Curriculum Assessment Subcommittee, and the Subcommittee 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 Subcommittee 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 Subcommittee will issue a call for exam questions for embedded questions, and will help formulate the rubric used in the assessment of the student answers. The Subcommittee 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 take place over the course of both the Fall and Spring semesters. The professors will grade the embedded questions normally, but provide a photocopy of student solutions to the Curriculum Assessment Subcommittee. At some point in the Spring semester, the Subcommittee will analyze the results of the embedded questions, 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 Curriculum Assessment Subcommittee will work closely with the professors of lab courses and the lab instructors to develop the items that will be turned over to the Subcommittee for analysis.

Finally, the Curriculum Assessment Subcommittee will prepare their annual Assessment Report for the year's PLO(s). 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. When possible, 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 Curriculum Assessment Subcommittee 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 Curriculum Assessment Subcommittee (a subcommittee of the Life Sciences Curriculum Committee), that has been assembled for this role. The membership on this Subcommittee will rotate so that there is some continuity from year to year, but no individual faculty member will serve more than two consecutive years. These three 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.)

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.

<u>Program Learning Outcomes for Biological Sciences (Same as above)</u>

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 at the level of the whole organism to sustain life in 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 Contemporary Biology	**X**	**X**	**X**	**X**	**X**
100 Molecular Machinery of Life	**X**	**X**	**X**	**X**	**X**
101 Biochemistry	**X**	**X**		**X**	
102 Advanced Biochemistry	**X**	**X**	**X**	**X**	**X**
110 The Cell	**X**	**X**	**X**	**X**	**X**
120 & 120L General Microbiology & Lab	**X**	**X**	**X**	**X**	**X**
124 Microbial Evolution	**X**	**X**	**X**		
127 General Virology	**X**	**X**	**X**		
140 Genetics	**X**	**X**	**X**	**X**	
141 Evolution	**X**	**X**	**X**		
142 Genome Biology	**X**	**X**	**X**		
143 Biodiversity & Tree of Life	**X**	**X**	**X**		
144 & 144L Phylogenetics & Lab	**X**	**X**	**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		
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 Mathematical Modeling for Bio	X	X	X	X	
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					
100 Molecular Machinery of Life	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					
100 Molecular Machinery of Life	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					
100 Molecular Machinery of Life	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					
100 Molecular Machinery of Life	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	
050 Human Development	X			X	
051 Cancer & Aging	X			X	
060 Nutrition	X	X		X	

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

002 Intro to Molecular Bio	X				
003 Molecular Basis of Health & Dis	X				
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		
111 Cells, Tissues & Organs	X	X	X		
122 Microbial Pathogenesis	X	X	X		
123 Human Parasitology	X	X	X		
125 Emerging Public Health Threats	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		
153 Evolution & Development	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		

CHEMICAL SCIENCES B.S. PROGRAM

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. Should our number of majors grow much more quickly than our number of faculty, however, we may need to revisit this requirement.

[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 are scheduled to graduate 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 will be 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

For example, we will collect evidence concerning outcome 1 at the end of spring semester and the beginning of summer of the current academic year. That evidence will be evaluated during summer and fall of next academic year, and the chemistry faculty will meet sometime during fall semester to decide what modifications in the program, if any, should be made. These modifications 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.

B. Programmatic learning outcomes

Our programmatic 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 Programmatic 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 syllabuses, will be posted to the School of

Natural Sciences web site (http://naturalsciences.ucmerced.edu/ , Undergraduate Studies) and will be updated as appropriate.

C. Evidence

Achievement of program learning outcomes will be assessed through four types of evidence: specific questions embedded in final exams in upper-division lecture courses, review of submitted laboratory reports from upper-division laboratory courses, review of student research reports from CHEM 195 courses, and an exit questionnaire given to graduating seniors.

Outcome 1 (fundamental knowledge and skills) will be assessed mainly through performance on specific questions on final exams in upper-division lecture courses required of all Chemical Sciences majors: CHEM 100 (Organic Synthesis and Mechanism), CHEM 111 (Biochemistry I), CHEM 112 (Quantum Chemistry and Spectroscopy), CHEM 113 (Chemical Thermodynamics and Kinetics), CHEM 115 (Instrumental Analysis and Bioanalytical Chemistry), and CHEM 120 (Inorganic Chemistry). From each final exam written by the course instructor, at least two questions on the final exam will be selected as assessment questions. Responses to the questions will be evaluated by the instructor and a second faculty member. An assessment ranking of excellent, good, fair, or poor will be assigned to performance on these questions independent of overall student performance and course grade. Only the exams from declared Chemical Sciences majors will be used unless there are fewer than ten majors in the course, in which case a random selection of other exams will be used to bring the total number of assessed exams to ten.

Laboratory reports from CHEM 101L (Advanced Synthetic Laboratory) and CHEM 114L (Physical Chemistry and Instrumental Analysis Laboratory) will be evaluated for partial assessment of outcomes 1, 2, and 3. Two reports from each course will be selected as assessment reports. 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 three objectives. For each report, the work

of five Chemical Sciences majors, selected at random, will be assessed; if there are fewer than five Chemical Sciences majors in the course, the work of all of the majors will be used. Written reports from CHEM 195 (Undergraduate Research) will also be evaluated for partial assessment of these first three outcomes. Of all of the Chemical Sciences majors taking CHEM 195 each semester, five will be selected at random and their semester-end reports will be read and scored as excellent, good, fair, or poor in each of the two outcomes by a faculty member other than the research advisor.

Finally, all graduating seniors will be asked to complete an online exit survey which will used in partial evaluation of the first three learning outcomes and as the sole method of evaluating the fourth. The survey will ask students about their career plans (employment, graduate or professional schools); their GRE, MCAT, or other test scores (a useful objective measure of learning outcome #1, particularly for those students who elect to take the GRE chemistry subject test); and questions designed to probe attitudes related to ethics and citizenship. Details of the survey are still under development.

We are aware that the above metrics do not allow direct assessment of oral communication skills or of teamwork. A possible approach to assessing oral communication is to require that all students taking CHEM 195 participate in a year-end poster session. They would prepare posters based on their research under the guidance of their faculty mentors, and present them for evaluation by the group faculty. Teamwork could be evaluated by the students' research mentors and/or by the teaching assistants or faculty supervising the students in the advanced laboratory courses where some work is done collaboratively. These options are still under discussion.

D. Process

Collection of evidence will be performed each semester (for evidence based on student work) and at the end of each academic year (the exit survey). Assessment and action on each outcome

will be performed on a four-year cycle, one outcome per year. 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. Also, by focusing on one learning outcome at a time, more attention can be paid to each important element of the program.

E. Participants

Collection and analysis of direct evidence (based on final exam questions and laboratory and research reports) will be carried out by the chemistry program faculty each semester as part of the normal administration of our courses. As the evaluation of evidence described in part C requires input from other faculty besides the one teaching the course, School of Natural Sciences staff may be tasked with photocopying exams and reports to allow later evaluation by other faculty. The online exit survey will be written by the chemistry program faculty and administered at the end of each academic year by either School of Natural Sciences staff or our Office of Institutional Planning and Analysis.

The chemistry 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 adding or deleting courses from the curriculum, changing course content, sequence, or prerequisites, or changing the instructors assigned to particular courses. 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.

The Associate Dean of Natural Sciences, in consultation with the program faculty in each discipline, will be responsible for publicizing course syllabuses, programmatic learning outcomes, and information about assessment. The School of 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 (see http://naturalsciences.ucmerced.edu/, Undergraduate Studies).

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 programmatic learning outcomes and the eight guiding principles:

GE 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
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

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 programmatic 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 2009 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, not listed in this table.

CHEM course	Fundamental knowledge and skills	Scientific methodology	Communi-cation and teamwork skills	Citizenship, ethics, role of chemistry in society
1 (Prep chem)	I			
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

The emphasis of the program is on the fundamental knowledge and skills that are specific to the discipline. All of our chemistry courses 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 courses and courses with a laboratory component. Citizenship and ethics are addressed occasionally in all of our courses and more often in laboratory-based courses, but we recognize that our program as it stands is lacking in this area. We are discussing adding a required undergraduate seminar course that will more directly address these issues.

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, Steve Nicholson, and Miguel Carreira-Perpinan.

UC Merced offers an undergraduate minor and major (both B.A. and B.S.) 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, Yoshimi), distributed cognition (Maglio), dynamics and complex systems (Kello, Spivey, Yoshimi).

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:

Upon graduation, students majoring in Cognitive Science will be able to:

1) Explain and apply knowledge of landmark findings and theories in cognitive science. Evidence will be collected in the form of embedded test questions in COGS 1.

2) Design, interpret, and evaluate simple behavioral and neuroscientific experiments. Evidence will be collected in the form of a written lab project completed for COGS 105.

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 (e.g. COGS 123).

4) Argue for or against theoretical positions in cognitive science. Evidence will be collected in the form of an essay from one of the writing-intensive cognitive science courses (e.g., PHIL/COGS 110, COGS 101).

5) Use a cognitive science education outside of the undergraduate classroom, particularly in the service of careers. 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).

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 university" because undergraduates (as well as graduate students) have the opportunity to work closely with faculty on 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, and these questions are addressed in some cognitive science courses.

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".

<u>Part B: Program & School Goals</u>

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
105: Research methods for cognitive scientists	I	D	D	I	D
110: Philosophy of cognitive science	D	D	D	D	D
121: Cognitive psychology	M	M	I	D	D
123: Computational cognitive neuroscience	D	D	M	D	D
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	D	M	D
154: Cognitive science applications for management	D	D	D	D	M
155: Language acquisition	D	D	I	D	D
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 6, 2009

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 2009-10 academic year. Evidence will be gathered through Fall 2010 and an ABET Self-Evaluation Report will be prepared using data from 3 semesters. We anticipate and ABET site visit for formal evaluation in late spring 2011.

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.

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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
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

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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

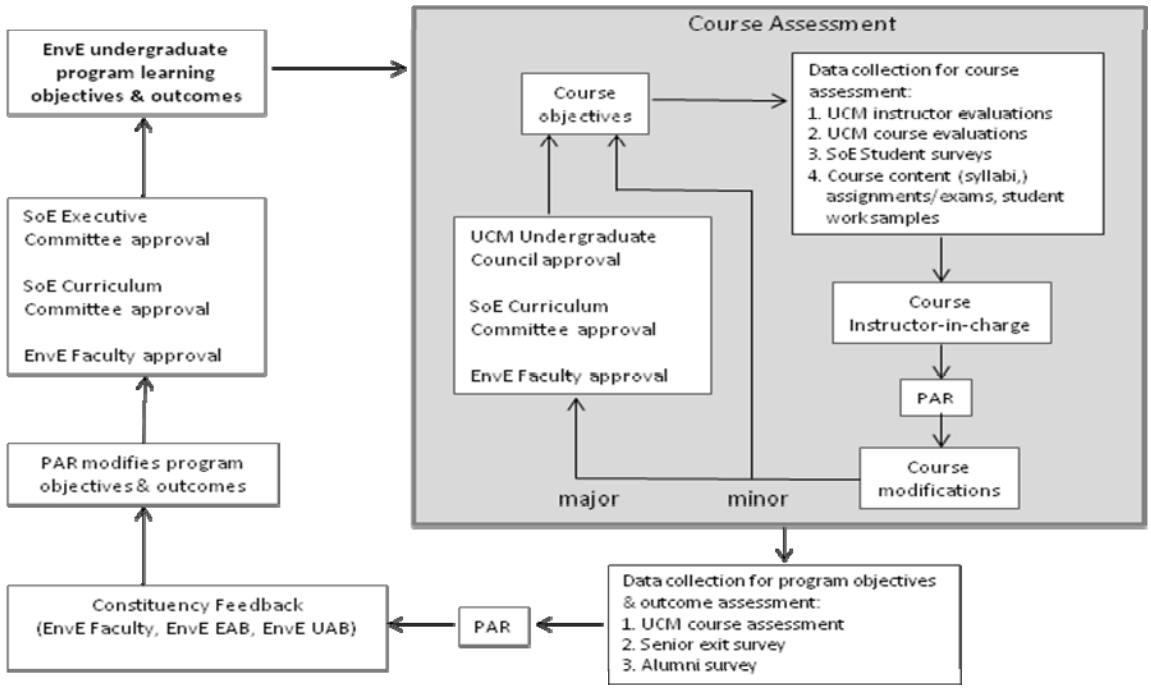

Figure C.1 – Diagram of the EnvE Program assessment process for UC Merced School of Engineering (shaded box is course-level assessment, set within the program assessment; PAR is Program Assessment Representative).

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), 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. 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 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

FACULTY ACCREDITATION REPORT

History Program

University of California, Merced

January 30, 2009

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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.

Among the distinctive features of our history program is a required course, History 190, which is an internship course. Not only does this course allow students to apply their study of history to “real world” matters, but it also provides them the

opportunity to collaborate with fellow students. For example, in Fall semester 2008, one group of students, for their internship, put together an exhibit which is currently on display at the UC Merced Library, devoted to the holocaust. Students prepared a video, obtained all the objects and artifacts, and wrote the text for the exhibit. They were interviewed by the media and gave students and faculty tours of the exhibit. Those students who were interested in possible future careers in museum work, documentary production, or historical preservation were able to determine whether or not they would want to pursue that interest upon graduation.

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.

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
190	M	M	M	M	M
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 Accreditation Report – Literature and Cultures

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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.

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

[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.

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.

SECTION II: ASSESSMENT PLAN – MAJOR MINOR

Part A: Timeline & Goals

Spring 2009—develop infrastructure for electronic portfolios

Fall 2009—begin having all majors and minors establish and maintain electronic portfolios.

May 2010 and every year thereafter—assess our five outcomes in order, according to rubrics.

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 an 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 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, looking at a series of artifacts, including at least two essays from lower-division courses, two essays from upper-division courses, 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 to 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 changes in diction and usage over time; and awareness of the "conversation(s)" a piece of literature engages. Our rubric will be based on the Dreyfus & Dreyfus model of skill acquisition.

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[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.

- 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*.

- Judge the 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.

We will use holistic grading, evaluating on a scale of 1-5 (5=highest) each piece of writing or each speech according to how well it 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/speech 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).). Our rubric will be based on the Dreyfus & Dreyfus model of skill acquisition.

Part F: Minor

Outcomes are the same, though expectations for achievement will be lower. The assessment process will be the same and will take place concurrently.

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.

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 survey	
One paper from LIT 100	
One paper from an upper division seminar	
Senior thesis	
One paper from a course that satisfies the breadth requirement	
At least three other artifacts of the your choice. While these must come from LIT courses, they do not have to be papers. Video or audio tapes of oral presentations, conference posters, creative work, or anything else that you wish to represent your work and your growth here at UC Merced is welcome.	

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	

Physics Faculty Accreditation Report

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

2008-09 Academic year. During the summer of 2009 the Physics faculty will hold a retreat to assess the Physical Principles PLO by examining student final exams from the core physics courses. This process will include the development of an assessment rubric. 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. This retreat will also be a convenient time to assess the curriculum for overall consistency and sequencing of course material across the core physics curriculum.

The following is a tentative future projection of programmatic reviews.

2009-2010 Academic year. During the summer of 2010 the faculty will assess the Mathematical Expertise PLO

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.

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.

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

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
3	X	X						X
4			X	X		X		X
5	X	X		X	X		X	X

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.

Part C: Program and Course (Student) Learning Outcomes

The course alignment matrix below shows where each PLO is addressed in 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 112	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 Assessment Plan

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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 for the Spring Semester 2009 should have PLOs (Program Learning Outcomes) and SLOs (Student Learning Outcomes) in place. At the end of the Spring Semester 2009, we intend to collect evidence of student learning to initiate assessment of the first PLO. By the end of the Fall Semester 2009, we should complete the assessment of the first PLO and consider how to utilize this information to improve the program and the assessment plan. Assessment of the second PLO will then be initiated in Spring 2010.

B. Outline of Program Learning Outcomes (PLOs)

We expect graduates from the Political Science B.A. program to demonstrate:

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.

2. An ability to employ critical thinking and demonstrate social scientific literacy, including basic quantitative literacy.

3. A capacity to utilize contemporary social science research methods to conduct rigorous research on political phenomena.

4. Effective written communication skills, especially the ability to convey complex concepts and information in a clear and concise manner.

5. An ability to apply abstract theory and research methods to understand contemporary political events and public policies.

These PLOs will be published on UC Merced's Political Science webpage (polisci.ucmerced.edu) and on all Political Science syllabi by the beginning of the Spring Semester 2009.

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.

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: Random sample of student research papers written in upper division classes that have a research component (e.g., POLI 102 (Judicial Politics)).

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 #1

Instructors for select upper division classes taught Spring 2009 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 2009. There will be a subsequent faculty discussion of the results and possible modifications to the program.

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 random 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.

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.

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 #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. 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. PLO #4 (effective written communication skills, especially the ability to convey complex concepts and information in a clear and concise manner) 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.

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

Course	1	2	3	4	5
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.

Faculty Accreditation Report

Psychological Sciences Section of the School of Social Sciences, Humanities and Arts

Undergraduate Psychology Major and Minor

January 30, 2008

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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 (2006 n = 36; 2007 n = 219; 2008 n = 328; <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 ten upper division courses in the major in Fall 2008, and will offer the same number of 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 three part-time lecturers who each teach 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. Within this major, however, we offer 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>.

We have not yet had a full graduating class of Psychology majors, so cannot provide data about how many go on to further graduate or professional training. However, several students who have worked in our labs have gone on to graduate training, or are in the process of applying. In many of our classes, we emphasize the value of such training, and inform undergraduates of the requirements they would have to meet to pursue such training.

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, we have developed a tentative assessment plan. However, this plan should be considered a living document, one that will change over time in many ways 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 (e.g., initial assessments in May 2009), 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 the following three PLOs for the undergraduate Psychology major.

1. Content: Students who complete the major will show knowledge of the key substantive content of the field of psychology.
2. Research Methods: Students who complete the major will demonstrate that they understand the basic principles of and correctly interpret applications of both the designs and methods that psychologists use to gather data and the statistical analyses they use to analyze 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. Writing: Students who complete the major will 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 three 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 will be published in the UC Merced General Catalog under the Psychology major for the 2009-2010 catalog.

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: Students who complete the major will show knowledge of the key substantive content of the field of 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)

[2] See http://www.ets.org/portal/site/ets/menuitem.1488512ecfd5b8849a77b13bc3921509/?vgnextoid=f349af5e44df4010VgnVCM10000022f95190RCRD&vgnextchannel=eddc144e50bd2110VgnVCM10000022f95190RCRD. $25 per test online.

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), 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.

2. Research Methods: Students who complete the major will demonstrate that they understand and correctly interpret both the designs and methods that

psychologists use to gather data and the statistical analyses they use to analyze data.

c. 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.

d. 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.

3. Writing: Students who complete the major will show that they understand the writing style used in psychological literature (APA style).

   e. 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.

   f. 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.

g. 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.

These data will be gathered and analyzed in conjunction with the Institutional Planning and Analysis office of UC Merced. That office gathers all the sources of indirect evidence cited above, and it has offered to provide resources to gather the direct evidence above. The Psychological Sciences faculty will develop specific questions to be answered by those analyses. As we develop a working relationship with that office on this matter, 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, and PLO #3 for 2010-2011. All graduating Psychology majors would be required to take the test as a condition of graduation. Assessments would be completed at the end of each semester of each academic year, with subsequent analyses and interpretations done in the six months following that. However, we have not engaged in this assessment process before, and have little idea about the logistical and resource constraints that would affect the desired schedule of assessment. Hence the exact schedule will need to 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 the Institutional Planning and Analysis office of UC Merced. Analysis will take place in that office 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.

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. For each principle below, we outline these interfaces.

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 and #2 both 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. Though none of the current psychology undergraduate courses directly address this principle, 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, 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 as our first class graduates in May 2009; doing so will provide valuable information about how our graduates further contribute to the SSHA mission.

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 Taught Fall 2008

Psychological Sciences Program Learning Outcomes:

1. Content: Students who complete the major will show knowledge of the key substantive content of the field of psychology.
2. Research Methods: Students who complete the major will demonstrate that they understand and correctly interpret both the designs and methods that psychologists use to gather data and the statistical analyses they use to analyze data.
3. Writing: Students who complete the major will show that they understand the writing style used in psychological literature (APA style).

		Outcome

Course	Title	Content	Methods	Writing
1	Introduction	I	I	I
10	Analysis of Psychological Data		D	D
15	Research Methods		D	D
121	Cognitive	D	D	D
130	Developmental	D	D	D
133	Abnormal	D		D
140	Clinical	D	D	D
143	Abnormal Child	D	D	D
144	Clinical Neuro	D	D	D
147	Health	D	D	D
150	Cultural, Racial, Ethnic Diversity	D		D
151	Stereotyping and Prejudice	D	D	D
171	Tests and Measurements	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 6 faculty to serve 320 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—American Studies Minor

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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.

Faculty Accreditation Report – the Arts (Global Arts Studies Program and Media Arts Program)

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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." (SSHA Catalogue)

Minimum Requirements

- ARTS 007 or GASP 1 through GASP 5
- **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. Timeline and Goals

Background

GASP

Currently, GASP consists of two ladder faculty members and one lecturer (teaching between one and two courses every AY). 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 will be submitted for approval in fall 2009. 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.)

Timeline

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

- Collect Evidence of Student Learning for MAP PLO #1 for all MAP summer session courses.

To Accomplish by January 30, 2010

- Write narrative summary describing the course of action taken based on the evidence collected and examined during assessment of the first PLO
- Design and fully implement E-Portfolios for all MAP courses. E-Portfolios will be used to facilitate access for outside reviewers who are unable to visit campus.

By March 31, 2010

- Review and modify PLOs and PLO Assessment Plan
- Write narrative summary of the Revised 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 Art Goals

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 critical theory, 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.

The PLOs chosen by both Programs will demonstrate whether the curriculum supports both the general and the specific educational goals of the Minor in Arts.

Part B: **Program Learning Outcomes**

Global Arts Studies Program

GASP PLOs have been published on the SSHA website and will be published on the arts website: www.arts.ucmerced.edu by beginning of fall semester 2009

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 website and will be published on the arts website: www.arts.ucmerced.edu by beginning of fall semester 2009

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.

Upon the completion of a MAP emphasis Minor, successful students will:

1. Understand and acquire (through hands-on projects) the principal attributes and mechanics of art technique(s) in medium of choice
2. Enhance visual, aural, and physical perception and cognition through the acquisition of art technique
3. Understand, think and communicate critically the aesthetic, historical, cultural, social and contemporary aspects of the medium(media) they are studying
4. Understand the multicultural environment that typifies contemporary art production
5. Understand the relationship between the physical aspects of works of art and aesthetic principles
6. Understand principles that guide artistic creativity and be prepared to apply them imaginatively, as well as practically
7. Express ideas through an art medium
8. Be able to apply their knowledge of art technique and practice outside of the classroom

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. Understand and acquire (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

b) *Analysis:* The MAP ladder faculty member has been in charge of collecting the evidence for the first PLO. During the summer months she will develop the first narrative summary of the evidence collected.

c) *Use of Findings:* The findings will 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 fall semester 2009. Each instructor will be asked to produce a clear and succinct proposal (for every individual course) for the most effective incorporation of the findings into his or her teaching. If appropriate, instructor will revise his or her syllabi. Twice a year all instructors will participate in a discussion and review of the PLO assessment process led by the ladder faculty member.

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 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 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

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. Enhance visual, aural, and physical cognition and perception 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. Understand, think and communicate critically 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. Understand the multicultural environment that typifies contemporary art production

a) *Evidence:* MAP will organize a Student Focus Group to assess whether students clearly recognize what constitutes a multicultural environment in contemporary art production. A different faculty member will be asked to lead the Student Focus Group each year with the help of student volunteers. Participation in the Student Focus Group will be voluntary but students will be given consideration for attendance. It's important that the Student Focus Group attract students from across the MAP curriculum.

b) *Analysis:* Faculty member in charge of the Student Focus Group with help of student volunteers will note responses. Student volunteer (s) will create a Summary Report and receive points for doing so.

c) *Use of Findings:* The Summary Report will be part of the yearly discussion and review of the PLO assessment process led by the ladder faculty member. Instructors will be asked to incorporate the findings into their course syllabi.

5. **Understand the relationship between the physical aspects of works of art and the aesthetic principles**

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.

6. Understand principles that guide artistic creativity and be prepared to apply them imaginatively, as well as practically

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.

7. 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.

8. To be able to apply their knowledge of art technique and practice outside of the classroom

a) *Evidence:* Every year some of the students enrolled in MAP courses will have the opportunity to exhibit or perform their work in a "real world" environment (i.e. public exhibit space such as Merced County Multicultural Arts or public performance venue). The exhibit or performance will be documented. Some of the exhibits or performances will include evaluation by outside practicing artists (structured similarly as PLO #1/Evidence II.) The exhibit or performance may involve public discussion. The exhibit or performance may be documented on the arts website (arts.ucmerced.edu) Students will also be asked to write self-reflective summaries of the experience after the exhibit or performance.

b) *Analysis:* A narrative summary of the evidence will be produced. *:* The Summary Report will be part of the yearly discussion and review of the PLO assessment process led by the ladder faculty member. Instructors will be asked to incorporate the findings into their course syllabi.

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

Part D: Process

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

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) Understand and acquire (through hands on projects) the principle attributes and mechanics of art technique (s) in medium of choice	AY 2009-2010

2) Enhance visual, aural, and physical perception and cognition through the acquisition of art technique	AY 2010-2011
3) Understand, think and communicate critically the aesthetic, historical, cultural, social and contemporary aspects of the medium(media) they are studying	AY 2011-2012
4)Understand the multicultural environment that typifies contemporary art production	AY 2012-2013
5)Understand the relationship between the physical aspects of works of art and aesthetic principles	AY 2013-2014
6)Understand principles that guide artistic creativity and be prepared to apply them imaginatively, as well as practically	AY 2014-2015
7)Express ideas through an art medium	AY 2016-2017
8)Be able to apply their knowledge of art technique and practice outside of the classroom	AY 2017-2018

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) All lecturers and visiting faculty
Dissemination of Results	FAC
Implementation of findings to improve student learning	All faculty

Part F: Minor

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

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

Part A: Program and Institutional Goals/Outcomes

Global Arts Studies PLO Alignment with the UC Merced Eight Guiding Principles of general Education

GASP 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**	**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**
#5	**x**	**x**	**x**			**x**	**x**	
#6		**x**	**x**		**x**	**x**	**x**	**x**
#7		**x**	**x**	**x**	**x**	**x**	**x**	**x**
#8		**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 &Complex Social Issues	Research Social Institutions &Cultural Systems & Their Impact	Understand the By Examining Its Past & Exploring Its Future	Use the Latest Technology To Investigate Human Thought, Behavior & Interactions	Appreciate Diverse
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**

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

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

	PLO #1	**PLO #2**	**PLO #3**	**PLO #4**	**PLO #5**	**PLO #6**	**PLO #7**	**PLO #8**
Arts 1 (I)	**x**	**x**	**x**		**x**	**x**	**x**	
Arts 2B (I)	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**
Arts 3B (D)	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**
Arts 4A(I)	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**x**
Arts 4B (I)	**x**	**x**	**x**		**x**		**x**	
Arts 5 (I)	**x**	**x**	**x**		**x**	**x**		**x**
Arts 9 (I)	**x**	**x**	**x**		**x**	**x**	**x**	**x**

Arts 170-Fall 2008 (D)	**x**	**x**	**x**			**x**	**x**	
Arts 171 –Fall 2008 (D)	**x**	**x**	**x**		**x**	**x**	**x**	
Arts 170-Spring 2009 (D)	**x**		**x**	**x**	**x**	**x**		**x**
Arts 170 –Spring 2009 (D)	**x**		**x**		**x**	**x**	**x**	

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Natural Sciences Education (NSED) Minor Program Overview

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.

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

The following timeline will ensure that a thorough and sustainable assessment system is put in place. Such plan will not only provide an immediate assessment of whether the learning outcomes are achieved, but will also ensure 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.

WASC Accreditation Document: Philosophy

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]

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

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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.

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 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

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[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.

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 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.

Upon graduation, we expect students minoring in philosophy to have gained experience in and be capable of doing each of the following:

1. Criticize philosophical arguments, including arguments presented in classic texts and in contemporary philosophical literature. (Basic fluency in interpretation and criticism of arguments)
2. 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. (Ability to present and defend original arguments)
3. Distinguish between logically valid and invalid deductive arguments, and be able to identify additional premises or logical relationships that could transform an invalid argument into a valid argument. (Basic fluency in logical inference)

4. Use philosophy in an interdisciplinary way, for example, by philosophically analyzing non-philosophical texts (e.g. texts from literature, history, psychology, or physics), or by using formal methodological tools, such as mathematical and computer models, in the analysis of philosophical problems. (Interdisciplinary applications)

Additionally, we expect students minoring in philosophy to have gained experience in and be capable of doing at least two of the following:

5a. Provide and assess evidence for causal claims and identify various fallacies in inductive reasoning (e.g. sample bias) (Basic fluency in inductive logic.)

5b. Distinguish between descriptive and normative philosophical claims, and to use certain descriptive claims either to support or to criticize certain normative claims. (Ability to appraise normative claims)

5c. Appreciate 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). (Historical understanding)

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's progress towards each relevant program learning outcome.

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.

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.

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
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
150 (Phenomology)	M	M	D	V	V	V	V
170 (Math Logic)	D	D	M	V	V	V	V

FACULTY ACCREDITATION REPORT

SOCIOLOGY

SCHOOL OF SOCIAL SCIENCES, HUMANITIES AND ARTS

UNIVERSITY OF CALIFORNIA, MERCED

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SECTION I: PROGRAM DESCRIPTION – MAJOR AND MINOR

MISSION STATEMENT

Using a "sociological imagination" involves acknowledging the structures and patterns that shape daily experiences, understanding the mutual influence of individual choice and social structures, examining social phenomena from various perspectives, and thinking critically about existing social arrangements. Sociologists use a variety of theories and rigorous research methods to understand the social world. Substantively, sociology at University of California, Merced uses these tools to focus on the role that social inequality, politics, and organizations play in shaping individual and collective social experiences.

In teaching, the Sociology program at UC Merced is committed to helping students develop the insights of a sociological imagination that will lead to a systematic understanding of society. In particular, we hope that students will obtain the skills they need to be critical consumers and careful analysts of social science research. We seek to enhance students' ability to communicate effectively both orally and in writing. We also expect that our students will develop a keen insight into the causes and consequences of social inequality. Through the study of sociology, students will therefore gain many concrete skills that are helpful for a broad range of rewarding careers or future graduate studies.

Through our research, we generate scientific understanding of important local, national, and international social problems. To help explain and solve both theoretical and practical issues confronting society, we seek interdisciplinary partnerships from across our campus and elsewhere. Our intention is to draw from our own and related disciplines to create cutting-edge knowledge about social life. We value scholarship that contributes to important debates within our discipline as well as to more far-reaching discussions that cross disciplinary boundaries or are taking place outside the academy.

In our service to the university, the discipline, the community and beyond, we seek to use our scientific understanding of the social world to help enrich public policies and public discourse.

We seek to make our program a lively intellectual environment that fosters innovative thinking among faculty and students alike. Finally, we strive to be collegial and respectful in our interactions with those around us.

Sociology is the scientific study of society, social institutions, and social relationships. A key contribution of the discipline is the insight that social factors matter; our lives are not only shaped by personal psychology, but also by our

place in the social world. Sociology's areas of inquiry range from intimate family relationships to ties between nation-states; from divisions by race, class, gender and sexuality to shared ideas of common culture; and from understanding the influence of broad-scale social movements to analyzing how adolescents become productive adults. Sociologists help develop theories to understand how the social world works and also use analytic tools to craft policies and create programs that address important social issues, such as neighborhood and educational inequality. Few disciplines offer such a broad scope of relevance for understanding individual and collective relations in society. Sociology at UC Merced is distinctive in our concentration in a few key areas of inquiry that are central to the discipline, provide meaningful interdisciplinary connections, and are highly relevant to the region and the student population. These areas are: Social inequality, Politics, and Organizations.

Students majoring and minoring in sociology at UC Merced have ready access to courses covering a broad range of substantive areas within sociology. Students can also engage in more in-depth study of particular areas of the discipline related to faculty expertise, especially social inequality (by race/ethnicity, gender, and class), politics, and organizations/institutions. These programmatic foci provide meaningful interdisciplinary connections with other programs around campus, including Political Science, Anthropology, Economics, Management, and Philosophy. As the campus develops, our students will also find connections between Sociology and the study of Law, Education, Women's Studies, Latin American Studies, and many other areas. In addition to the

substantive foci of our program, Sociology at UC Merced is unique in the exposure we provide our students to the process of conducting and evaluating social science research and the attention we pay to helping them understand the practical relevance of social inequality to their own experiences. Our students have the opportunity to participate in the research process through conducting honors theses or collaborating on faculty research projects. All students in our program are trained to communicate about, critique, and design empirical sociological research. When our faculty resources make it feasible (we currently have three ladder-rank faculty), we also plan to offer more service-learning opportunities in our classes along with an extensive internship program which will provide additional opportunities for students to make connections between sociological scholarship and real-world social problems.

The substantive breadth and skills in conducting and analyzing research that sociology majors and minors obtain can be useful for a range of career paths including: business and marketing, criminal justice, education, environment and technology, graduate school (in Sociology or other fields), law, medicine and public health, leadership in faith communities, non-profit and social service organizations, public policy, social welfare and social work. Sociology majors will leave UC Merced with research skills developed in conjunction with knowledge of substantive material relevant to a variety of social service and non-profit research positions. Students will gain an understanding of the mechanisms underlying social inequality and organizational dynamics that will also be beneficial in many careers. Given the programmatic focus on rigorous research methods,

communication, and practical problem-solving, students also will have an excellent basis for pursuing graduate studies in law, medicine, sociology and other social and cultural studies programs.

Given UC Merced's unique location in the San Joaquin Valley and Sociology's traditional emphasis on issues of inequality and power dynamics (particularly regarding class, race/ethnicity and gender), UCM Sociology offers insight into the socio-economic and demographic changes gripping our region. The program will be able to train those interested in studying issues such as racial and ethnic dynamics within the rapidly changing California demographic landscape, how collective action and social movements rise and fall in concert with demographic change, the dynamics of neighborhood and community change given high levels of economic inequality, and the social consequences of a changing educational system. Due to their training and interests, Sociology graduates are likely to help further UC Merced's goals of providing research and public service to the region and beyond.

SECTION II: ASSESSMENT PLAN – MAJOR AND MINOR

Sociology currently offers a minor and recently proposed to offer a major leading to a BA in Sociology starting fall, 2009. 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 will begin implementing assessment of our major 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 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). We are in the process of developing a program web page and plan to publish the PLOs on our web site by the end of the spring semester, 2009. We will also include our PLOs in the course catalog by AY 2009-10. 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 verbally and in writing about sociological concepts.
5) Be prepared to continue their education in professional or graduate study beyond the B.A. degree.

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 graded by the faculty member in charge of each of the classes as well as by the FAC. 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.

   b. *Analysis:* Assessment questions will be graded by the faculty member in charge of the class as well as by the FAC. 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, 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 on the final exam that relate to this outcome.

b. *Analysis:* Assessment questions will be graded by the faculty member in charge of the class as well as by the FAC using a rubric. 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 verbally 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.

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. During the summer months, SSHA staff will assist in entering data from assessment tools 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.

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) Be prepared to continue their education in professional or graduate study beyond the B.A. degree.

a. *Evidence:* To assess student preparation for further education beyond the B.A. degree, we will administer a follow-up survey with graduates 2-3 years after they have completed their BA degree. The survey will query about post-graduation work and educational experiences (including whether they applied, were admitted to, and/or completed graduate training and in what field). The survey will also ask students to evaluate the utility of various skills acquired while earning their BA for their subsequent work and education.

Graduates will be contacted using addresses from the Alumni Relations office. We can administer this survey only if sufficient funding to print and mail such a survey is available. If no funding is available, we will be unable to assess this outcome and will only examine PLOs 1-4 on a four-year cycle.

b. *Analysis:* During the summer months, SSHA staff will assist in entering data from the survey 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.

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 verbally and in writing about sociological concepts.	AY 2012-13
5) Be prepared to continue their education in professional or graduate study beyond the B.A. degree.*	AY 2013-14

*This PLO will be assessed pending available resources.

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)
Data entry	SSHA staff
Data analysis	FAC
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. 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.

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.

<u>Scientific Literacy</u>: 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.

<u>Decision Making</u>: 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.

<u>Communication</u>: 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.

<u>Self and Society</u>: 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.

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 (Intro. Political Soc.)	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 (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)	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

University of California, Merced
School of Social Sciences, Humanities and Arts

Faculty Accreditation Report
Minor in Spanish

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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** (2009-10): Outcome 1
- **Year 2** (2010-11): Outcome 2
- **Year 3** (2011-12): Outcome 3
- **Year 4** (2012-13): Outcome 4
- **Year 5** (2013-14): 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 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.

Outcome 2. Possess Spanish 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 3. 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 4. Be able to identify 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** (2009-10). Outcome 1

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. They will evaluate the oral presentations 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.

- **Year 2** (2010-11). Outcome 2

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 3** (2011-12): Outcome 3

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 4** (2012-13) 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** (2013-14) 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.

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
3		x	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	D	I	I	D	I
SPAN 105	D	D	D	I	D
SPAN 106	D-M	M	M	I	M
SPAN 110	M	D	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

Faculty Accreditation Report: Minor in Writing and Writing Program

I. Program Description

All 15 courses currently offered by the Writing Program fulfill the 24 unit (six course) minor in writing (see Appendices 1and 2). The distinctively dual emphasis of this minor program allows students to concentrate their course work in either creative writing or professional writing. While providing these tracks that extend into upper division offerings, the minor curriculum also requires that students in both areas complete an upper-division gateway course, WRI 100 (Advanced Writing) that thoroughly grounds them in research methods that are used in literary studies, composition studies, linguistics, and rhetoric. In addition to this focus on language studies, our curriculum is responsive to the genres specific to disciplines emphasized on our campus, including management, social sciences, natural sciences and engineering. Since all students in this minor program complete coursework in creative and professional areas, they will have an interdisciplinary foundation for multiple career opportunities. These include publication roles as editors, journalists, freelance or technical writers; and careers in international business, government and foreign relations, public-health industries, and multicultural media. They will also be well prepared for further study in law school or in graduate school programs that emphasize language study (e.g., English, foreign languages, rhetoric or linguistics).

The minor in writing emphasizes thorough analysis of written language for its aesthetic and epistemic qualities. Students learn to generate texts based on their training as careful readers who can identify varieties of language use, linguistic structure, and artistic expression. Thus, although its interdisciplinary design appropriately includes some practical applications, the minor in writing stresses research-based inquiry that engages students in the scholarly study of language.

Section II

II. Timeline and Goals

<u>II.1 Fall 2005- Spring 2008</u>: During AY2007-2008 the Writing Program faculty convened repeatedly to establish Student Learning Outcomes (SLOs) for each of the 15 courses that the program offers [see <writingprogram.ucmerced.edu/PLO>]. In key respects this alignment of program goals with outcomes began in AY2005-2006 when UC Merced first offered courses to undergraduates. At that time the Writing Program recognized the importance of assessment, especially since our campus enrolled a relatively high percentage (50%) of at-risk, first-generation students. Each subsequent freshman class has retained this demographic characteristic. Through numerous measures of student learning—including mid- and semester-final surveys, pre- and posttest samples of writing, and end-of-semester course portfolios—we have obtained direct and indirect evidence of student performance that informs our implementation of curricular change.

As a required faculty responsibility, all full-time members of the Writing Program have met routinely each semester to review and revise segments of the Writing Program curriculum. For the first three years our attention has been focused on “foundational” first-year courses, WRI 1 and WRI 10, that nearly all freshmen must complete. Appendix 3 provides a sample analysis of student performance in WRI 1 during the summer of 2008. These 24 “summer bridge”

freshmen were provisionally admitted to UC Merced on the condition of passing WRI 1 in an eight week, Monday through Thursday, six-hour a day intensive course. Since these "Admission by Exception" freshmen are the most at risk population enrolled for Fall semester 2008 classes, we are closely monitoring their progress while continuing to provide them with robust academic support services through tutoring, mentoring, and supplemental instruction. For the majority of these students, we have also arranged to have them placed into small learning communities. Their experience is being documented each semester to inform our efforts as we continuously refine the writing curriculum.

At this point we are confident that WRI 1, and a subsequent first-year course, WRI 10, have been appropriately designed to support at-risk students by facilitating competence in critical reading and clear writing. These language skills also provide a foundation for subsequent scholarly pursuits and academic success. For both courses, writing faculty meet at the end of each semester to review randomly selected portfolios of students' course work, with primary attention given to evidence of students' reading and writing ability. As one outcome of these reviews, we have increased the number and types of critical reading assignments in WRI 1. This curricular adjustment is based on portfolio evidence of student learning that showed relatively low achievement of reading skills. For related reasons, we have adopted a themes-based approach to the design of WRI 10, allowing for more in-depth reading of material on a focused general topic and relevant forms of argument. To simplify assessment activities and to strengthen opportunities for longitudinal analysis, we have also begun piloting an e-portfolio system for these courses that will eventually be expanded to include the entire writing curriculum (see Appendix 4a-c).

Similarly, in AY2007-2008, we broadened our assessment initiative to consider upper-division writing courses, starting with WRI 100 and 116. Besides fulfilling unit requirements for the minor in writing, these courses also satisfy upper-division general education and communications requirements, for the School of Social Sciences, Humanities and Arts, and School of Natural Sciences, respectively. The role of upper-division writing courses in general education will be discussed in a separate report about Core 1 and Core 100; for this Writing Program report, it is important to note that nearly Writing Program courses have been aligned with the eight guiding principles of general education. Appendix 5 provides examples of that alignment for WRI 1 and WRI 117.

<u>II. 2 Fall 2008:</u> All 45 Writing Program members have convened periodically in one of eight Faculty Instructional Groups (FIGs), with five to six members per FIG (see Appendix 6). Although FIG membership is assigned in part on teaching schedules, we have tried to group faculty according to their interests and responsibilities. One purpose of these faculty groups is to calibrate standards for evaluating writing based on evidence of student learning. We also require that two to three FIG members observe a partner's classes twice during a semester. Yet another purpose of these FIG meetings, which have averaged about 90-120 minutes per session, has been to identify Student Learning Outcomes (SLOs) for all courses in the minor in writing, which subsumes all courses in the Writing Program. We anticipate continuing these FIG meetings each semester, with some changes in membership that correspond to courses each person teaches. We will also align membership based on committee assignments.

During Fall 2008, separate committees for the creative and professional tracks of the minor in writing met to establish Program Learning Outcomes (for PLOs, see Appendix 7; for the relationship of PLOs to general education, see Appendix 8). These committees were

comprised of faculty who have had primary responsibility over two years or more for teaching courses in each track. As a result of these sessions, SLOs were consolidated into five PLOs for the minor in writing. We anticipate revising the current PLO list based on cumulative evidence of student learning.

Program Learning Outcomes for the Minor in Writing
(Initial draft, Fall 2008):

After completing the minor curriculum, students will be well prepared to do the following activities:

1. Collaborate successfully as members of an academic community;
2. Analyze and apply the requisite styles, structures, and standards of relevant professions, genres, and academic disciplines;
3. Apply ethical standards to the practice of academic research and public discourse;
4. Demonstrate thorough engagement with the iterative processes of reading, writing, and speaking;
5. Craft language that reveals aesthetic awareness.

To cultivate these outcomes, the Writing Program has established two overarching goals:

Goal 1: to transmit the theory and practice of rhetorical inquiry to all undergraduates enrolled in our courses; and

Goal 2: to engage all Writing Program faculty in the scholarship of teaching and learning.

<u>II. 3 Spring 2009 and thereafter:</u>

Throughout its first four years of operation, the Writing Program has concentrated on two strategic objectives: 1) to study our student population in order to better appreciate their academic needs, and 2) to provide instruction that enables successful learning. Consistent with the first objective, the Writing Program will continue its assessment activities to survey students and faculty at the beginning, midpoint, and end of each semester; conduct student-focus groups; administer pre- and posttests of student performance in courses we teach (see Appendix 9); evaluate end-of-semester portfolios of students' coursework; and consult with UC Merced faculty as well as colleagues in area schools, K through 14. Based on assessment data from this ongoing research, and consistent with our second objective, we will continue to revise our existing writing curriculum, develop new writing courses and support services, and reconsider our program's institutional role in the context of the university's mission of service to the San Joaquin Valley. We will also aim to develop a keener sense of the Writing Program's role as an academic instructional unit within a "student-centered research university."

Thus, our assessment plan for the next two years will be a continuation of existing activities, including those such as the e-portfolio initiative that have just recently started.

This thorough, 20 page assessment of teaching effectiveness includes evidence of student evaluations, peer observations, and self-evaluations. Above all, it requires that faculty under review can demonstrate a clear commitment to student learning that is evidence based, with a record of adjustment in teaching if change is warranted. Faculty must also show full engagement in the scholarship of teaching and learning with corroborating evidence of professional development.

Working closely with the Center for Research on Teaching Excellence, the Writing Program will remain committed to its mission of supporting first-generation and underrepresented students. Four relevant examples of that evolving mission are summarized below:

Providing secure, long-term employment for Writing Program faculty, emphasizing full-time positions with job security.

The Writing Program teaches three of the eight courses that nearly all freshmen take their first year at UC Merced. Since a majority of these freshmen are first-generation, under-prepared, at-risk students, the consistent quality of their writing instruction must be maintained in order to ensure a solid academic foundation for students' critical reading and clear writing—skills that are essential for their academic success. As a key factor in this attention to student learning, the Writing Program requires that all faculty submit teaching portfolios as a condition of reemployment after their third year at UC Merced. The WP Portfolio site on UCMCROPS provides guidelines for developing an e-teaching portfolio; it also highlights how faculty development is linked to improving student learning outcomes. Samples of paper portfolios are available for review in the Writing Program office COB 301.

Developing and promoting new programs that will attract more students to UC Merced and help to retain those already here.

During AY 2005-2006, the Writing Program developed a minor in writing with tracks for creative writing and professional writing. Building on this existing curriculum, we will propose for AY 2009-2010 a "build out" of the minor program as foundation for an undergraduate major. Modeled on the two tracks in creative writing and professional writing, the major program will also feature interdisciplinary study of public discourse and cross-cultural rhetoric.

Based on surveys of UC Merced undergraduates and evidence of enrollment in similar academic programs at other universities, we can project strong interest in this proposed major. We can also anticipate attracting and retaining students who discover in their first two years at our campus that their initial plans to pursue careers in medicine or other health professions are unrealistic. Unfortunately, to fulfill those aspirations, most students will need a high level of academic preparation before they begin their college studies. For academically talented students who do not have this advantage, including many from the San Joaquin/Central Valley, a major in writing is a viable option with realistic career opportunities.

Sustaining academic support services that will enable UC Merced undergraduates to be successful in their academic studies.

More than any other academic program, the Writing Program teaches nearly all UC Merced undergraduates in its lower- and upper-division writing courses. To better serve our students, many of whom are "at-risk" academically, we have launched an array of co-curricular programs and support services, including a Summer Bridge program for under-prepared freshmen; an undergraduate research journal, a program of supplemental instruction; a peer-mentoring program; and a tutor-training program. These academic-support initiatives have been funded by grants from the U.S. Department of Education (Title V), the Hewlett Foundation, and the Spencer Foundation. To sustain this support, we will continue to seek external funding.

Promoting more diversity among those hired as Writing Program faculty.

Given the diversity of our undergraduate population, the AY 2007-2008 Strategic Mission of the Writing Program set a high priority on achieving a comparable degree of diversity among our faculty. These new colleagues can bring distinctive insights to discussion of the curriculum, especially for WRI 1 since it focuses thematically on issues of linguistic and cultural diversity. In other respects, a more diverse Writing Program faculty can respond more effectively to social and educational needs of our nontraditional students. Overall, nearly 25% of new hires for 2008 were "minority" candidates.

APPENDICES

Appendix 1. Writing Program Curriculum

The Writing Program currently offers the following courses:

- WRI 1 Academic Writing
- WRI 10 College Reading and Composition
- WRI 25 Introduction to Creative Writing
- WRI 30 Introduction to Professional Writing
- WRI 100 Advanced Writing
- WRI 105 Language and Style
- WRI 110 Tutoring Writing
- WRI 115 Topics in Science Writing
- WRI 116 Writing in the Natural Sciences
- WRI 117: Writing for the Social Sciences and Humanities
- WRI 118: Management Communication
- WRI 119: Writing for Engineering
- WRI 125 Topics in Creative Writing
- WRI 130 Topics in Professional Writing
- WRI 131 Journal Production

Pending Courses:

- WRI 11: Supplemental Instruction
- WRI 101: Writing in the Disciplines: Psychology

General Education Courses Staffed by the Writing Program:

- Core 1 The World at Home
- Core 100 The World at Home (partially staffed)

Appendix 2. Minor in Writing

By offering a wide variety of courses in writing, the minor provides students with extensive opportunities for professional development within and across the disciplines as well as preparation in academic discourse. Each course emphasizes writing as a process and iterates the importance of gaining sophistication in criticism and analysis. The writing minor courses propose challenging and rigorous assignments while facilitating students' abilities to research, synthesize, innovate and create. Students who participate in the writing courses will be able to apply these intellectual approaches to any course that they take at the University. Within the writing minor courses, students demonstrate individual responsibility for the production of written work and are able to recognize the parameters of intellectual property and the seriousness of their endeavors as writers. This sense of responsibility enriches students' writing and enhances the work they produce in other courses.

In addition, the writing minor allows students to improve their understanding of the theoretical, disciplinary, interdisciplinary and professional aspects of writing and to develop the vocabulary, syntax, style and voice appropriate to the practice of composition in diverse fields. By engaging in a continuous process of writing, students discover the potency of their ideas, and that writing is influential, whether in the pursuit of research, the creation of policy, or by the nuances of creative writing. The writing minor fosters an attitude of respect for language, for the contributions of peers and for the value of effective communication.

Requirements

Students can follow one of two tracks in the minor, focusing either on Professional Writing or Creative Writing.

To complete the minor, students must take at least **five** courses in addition to WRI 10:

- **One** lower-division course from the following list :

  WRI 25 (Introduction to Creative Writing)
  WRI 30 (Introduction to Professional Writing)

- **One** required upper-division course

  WRI 100 (Advanced Writing)

- **Three** upper division courses from the following list:

  WRI 105 (Language and Style)
  WRI 110 (Tutor Training)
  WRI 115 (Topics in Science Writing)
  WRI 125 (Topics in Creative Writing)
  WRI 130 (Topics in Professional Writing)

(With an instructor's permission, students may repeat WRI 115, 125, and WRI 130 as their specific topics change.)

APPENDIX 3: Summary of Summer Bridge Assessment, 2008

UC Merced Summer Bridge 2008 Summary Report

Background

Rationale for Program

A significant percentage of admitted freshmen during UC Merced's initial three years have consistently self-identified as English Language Learners or as having a language other than English in the home (48% in 2007). Additionally, many of the students are the first in their family to go to university (50% in 2007)[1]; this cohort of students often lack the experience or support network to assure their successful retention until graduation. Surveys completed by Writing Program faculty and UC Merced students indicated that certain skills were lacking or underdeveloped. These skills included:

- Comprehending and analyzing academic texts
- Integrating effectively those texts into academic essays
- Thinking critically and deeply about a range of topics
- Participating effectively in discussions
- Presenting well
- Communicating well with instructors
- Managing time well
- Accessing university resources (e.g., library, tutorials)

In the summer of 2007, UC Merced Writing Program piloted its eight-week Summer Bridge program with nine students participating from the Merced County area high schools. The curriculum for the Summer Bridge pilot program (SB1) was designed, then, to help this group

[1] UC Merced Office of Institutional Planning & Analysis, Fall 2007.

transition to the university discourse community by working on these specific skills deemed critical to success. The second year of the program (SB2) continued the focus of initiating students to the academic discourse community of the university, having some programmatic changes informed by the first year's experiences.

Student' Educational Backgrounds

Initial efforts at recruitment for SB1 and SB2 were based on the University's mission to work with the educational entities of the Central Valley, working to reverse the "brain drain" and low college-going rate of Central Valley youth. It is instructive, then, to note the English-Language Arts Standardized Test and Reporting (STAR) scores of high schools represented in the pilot year of Summer Bridge are listed in Table 1 below.

Table 1. 2007 Eleventh-Grade English-Language Arts STAR Scores (percentages) for Merced County High Schools Represented by Students Attending Summer Bridge 2007[2]

School	Advanced	Proficient	Basic	Less than Basic
California	17%	20%	24%	39%
Atwater	8%	21%	29%	42%
Delhi	9%	16%	31%	44%
Dos Palos	7%	20%	31%	42%
Golden Valley	11%	20%	29%	41%
Livingston	9%	23%	33%	36%
Merced	11%	20%	33%	35%

Although the recruitment of students for the second year expanded for reasons that will be described later, the academic achievement of those schools does not vary significantly from the schools that were within the initial target group. The number of schools represented by the 23 students participating in the second year of Summer Bridge (SB2) expanded from six to 12 and the counties from one to four. The STAR scores for the 12 high schools represented in SB2 can be found in Table 2.

[2] California Department of Education, http://star.cde.ca.gov/star2007 .

Table 2. 2008 Eleventh-Grade English-Language Arts STAR Scores (percentages) for Merced County High Schools Represented by Students Attending Summer Bridge 2008[3]

High School	Advanced	Proficient	Basic	Less than Basic
California	16%	21%	26%	37%
Merced Co.	8%	19%	29%	44%
Buhach Colony	14%	25%	28%	33%
Delhi	3%	24%	42%	31%
Dos Palos	7%	24%	39%	30%
Golden Valley	9%	22%	29%	41%
Le Grand	5%	22%	42%	31%
Livingston	10%	27%	37%	26%
Merced High	12%	22%	33%	32%
Outside Merced				
Chowchilla (Madera Co.)	9%	26%	29%	35%
Madera North (Madera Co.)	8%	25%	32%	36%
Davis (Modesto, Stanislaus Co.)	11%	24%	32%	32%
Johansen (Modesto, Stanislaus Co.)	13%	26%	29%	31%
Wilson Charter (Alameda Co.)	11%	19%	47%	23%

All students in SB1 came from backgrounds representing what some categorize as *Generation 1.5* students, which includes students who came to the U.S. at an early age or live in home or cultural enclaves where English is not the dominant language. They are generally educated in the U.S. K-12 systems, but finish their secondary education with varying degrees of proficiency in academic English and sometimes less familiarity with college-going traditions and expectations (Harklau, Losey, & Siegel, 1999; Roberge, 2002; Rumbaut & Ima, 1988). All SB1 students spoke Spanish in their homes, with one noting some use of English. Three of these students completed their K-12 careers without any language support; the other six had one year of ESL (2) or 4-5 years (4).

Of the 23 students who participated in the 2008 program, four speak only English at home and another two speak mostly English. Eleven of the remaining 17 speak exclusively or mainly another language at home (and so could be designated as Generation 1.5 students). The

[3] California Department of Education, http://star.cde.ca.gov/star2008.

languages of these SB2 students include Hmong (2), Spanish (13), Tagalog (2), Urdu (1), and Vietnamese (1). Ten students participated in English as a Second Language or bilingual education classes during their K-12 career with five participating during their middle or high school career. More SB2 students were from families that had university-going traditions than the first year when all students were the first in their family to go to university. The preparation for university of this group may have been stronger, as will be clearer when considering outreach efforts.

Pilot Year

The students of SB1 represented six high schools from Merced county: Atwater (1), Delhi (3), Dos Palos (3), Golden Valley (1), and Merced (1). They attended class four days a week for an average of four hours, completing the four-credit *Academic Writing* course, as well as courses focusing on reading and discussion, editing for academic writing, and academic vocabulary. Most students attended writing tutorials and were assigned peer mentors to help with the transition. Two students worked in a neighboring town, necessitating their leaving early every day, an action that caused them to miss tutorials and peer mentoring opportunities. These students were working between 25 and 35 hours each week. Another student failed to attend tutorials with regularity as the program proceeded. At the end of the term, all but one student advanced to the next writing course, the student who chose not to attend tutorials regularly. This student repeated WRI 01 and persisted at UC Merced as a full-time student through the full 2007-2008 Academic Year. At the end of that time, he had to withdraw because of an unacceptably low grade point average. One student who had struggled during SB1 (one of the two who was working) withdrew at the midpoint of the Fall 2007 semester, citing ongoing difficulty fulfilling university demands in light of family responsibilities. He indicated his intent

to enroll in the local community college to become established academically in hopes of returning to UC Merced as a transfer student. One other student who had performed well and shown progress over the semester withdrew after the fall semester. Faculty members have been unable to determine whether this student has continued his education at another location. The remaining six students remain as full-time students for their second year at UC Merced, a lower rate than the UC Merced trend of approximately 80%.[4] The small size of the pilot group does not, however, allow for valid comparisons between their achievements and that of the general UC Merced student population.

Programmatic Changes for the Second Year

Upon completion of the pilot year, two areas of the SB1 program received special attention to determine ways of enhancing the learning experience for participants. The first area of focus was the actual curriculum. Changes outlined below were in response to student feedback, faculty reflection and feedback, and the progress of students over the course of the program. The second area of focus related to recruitment since the first year's efforts drew a much smaller group from the student population that the Writing Program and the Admissions Office felt would benefit from the course offerings.

Curricular Considerations

Coursework

SB1 students demonstrated a continued need to focus on reading comprehension at the conclusion of the program. The diagnostic administered at the beginning of the SB2 indicated that these students also needed to develop stronger reading comprehension skills. To meet this need, students received explicit instruction in critical reading skills more frequently throughout

[4] Office of Institutional Planning and Analysis, http://ipa.ucmerced.edu/docs/Retention/First-Time%20Freshmen%20Retention%20Data.pdf

the second summer in the Reading and Discussion class (e.g., how to complete and use reading response journals; actively questioning the text before, while and after reading; summarizing the main points and supporting ideas of an essay for peers). Some of the academic readings required in the program had presented challenges to previous students (both during SB1 and during normal academic years) because of the text density, topic unfamiliarity, or vocabulary used. Yet the readings are essential to help students develop topic familiarity to write and discuss effectively. For these reasons, faculty created reading guides to assist students in teasing out the meaning of those readings, facilitating both comprehension and discussion of those topics. Between SB1 and SB2, faculty determined that two or three readings did not contribute significantly to the topic development and support for student' essays or discussions. Removing those readings from the curriculum during SB2 gave more time for students to read and discuss the essays that were more substantive in nature and also represented more challenging content for students' comprehension and vocabulary level. This action was achieved, however, without compromising the total time spent on critical reading and thinking skill development. In other words, the final goal was to allow students to explore topics and readings more deeply, rather than superficially handling more readings.

In addition to support for reading and writing skills development, UC Merced's incoming freshmen have generally required additional work on their math skills. For example, approximately two-thirds of the first UC Merced freshman class was required to take writing and math courses that some categorize as remedial. This fact should not be surprising since the California 2008 STAR[5] scores indicate that only 11% of the state's students demonstrate proficiency or advanced proficiency in Algebra II, while 61% have below or far below basic skills. These factors contributed to the decision to add a math emphasis to the second year

[5] California Department of Education, http://star.cde.ca.gov/star2008.

curriculum, providing opportunities for students to gain math literacy skills and recognize the level of math required in this academic context.

All incoming freshmen are supposed to take a Math placement test before entering UC Merced, although 299 did not do so. Of those who did complete the exam, 531 of the 1112 freshmen placed into Math 5, the preparatory pre-calculus math course. For those who did not complete the test, two received Advanced Placement credit and the remaining 297 students were required to take Math 5. For SB2 participants, three placed into the entry-level calculus course, while 20 were required to take the pre-calculus course this fall. The math curriculum developed for Summer Bridge relied heavily on student-centered approaches to create a "secure" environment for the students to move beyond simple use of "templates" for problem-solving to facilitate their developing analytical skills that allowed them to investigate topics and concepts deeply.

The expected math trajectories of the students are not uniform, though their degree of analytical sophistication seemed consistent that the beginning of the program. For example, many were unable initially to create a graph with given data points, drawing to scale or, in some instances, knowing that a scale was needed. So the course focused on increasing math maturity, including basic graphing skills, terminology to describe and create those graphs, symbols used in math courses, and calculation of statistics. The students explored topics such as use and abuse of statistics in the language policy debates. They also identified inadequate and false assumptions present in texts and charts through small group discussions before being accountable in whole-class explications for the conclusions they had drawn. These steps allowed students to gain from the various skill levels and deductive processes of their peers, working with differing viewpoints and pairing math vocabulary with their everyday language use. These practices, then, aligned

with similar pedagogical practices of the other three SB courses, demonstrated that certain skills and habits of the mind cut across the disciplines and reinforced students' introduction to practices of an apprentice scholar.

Strengthening the curriculum required changes to the SB2 schedule. During SB1, students had courses from 9:30 a.m. until 3 p.m. For SB2, students had courses from 9 a.m. until 4 p.m. This extended time permitted the addition of the math component, without sacrificing instruction on academic writing (for which students receive 4 units of credit) or the other coursework focusing of building academic skills such as leading discussions, analyzing lecture practices, and growing academic vocabulary. Lengthening the day also allowed the program to create a routine of students' contact with mentors and tutors.

Support Services and University Life

Strengthening academic skills was not the only goal of the program. Student learning outcomes included skill development that could only be met as students begin to make use of university resources outside the classroom. Students participating in SB1 experienced difficulty fulfilling coursework demands in part because most commuted between 45 minutes to an hour between the university and their homes. Their concentration on coursework was further aggravated by most working off-campus to meet individual and family financial needs. These travel and work demands also limited the opportunities students had to meet with tutors and mentors to gain the support offered by these two groups of upperclassmen. For these reasons, several significant changes occurred in SB2.

To assure that all students participated fully, each signed a contract stating their understanding of the program's purpose, its demands, and their obligation to participate fully in all aspects of the program. To compensate for this commitment, all students received a stipend

that helped offset financial needs they would be unable to meet because the program's schedule. The UC Merced dorms were available for the first time during this summer and all but four students chose to live on campus, made possible through the Title V grant funding. Thus, commuting time was eliminated for those living on campus. This modification allowed students to initiate individual tutorials outside of the scheduled in-class tutorials and to participate more actively with their mentors.

This housing change did not facilitate increased access for those students not living on campus, however. In contrast to SB1 where students had difficulty arranging contact with mentors, this year a group of mentors met with all participants for two hours each week for the first six weeks. During this time, mentors worked to build community among the students and mentors. They also facilitated discussions on how to transition well to the responsibilities of being a university student, including: managing time; handling stress while making specific adjustments to university life; and participating actively in university clubs and dorm life. This schedule change meant that all students had an opportunity to gain expertise from a wider number of mentors and to meet with a group of mentors more frequently than in SB1 because of that fixed twelve hours within the curriculum. Having that programmatic contact and living on campus offered new occasions to arrange one-on-one interactions with an assigned mentor that did not exist in SB1.

Outreach Efforts

A new university enters a pre-existing K-12 educational context with fairly established political alliances and patterns of interaction and communication. The Merced County educational establishment, where first recruitment efforts focused for both SB1 and SB2, has one high school district comprising five schools and three other school districts with only one high

school in each. No single countywide entity coordinates the policies, activities, or interactions of these educational establishments. Finding an effective means of interacting with all these school districts has been complicated by county politics, personalities, and geographic distances.

For SB1, the largest district sent the fewest number of students. That was the case for this year, as well, in spite of meetings with school administrators, visits to high schools in the area, offers for tutors to help students complete UC Merced admissions applications, and numerous written communications with high school administrators, counselors and teachers. When it became clear that the SB2 enrollment would not be significantly different from the pilot year, the Admissions Office informed students within a three-county area of the program's offering. This letter provided the impetus for the enrollment of 15 of the SB2 students. While ensuring that enrollment increased, the student population served may have moved slightly from the initial group targeted – those who might be less well-prepared for university demands. Of the 23 students, the Admissions Office had indicated only seven of those were required to attend Summer Bridge for admissions to the university. That difference in students' backgrounds led faculty to presume that the accomplishment and preparation of these students would be greater than those of SB1. However, that was not the case. Their demonstrated skills and final grades was similar to the students of the pilot year and seem to reflect the general student population of UC Merced.

Early contacts have been initiated this academic year between the Merced County Office of Education and all the high schools of the county, with offers for UC Merced personnel to meet with faculty and counselors to assure they understand the program's intended participants, guidelines, and offerings. Additionally, outreach to interested parents and students who would benefit are also planned for this fall. The UC Merced Admissions Office has agreed to establish

firm deadlines for all students to apply for Summer Bridge, assuring that earlier outreach may occur to students whose profile might indicate a need for intensive intervention in academic skills.

Results

Formal Assessment of Students

Writing

The students' successful completion of the Academic Writing course (the course for which they were receiving university credit) was evaluated by the same means as students enrolled during the conventional academic year, for both work completed in class and outside of class. Their final assessment entails portfolio submission comprising all work completed throughout the course, including numerous essays evidencing multiple stages of revision. Student work must exhibit increasing proficiency with the writing process and adherence to conventions of academic writing in the university context. In order to advance to the next required course, students must receive a cumulative grade of C or above in Academic Writing.

For this group of students, 16 of the 23 were able to successfully meet the WRI 01 course requirements, allowing them advance to Writing 10, the course required for graduation. Five of the students achieved a grade of A, while nine earned a B, and two received a C. Only two of the seven students who earned a D were judged to need additional time to reach the outcomes of the academic writing course. These two students had fulfilled all assignments and demonstrated their effort to achieve; at the end of the program, they both acknowledged the need for more time to work on their reading and writing skills. The additional five who did not advance to WRI 10 failed to complete multiple assignments in all coursework, in spite of interventions by and consultations with their writing instructor and the program coordinator. Some attributed the

difficulty to conflicts and obligations with their family, while others were struggling to adjust to the new environment and responsibilities of autonomy in this context. Ongoing evaluation of SB2 students' successes in their academic writing will be possible as they continue their academic career at UC Merced.

Math

As a requirement of successfully completing the Math 5 curriculum, students must take the *Gateway Exam*, which is a twenty-minute timed 12-item test of basic algebraic skills. Students are permitted unlimited practice opportunities outside of class, but must pass with a 10 out of 12 during one of the two proctored test administrations. Even though the SB students were not taking Math 5, they were allowed to take the Gateway Exam during the program, thereby allowing those who passed to commit their energy to other tasks during their Math 5 course. At the beginning, 2 of 23 passed and 6 of 23 passed at the end.

Students were also required to complete portfolios for the math component of the program. This work represented all their work, including quizzes, class notes, written responses to math concepts, and a group project wherein they demonstrated mastery of the ideas they had faced over the summer and the collaborative nature of their work. The submission of these artifacts coincided with the submission of the WRI 01 portfolio, which may account for the haphazard or minimal assembly of some (3) or absence of other math portfolios (2). However, of the remaining 18 students who submitted portfolios attempting to follow the guidelines, 11 received a B or higher on their portfolios.

At the end of the program, there was a sense that students no longer viewed Math as a dichotomy of black or white, right or wrong. Students developed the habit of questioning the numerical and textual information after they had studied the concept of statistical abuse.

However, the length of the course restricted the opportunities to have more than an introduction to some topics such as the graphs of exponentials and logarithms, with no concentrated emphasis on problems relating to these concepts. The students may have developed an increased level of vocabulary and familiarity with university-level math; the skills they did develop were not at a level that will make their Math 5 instruction seem redundant, however, since this course was not designed to replicate Math 5 coursework. The progress of all SB2 students within their math courses at UC Merced will be followed in the coming years.

Support Services

An additional goal of the program was to establish communities of support for these students in order to foster their success throughout their freshman year by continuing the interaction with mentors, tutors, and fellow Summer Bridge participants. To achieve that in part, these students were allowed to register for the Fall 08 semester before the program actually began, earlier than most other freshman. This allowed most of them to be enrolled as learning communities for either their writing or math course. For the fall semester, only three students have no other SB participant in either their math or writing class. For instance, nine of the students share one Math 5 section, seven are in one WRI 10 section, and six are in another WRI 10 section. By having fellow participants in these classes in the fall, they will be encouraged to continue the practices they began in the summer. The program may also be able to evaluate the impact of instruction on these students' progress as they experience common pedagogy.

Assessment of the Program

During the program, several assessment instruments were administered to determine students' abilities and the possible curricular adaptations that might be effected immediately and in subsequent years. A timed two-hour diagnostic exam was administered at the beginning and

another at end of the program; these measured students' reading, discussion, and writing abilities. Students' confidence levels in various skills and their satisfaction with the program were also assessed through midcourse and end-of-course surveys and in focus group interviews. These interviews will continue over the next years, creating a snapshot of these students' transition to university. This year students also completed a self-assessment to show whether they felt they had achieved the stated programmatic student learning outcomes by the end.

Writing Assessment

Summer Bridge faculty evaluated the diagnostic essays completed at the beginning of the summer semester to note any trends that might instruct faculty on curricular needs. The basis of scoring was the holistic scoring method used to assess entrance exams completed for admission to the University of California (AWPE). Most essays demonstrated a lack of mastery in expected university-level academic writing abilities. As with previous freshmen, these students exhibited significant problems of comprehending the essay prompt or the associated reading. In most cases, the students were unable to adequately summarize or paraphrase the source texts. Frequently, the essays lacked a strong thesis, had development weak on analysis and evidence, or were organized in ways that lacked coherence. Command of language problems centered on issues of vocabulary use, register (e.g., writing conversationally), and grammar or mechanics patterns that may be associated with second language learners (e.g., sentence fragments, word choice, verb tense shifts). This diagnostic, then, served to corroborate the previous needs assessment that formed the basis for the curriculum and show the need to focus on reading comprehension skills with these students.

Of the initial diagnostic essays, SB faculty felt that 80% did not meet the level of mastery expected at the university level. For the final diagnostic, the SB faculty judged that the

unsatisfactory essays had dropped to 54%. Faculty noted more effective uses of support and stronger use of textual details in the final essays. Acceptable essays also demonstrated stronger thesis statements and more varied sentence structure. Even among several of the essays judged as not acceptable, students showed a stronger command of language and vocabulary, the ability to create more cohesive essays through signposting techniques, and more evidence creativity and voice than original diagnostics.

To assure that evaluation was not colored by familiarity with the students, Writing Program faculty not involved with Summer Bridge read the post-tests at the beginning of the Fall 2008 semester using the same holistic scoring rubric. These faculty evaluated 33% of the essays as satisfactory in the fall, the same percentage as the Summer Bridge faculty. Since Writing Program faculty did not read the pre-tests, gains in language command or topic development would not be as obvious to them as it had been to Summer Bridge faculty. Summer Bridge students completed another diagnostic exams in the first weeks of Fall 2008; of these essays, 66% were judged as satisfactory. It is doubtful that significant progress in writing skill occurred during the month between the end of summer and fall diagnostics. Rather, the apparent advances may be related to students' being familiar with the task and knowing how to tackle it, in keeping with objectives of Summer Bridge.

Reading and Discussion Assessment

To address the perceived conflicts between the product-oriented writing diagnostic and process-oriented classroom practices, a Reading and Discussion (RAD) diagnostic was implemented. This activity provided another dimension for evaluating the students' ability to successfully integrate reading, discussion, and writing skills. The objectives to this approach

include fostering better skill preparation for the timed-writing experience and connecting process-oriented classroom pedagogy to timed-writing situations.

The format of the RAD diagnostic mirrored tasks of active learning and collaboration students must fulfill in this academic community. They read, annotated, and summarized a text. After this reading, students responded in writing to a journal prompt about the reading and completed a grid that allowed them to tease out the relationship of ideas in the text. Finally, they discussed the reading and their grid with peers, expanding on their answers to the grid and their understanding of the topic. The final diagnostic followed this same procedure using a different text and related grid.

Several reading issues were common initially. Where students were instructed to summarize paragraphs, they simply wrote portions of the text as if it were their own thoughts – often writing what they had already underlined in the text. These "summaries" often did not demonstrate a grasp of the most important ideas of the paragraph, but represented either a secondary idea or a lack of comprehension of the main concept. In some cases, students' textual marking supported this problem, as they underlined text indiscriminately and extensively. In addition to a summary of paragraphs, the students were to respond personally to each portion of the reading text. Their "response" was sometimes simplistic, off-topic, or absent. At other times, a misreading of the text was only apparent from the summary or the accompanying response. When the writing diagnostic was evaluated in the context of the reading diagnostic, some points were students' logic seemed stretched could be traced to their misunderstanding and comments on the reading diagnostic. This ability to synthesize multiple texts within one's essays is a desired outcome in academic writing, though one obviously in its rudimentary stages at the inception of summer bridge in most cases.

At the end of the summer, students continued to struggle to create a conventional summary for their RAD diagnostic. The incidence of quotation marks to indicate the author's actual words, however, was more apparent in the final diagnostic. Overall, students demonstrated a closer grasp of the reading's meaning with textual misunderstanding were less pronounced than in the initial diagnostic, discernible more clearly from the students' responses to the reading than from their summaries that still tended to repeat text rather than adhere to the actual conventions of textual summary.

A comparison of how students completed the reading synthesis grid singly and in groups yielded similar qualitative differences. For example, students appeared to respond in greater depth to the reading in the final diagnostic, as well as interact with their peers' contributions. At times, in fact, the students completed their grids with a synthesis of their peers' statements, rather than simply writing the comments down verbatim. In other words, the group discussions demonstrated that students had shared their insights, but also built on that foundation to produce cumulative insights unique from any a group member generated alone. Some students seemed to struggle to complete their individual observations; yet the notes from the group discussions indicate that even these students were active in sharing what understanding they did gain from the reading. That fact may relate to sense of community that had been established over the summer and how students appeared to support peers' learning by the end of the program.

That ease was witnessed in the post-test as students moved more quickly into their discussion groups and began to query one another on their thoughts about the article, including clarifying ideas or defining vocabulary – a task not specifically included as part of the group grid completion responsibility. These behaviors were absent in the initial diagnostic, as was the effort shown by group members to assure that each member had a voice in the discussion. Their

interactions, then, seemed to show an increased awareness of the value of collaboration in general and the importance of understanding academic vocabulary in particular. Undoubtedly, some of the ease with which the students began the activity related to their familiarity with one another. They were also more familiar with the expectations for the task's demands since collaboration in discussions and task completion had been a consistent responsibility over the summer.

Student Survey Responses

The surveys administered at the mid-point and conclusion of the program were completed online with laptops brought into the classroom. None of the teaching faculty was present, promoting more self-disclosure than may have been possible otherwise. The format of online completion may explain the relaxed nature of the quotes that are included as evidence below, transcribed exactly except where noted. However, the faculty preferred that students complete the evaluation fully rather than completing it with grammatical and formal accuracy.

Self-assessment and developing autonomy. Self-assessment and taking responsibility for one's learning is part of becoming a successful scholar. For that reason, all student surveys begin with questions to cause students to look at the degree to which they are demonstrating that responsibility. Halfway through the program, over 90% claimed that they completed readings and homework on schedule. That percentage was 78% at the program's completion, which may mirror the pass rate to WRI 10 among these students. Since many faculty members complain about their poorly attended office hours and students' underutilizing this valuable resource, finding evidence of this behavior in students during the program was a desired outcome. At mid-program more than half responded that they "hardly ever" or only "occasionally" (19%) attended office hours. These self-reports contrast with the students' final assessment when 32% noted that

they made use of instructors' office hours frequently or always, while almost half reported attending office hours "sometimes." Only 23% acknowledged that they hardly ever or occasionally went to office hours. It would seem that these students understood the value of accessing this additional time with faculty or that their instructors' persistence in scheduling out-of-class conferences helped forge this behavior. Only future interviews or surveys will demonstrate whether this change indicated the beginning of a scholarly habit.

At the start of the program over half of the students had very low or mixed feelings about participating in the program. By the middle of the program, this perception had changed to all but one rating their interest as high or very high, with that one admitting to mixed feelings and none as low or very low. This attitude of high or very high regard for the program remained until the final student survey. One student commented, "Well I was going to go to Canada… but then my parents forced me to go to Summer Bridge Program…now that I have spent enough time is one of the best things that ever happened to me in my life."

Growing confidence and academic skills. Midway through the program, students noted the wide range of skills they were developing and their integration into the community of students and faculty as a strong feature of the program. The gains they felt they were making in their skills and adjustment to the university may have contributed to their view of the program's value. The students' narrative responses categorized their gains as related to (a.) academic achievement, (b.) interest and enjoyment, (c.) teaching methods, (d.) personal growth, and (e.) writing skill development. One commented on having "learned so much in these past 4 weeks then I had in the last 4 years at a high school english class." Most listed specific writing skills they were developing to a greater depth than in high school. One student noted a specific academic preparation problem, remarking, "when i enter the summer bridge i didn't know how

to write an essay, how to give details, i just know how to write a five-paragraph essay." Others indicated their increasing understanding of what to expect from college life such as the student who said, "I really think that this program will not only help you with writing. Also adjusting to college life and be a better person."

Twelve of the students initially noted a lack of confidence in their math skills, especially those who did not take any math class their senior year. One student who had been "o.k. with math" noted that" the thought of college level math just scares every fiber in my body." In fact, more than 60% of the students rated their math confidence as only moderate or lower. At the end of the program, only 36% rated their confidence in math as moderate. Students noted important support in learning to think analytically, use math to solve real-world problems, and communicate quantitative information. In the skills categories of "participating within a group" and "thinking analytically," students' confidence increased over 20%. One student noted having been "intimidated by numbers," but found that the instructor "stupefied math talk so that I too could understand."

At the conclusion of the program, academic achievement remained the most common reason for students' positive perceptions of the program's value. One student commented, "At the beginning of the course I did not know what to expect but now I fully understand what the program is about, to help us become better scholars." In the final survey, responses could be categorized as showing an increased awareness of how their participation had enhanced their academic preparation: "I have gain a lot from this experience. I know that I am prepare for the fall." Students increasingly noted the support they had received in all aspects of their writing skills, especially in analyzing readings, developing their topics, giving feedback to peers, and integrating evidence to support their positions. This support translated to 90% of the students

rating their skills in WRI 01 as either “good” or “excellent,” a 10% shift in confidence levels from the previous survey. Students also acknowledged increasdeveloping the abilities to participate in and lead discussions, as well as maximize material covered in lectures. Although 81% rated their skills in participating actively in class discussions as “good” or “excellent,” only 62% indicated that they actually do participate “often” or “always.” This disconnect may indicate the reality of the stages of learning – *passively knowing* versus *actively doing*. The students’ sense of satisfaction and achievement was evidenced when one said, “I learned a lot here I learned everything I should have learn in my 4 years of high school but in better ways. Not only did I learn academically but in a personal level it [changed] me a lot and I take things seriously and I work hard too.” This student seemed also to recognize the broad nature of the programmatic goals – not simply building academic skills, but initiating the students into the disciplines of a scholarly mind and lifestyle.

Support of tutors and mentors. Students provided feedback on the role of tutors and mentors in their initiation to university life at both the middle of the program and at the end. Between the surveys, students demonstrated a 20-30% increase in confidence related to their adjustment to college life. One student expressed, “Peer Mentoring has been a great experience in getting to know how campus life is from people who have experienced it themselves. I’ve learned that it is important to use your peers for help because you can’t make it out here in college by yourself.”

A minor decrease in expressed confidence occurred with the tutoring program (by 10%), including “understanding assignments,” “developing topics,” and “crafting an essay (writing and revision process).” Although most narrative responses were positive, other responses indicated confusion about the purpose of tutoring support. For example, “one thing that bugs me a lot is that when I seriously don’t understand at all, it is time to tell me the answer so I can go SOMEWHERE and not get stuck in the same place going around and around.” Overall, the decrease in satisfaction with tutoring support may involve increasing awareness of and

frustration with outcomes (and the feeling that tutors can provide “answers” to withheld information).

Faculty Surveys

Faculty with teaching responsibility completed surveys at the conclusion of the program, focusing on the academic challenges and achievements witnessed among the students. Reading comprehension skills were mentioned by all reading and writing faculty as an ongoing challenge for the students. That continuing skill deficit meant that some responses to essay prompts had no effective or highly superficial evidence, a characteristic also observed during class discussions. The problems of comprehension also led to inaccurate summarizing of essays or an author’s position when students created essays or participated in class discussions. Even in math, some students sought to memorize a formula and use it blindly, rather than demonstrating understanding and application of a concept.

Student Interviews

Interviews with students were conducted halfway through the program and again at the end. A Writing Program faculty member who was not involved in the instruction of the students conducted these interviews; while not having teaching responsibilities, she had nevertheless been involved with the students from the beginning of the program. They recognized her role as providing assessment of the program, rather than of their skills. Therefore, a non-threatening environment existed from the start and students saw their role as providing insights that would strengthen future Summer Bridge programs. Students participated in interviews outside of class time and in groups of two or three, with efforts made to have the same groups for both interviews.

Transitioning successfully to university entails recognizing that the university is not simply Grade 13 of high school. The students expressed significant differences between these

educational context related to needed skills, students' roles, and available resources. These differences seem to have translated into their awareness of the skills they have developed and how those skills can transfer to future courses and educational goals, whether those goals include graduate school or a strong undergraduate emphasis.

The students seem now to see reading as a multi-stepped process that requires active engagement and reading to a greater depth than during high school. As one expressed this influence of reading at several levels, "[N]ow I do two readings, at least twice, skimming and then more – that's how I get more information than reading just for the first time. In college there will be a lot of reading, so this will help me a lot." Active discussions about course readings and materials are seen as enhancing their understanding and preparation for academic conversations in future courses. Students also recognize how understanding professors' expectations and analyzing their teaching styles can facilitate their successful learning. Students ranked their developing a process for writing and math highly. For writing, this included identifying the audience, determining author intentions, and finding the controlling ideas within paragraphs and readings – especially as those skills relate to building evidence for their own discussions and writing. In math students had to be able to explain their solutions in narrative format, a skill that proved valuable even to those students proficient in math. It gave them a sense of its being "taught less like a set of rules but more about the learning process of math."

Gaining expertise in time management was a principle of personal responsibility that mentors, tutors, and faculty emphasized throughout the summer. One student put it more practically as, "Time management is so critical; you won't have teachers constantly on your back, this is your money – your time." Students recognize that teachers expect students to be responsible taking notes – "no extensions – no excuses." That responsibility also extends to

understanding course material as indicated by a student's mentioning that "teachers will give you an assignment here and it is up to you to read it." Again, rather than being viewed as wholly negative, one said, "In college you are either responsible or you waste your opportunities." Peer mentors, through their personal support, resoundingly conveyed the reality that "people want you to succeed." The students saw teaching with technology as an adjunct to their success and a means of aiding their growing autonomy. "On-line resources provide support with keeping track of my materials and learning, helps with staying on task."

Self-Assessment

Learner autonomy rests in part on the ability to assess one's progress realistically. Knowledge of the ultimate goal is critical to that self-assessment. Although students were enrolled in four different classes, the desired student learning outcomes (SLOs) for the entire program were intertwined and often repeated across the courses and assignments. Students received explicit explanation of the SLOs in course syllabi, with specific tasks tied to those outcomes. Students then had periodic reminders of the outcomes the instructors were targeting when specific assignments were introduced or being completed. At the conclusion of the program, students had the opportunity to indicate the outcomes they felt they had reached.

A comparison between the students' perception of their attainment and their final grades may indicate a need for continuing growth in understanding the skill set of this context and how to honestly look at one's progress – or for more instruction and explication of outcome definition and realization. The discrepancies between students' views of themselves and achievement could relate to (a.) their conducting this self-assessment on the final class period after a discussion of what they had gained from their initial academic skills, (b.) their not fully understanding how to measure whether they had met the SLOs, or (c.) their completing the assessment in public among

their peers. For example, one student whose final grade was a D- indicated attainment of most of the outcomes while a student who received a C+ indicated she had fulfilled all the outcomes. Even for some outcomes that could be discretely measured (e.g., “Meet all assignment deadlines”), some students indicated completion when it could be clearly demonstrated to the contrary (i.e., they had not submitted several assignments on time or at all). This ability to understand expected course outcomes and accurately determine one’s conformity to those outcomes should have increased attention in future years as a means of promoting student autonomy.

Recommendations

Curriculum Enhancements

For the first two years of the program, students have received only four units of credit for Academic Writing, the intensity of the program nullifying the possibility of their taking any other courses. This restriction means that students do not qualify for full-time status for financial aid considerations. As the program expands, funding through the Title V grant will not be sufficient to cover a stipend, tuition, and room and board fees as it did this summer. If, however, students are taking six units of credit, they will be eligible for financial aid to cover those fees. As indicated earlier, many incoming freshmen can benefit from an emphasis on math, reading, and writing skills. Taking Math 5 and WRI 01 would achieve a full-time status (of eight units) and provide that additional support for these necessary academic skills; but it would not permit the transition of and time for skill building that the program seeks to establish.

One possible solution would be to offer two Bridge options – one for writing and another for math. In this format, both groups would take a one unit freshman seminar that focuses on general academic skills such as reading, note-taking, maximizing lectures, and participating in

discussions. The additional 1-unit class will be dependent upon the student's track; those in the Academic Writing track will have a math skills intensive class while those in the Math track will have a writing skills intensive class. This tactic will assure that all participants have the opportunity to focus on the skills that are foundational to success in this context – reading, writing, and math. It will also expand the potential applicants to those feeling confident in one academic discipline, but less so in the other.

This change will not significantly alter the schedule of the program, requiring four to five hours of classroom instruction and support activities. One scholarly habit that was difficult to foster because of this lengthy schedule was students' voluntary use of office hours. For the present year, faculty required students to sign up for office hours held at the end of the school day. This procedure demonstrated the value of one-on-one interaction with instructors, as indicated by one student who stated that Summer Bridge taught him how important office hours were and made him seek out his chemistry professor for help this fall when he didn't grasp a concept. However, forced office hours do not promote the students' initiating and taking responsibility for that contact. For that reason, the emphasis on editing and vocabulary development could be shifted to the reading and writing classes, as well as the tutorials, freeing an hour from the current schedule. All faculty could then hold office hours around an extended lunch hour. This change would also address a common student complaint – a too-short lunch break that had them rushing to complete their meal before returning to class.

This shifting of editing and vocabulary development to the tutors may create an untoward benefit for tutorials or, conversely, reinforce the students' misperceptions of the tutors' role. Currently, many students seem to expect tutors to provide definitive answers and explicit tutor-driven direction in how to develop essays, instead of seeing the tutorials as a collaborative

interaction with the student “in the driver’s seat.” If tutorials become a place of instruction or assistance in vocabulary or editing principles, that misconception may deepen. If, however, the students remain responsible for exploring and peer teaching their editing and grammatical issues, the tutors may be seen as the resources they intend to be. Whatever format the tutorials take in the future, the tutor role as facilitator needs to be explained, demonstrated, and reinforced throughout the semester to encourage students to take responsibility for their idea development and growth as writers and thinkers. Making this change in tutorial scope and having the two-track program may also entail having daily tutorials, rather than twice a week, and making math tutorials available for all students.

Assessment & expectations

As a means of closing the gap between student perception of outcome completion and reality explained previously, some means of threading SLOs more effectively throughout the program should be considered. For example, participants can explain, when submitting an assignment, how effectively they have met the SLO tied to the assignment and show what specific evidence exists in that assignment for attainment. They could also keep a SLO journal, much as these students kept reading response journals and feedback journals, to document when and where they felt they met specific outcomes. This task, though adding to the work of both students and faculty who would verify the work, may help ensure more reliability in the self-assessment and facilitate growing autonomy in their learning. Faculty routinely provide examples of student papers and grading rubrics to equip the students in assessing writing. This same procedure occurs with students’ examining and assessing sample writing portfolios before students begin assembling their own portfolios. In the same way, exemplary artifacts should be provided with specific explication of the SLO demonstrated in that sample. This library of

evidence will be useful for student understanding and will provide a stronger basis for ongoing assessment of the program.

Future and Ongoing Assessment

As the program continues and expands, both direct and indirect assessment of student achievement at UC Merced will provide evaluation of the Summer Bridge program, as well as suggest any needed adjustments in the curriculum. In addition to completing end of course diagnostic essays, students are expected to participate in future focus group interviews. Additionally, the progress of the Summer Bridge cohort will be compared to demographically-similar cohorts who did not participate in Summer Bridge. Efforts will be made to determine issues that interfered with retention of Summer Bridge students in order to address and avoid potential barriers to the success of future students. Lessons learned from the success of Summer Bridge students may inform the instruction and support given to all UC Merced students.

Conclusion

The effects of 32 days of instruction cannot be easily determined, even given the intensity of this program. Many of the gains are intangible, such as the confidence Summer Bridge students had on the first day of the fall semester since they knew how to read room numbers, had familiarity with the menu and procedures of the dining commons, and recognized faces of established friends and faculty members. Others had gained a degree of independence by living in the dorms for eight weeks – or realized how much they had to learn about handling that independence responsibly. As one student proudly reported four weeks into the fall semester, “It [the program] definitely helped. Now, I don’t wait to start something. I know I can’t wait until the last minute.” The timidity and reticence many showed during orientation had disappeared in the context of familiarity the program helped establish in their routines. One student’s sentiments are perhaps

unrealistic in claiming that “I’m going to think back and see that summerbridge had been one of the [highlights] in my educational life.” But, fostering that response among future participants would be consistent with creating enthusiastic apprentice scholars.

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APPENDIX 4a: EVALUATION RUBRIC FOR TEACHING E-PORTFOLIO

Draft: 3/31/08

While demonstrating technological competence and adeptness is important, the primary criteria that will be used for evaluating electronic teaching portfolios is evidence of student learning with a high value assigned to your analysis of that evidence. This rubric provides a general guideline for best practices in constructing an electronic teaching portfolio. NOTE: Four of five categories in this evaluation rubric address teaching and learning only. For additional help with e-portfolio development, contact the Writing Program Director.

	Superior	**Strong**	**Competent**	**Weak**
Design, Organization, and Navigation: Design is creative and professional with all required elements present and obvious. Organization is logical and appropriate. Navigational links are clear and operational.				
Pedagogical Content: Instructional materials clearly outline learning objectives and outcomes as well as convey evidence of adjustment in teaching based on assessment data.				
Evidence of Student Learning: Artifacts of student work clearly demonstrate some level of achievement of learning outcomes.				
Reflective Practice: Faculty is a reflective practitioner who continually evaluates the effects of his or her pedagogical practices on student learning and who actively seeks out opportunities to grow professionally.				
Scholarship of Teaching and Learning: Faculty engages in various forms of professional development. Faculty fosters relationships with program colleagues and the larger campus community to support student learning.				

APPENDIX 4b: *Guidelines for Course Portfolio*

Background

The course objectives and assignments for WRI 01 are designed to promote your growth as a writer, one who is actively participating in the academic community of UC Merced. As stated in the syllabus, one goal of this course is to provide an avenue for your growing confidence and proficiency (strength and endurance) as an academic writer. Portfolio assessment provides a means whereby you can recognize the progress you have made this semester. This form of assessment allows you to perceive advances in your endurance training (reading and writing extensively) and strength training (reading and writing more critically and proficiently). As you compile the various sections of the portfolio, you will write cover notes for each section. This process will allow you to reflect on where you were at the beginning of the semester, the steps you took during the semester to improve, where you are now, and where you would like to improve in the future.

Goals

In developing the portfolio, I have established five goals:

- **Autonomy** – Demonstrate your responsibility for meeting academic writing and reading demands
- **Reflection** – Exhibit the ability to evaluate your writing process and progress
- **Critical Thinking** – Illustrate your ability to analyze college-level text, synthesize ideas from those texts to support your position, and connect ideas logically
- **Integration to Academic Community** – Display your awareness of and adherence to the conventions of academic reading and writing
- **Feedback** – Show that you are cultivating the ability to provide valuable peer feedback, and attend to peer and faculty feedback

Portfolio Contents

Your portfolio contains five sections. The following explanation provides a basis for your organization. Be certain that each section contains all the listed requirements. Use the supplied checklist to assure your compliance.

1. ***Introduction to the portfolio***

   Discuss the insights you have gained regarding reading and writing during the course. Assess the progress you have recognized in your writing and any meaningful discoveries you have made. These discoveries may include recognition of your advancement in the area of critical thinking, or steps you must make to achieve success in the academic community. (Maximum 3 pages)

2. ***Essay Four***

   Submit the final draft of Essay Four, followed by your initial draft(s) with all feedback you received (from peers and me).

   Essay Cover Note (maximum 1 page) – Preceding the essay, submit a cover note that describes the challenge you experienced in synthesizing this paper as the culmination of your exploration on linguistic and cultural diversity. Include an assessment of the differences you note between this essay and Essay One.

3. ***Previously Graded Essay, Revised***

Submit all drafts and feedback you received on them. Your previous grade may be raised, if this essay demonstrates meaningful and substantive revision, with attendance to assignment guidelines and feedback.

Revised Essay Cover Note (maximum 1 page) – Preceding the essay, submit a cover note that explains why you chose to revise this specific essay, the significant changes between the drafts, and what you learned about your writing through this multi-drafting process.

4. ***Journal Selections***

Select two entries from your feedback section and two entries from your reflective section that exemplify your best work or significant lessons learned. Refer to your journal guidelines for the detailed requirements of these two sections.

Journal Cover Note (maximum 1 page) – Preceding the journal entries, discuss what you have learned from giving and receiving feedback. Summarize what you have learned about yourself as a writer.

5. ***Semester Coursework***

As noted in the syllabus, you are required to submit all the work that you have completed for the semester, both during class and outside of class. You should arrange this section in chronological order. In addition to all assignments (in-class and out of class), you should include your class notes, handouts, and your journal entries. At least two readings demonstrating your annotation must be included. As noted in the syllabus, work assigned in class, but not included in the portfolio will lower your final grade.

Semester Coursework Cover Note (maximum 1 page) –Reflect on the role this course had in helping you improve as an academic reader, writer, and thinker. Explain with honesty the contributions you made to the class through your participation and completion of assignments. Describe the changes you can make that will allow you to derive the most benefit from your coursework in the future (e.g., complete the readings before class, attend regularly, participate in class discussions).

Coursework Checklist - Preceding the coursework, provide the checklist of expected assignments. Indicate clearly any that are absent.

Portfolio Assessment Criteria

Your portfolio is worth 20% of your course grade. Your completed portfolio will be assessed on the following criteria:

Criterion 1: Writing Development

Your submissions demonstrate that you have developed as a writer over the course of the semester. This development can be seen through your reflections on the writing and reading processes, your attendance to feedback, and demonstrations of recognizable changes in the strength of your writing over the course of the multiple-drafting process.

Criterion 2: Adherence to Academic Writing Conventions

The portfolio will demonstrate your progress in using academic register, writing for your audience, and developing your purpose. Your submissions will illustrate this progress by the use of proper vocabulary and tone for the academic context. Furthermore, your writing will conform to principles of coherence and cohesion, as well as fulfilling the demands of specific academic writing assignments.

Criterion 3: Critical Thinking

All submissions will be illustrative of your ability to critically analyze information, as well as provide evidence and support for your ideas. Your writings must demonstrate your ability to make logical connections between ideas, integrate multiple perspectives, and provide original insights on those perspectives.

Criterion 4: Overall Presentation

Your portfolio should be professional in appearance. Your reader should not have to retrieve papers falling out of the portfolio, search to find sections, or impose order on your portfolio. To achieve this goal, you should organize it according to the guidelines. Additionally, be certain to proofread and edit carefully, especially those errors that were recurrent issues in your feedback journal.

WRI 01
Portfolio Submission Checklist

Your final portfolio is due _____. Use the following list to insure you have fully met the portfolio assignment. Place it at the front of your portfolio. If you have any questions or concerns about any portion of your portfolio, please use the reverse side of this checklist to inform me of those issues.

- ☐ Section 1 – Introduction to the Portfolio
- ☐ Section 2 – Essay Four
    - Essay Four Cover Note
    - Essay Four Final Draft
    - Essay Four First Draft

- Peer Feedback
- Faculty Feedback

☐ Section 3 – Previously Graded Essay, Revised

- Essay Revision Cover Note
- Essay Revision Final Draft
- All Drafts of the Essay from Initial Submission
- Peer Feedback
- Faculty Feedback

☐ Section 4 - Journal

- Journal Entry Cover Note
- Reflective Entries (2)
- Feedback Entries (2)

☐ Section 5 – Semester Coursework

- Coursework Cover Note
- Coursework Checklist
- All Semester Coursework

Signature Date of Submission

Appendix 4c: Portfolio Assessment

Writing Program **Portfolio Reading Project**

Reading date: Thursday, 22 May 2008, 9:00 AM – 5:00 PM

Venue: Classroom Building, Classroom 209

Workshop Participants: Tom Hothem, Sue Varnot, Paul Gibbons, Jared Stanley, Carol Ellis, Susan Miller, Susan Bohrer, Byron Webb, Kris Van Bebber, Christopher Ramirez, Adriana

Signorini, Loren Qualls, Candice Adam-Medefind, Karen Dunn-Haley, Meredith Oda, Jazmine Finley, Robert Ochsner, Eve Holwell

Narrative: The goal of this project is to increase faculty familiarity with process-oriented writing by reviewing a selection of lower-division developmental portfolios, selected on the basis of correlated pre and post-test student exams. This program-wide assessment project is among the ways that UC Merced academic programs can demonstrate learner successes, document student needs, and calibrate curriculum. It also articulates with our goal of determining course outcomes, as embodied in student portfolios.

This initiative seeks faculty who are interested in programmatic assessment projects, including those faculty who have no prior experience in assessment activities. The annual project's overall goals include: (1) reviewing portfolio samples and assignment sheets, and (2) reading and ranking selected portfolios. By familiarizing faculty with a range of portfolio design options and assignment sheets, we will be able to check for inter-rater reliability and define a program-wide portfolio rubric. This rubric will be used to determine holistic rankings of 1-4, which is roughly correlated to the AWPE holistic scores for writing exams. A faculty group will then evaluate the score results to determine potential connections between process and product-oriented writing. In addition to faculty professional development support, this project will also include an archive of range finders, results, and analysis relevant to the WASC accreditation process.

Important "Homework": Prior to the workshop, participants should familiarize themselves with sample portfolios, virtual copies of which will be distributed via email Monday, 19 May.

AGENDA

9:00–9:15 Breakfast and settling in

9:15–10:40 Discussion and initial rubric development
Guiding questions: • How do you use portfolios? • How do you assess them? • What characterizes a successful portfolio? • What course outcomes does a successful portfolio embody?

10:40–10:50 Mid-morning break

10:50–11:30 Read sample portfolios and test initial rubric

11:30–12:00	Revisit/fine-tune rubric
12:00–1:00	Lunch
1:00–1:30	Review/revise rubric
1:30–3:50	Live reading of portfolios
3:50–4:00	Mid-afternoon break
4:00–5:00	Discussion of portfolios and reflection on the process

APPENDIX 5: Alignment of the Eight Guiding Principles of General Education with WR1 1: Academic Writing.

The main goal of the UC Merced Summer Bridge program is to initiate the students to the demands of the Academic Discourse Community – serving as the first step of apprenticing the students into the world of university scholars. This goal finds its expression through three courses – Academic Writing, Reading and Discussion, Academic Vocabulary and Editing – and two support activities – tutoring for academic writing and mentoring from upper classmen. Beginning with the second year of the program (2008), integration of math instruction provides another focus on the skills needed to be successful in this context.

Guiding Principle	Summer Bridge (SB) Outcomes (SWBAT)	Where Aligned with Syllabus	Assessment
<u>Scientific literacy</u>: To have a functional understanding of scientific, technological and quantitative information, and to know both how to interpret scientific information and effectively to apply quantitative tools	Summarize statistics about language from readings Represent mathematical information provided in textual form in mathematical format Interpret US Census data about households and language use	➢ Math correlation with readings – *Fruit we'll never taste, English the Killer Language* ➢ English Only Debate readings and discussions with supplementary material of Census graphics	TBD in discussion with Cheryl Hedges (tentatively they are aiming for a placement exam at the end of SB)
<u>Decision-making</u>: 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	Compare and contrast the various positions taken on a controversial topic Recognize the influence of *slanting* and *bias* Begin to weigh the value of different types of evidence Differentiate between objective and subjective evidence Develop arguments for personal positions with external evidence Evaluate lecture and what the format requires of students for successful	➢ English Only Debate ➢ Language of discrimination & linguistic profiling ➢ Language of gender and gender discrimination ➢ Lecture analysis & note-taking exercises	English Only Essay English Only Debate role play Synthesis grid completion Final essay Lecture Analysis assignment

Guiding Principle	Summer Bridge (SB) Outcomes (SWBAT)	Where Aligned with Syllabus	Assessment
	learning		

Guiding Principle	Summer Bridge (SB) Outcomes (SWBAT)	Where Aligned with Syllabus	Assessment
<u>Communication</u>: To convey information to and communicate and interact effectively with multiple audiences, using advanced skills in written and other modes of communication	Identify audience & purpose of readings Identify and effectively write for various audiences & purposes Understand, analyze, and explain complex ideas	**Reading & Discussion (RAD)** ➢ Indicating audience & purpose in reading response journals ➢ Purpose & Audience HO ➢ Evaluation of magazines ➢ Fairy Tale Rewrite (audience of children, purpose of transmitting cultural values) **WRI 01** ➢ Essay assignments o Literacy Narrative o Detailing a Cultural Distinctive o Response to an Author o English Only Debate (proposal to school board, historical perspective of an issue for popular magazine, analysis of current issue) o Final essay – analysis of UCM culture, analysis of WRI 01 course, evaluation of case study (e.g., language of gender, affirmative action) **WRI 01** ➢ Class discussions ➢ Essays (in-class and out of class) ➢ Synthesis grid	All writing assignments Participation in class discussions and activities Reading Response Journals SLAD In-class presentations (individual & group) Portfolio

Guiding Principle	Summer Bridge (SB) Outcomes (SWBAT)	Where Aligned with Syllabus	Assessment
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	Understand that language contributes to the transmission & expression of culture Identify the role that culture has played in their own foundation for university life Describe personal culture and appreciate cultural variation among peers Appreciate the value of fairy tales in molding or expressing cultural values	**Program readings** **Exploration of dialects** **WRI 01** ➢ Literacy Narrative ➢ Detailing a Cultural Distinctive **RAD** ➢ Rewrite of a Fairy Tale & Bruno Bettelheim's *Use of Enchantment*	In-class journals Essays demonstrating cultural background and language background
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	Demonstrate integrity of writing	**WRI 01** ➢ Recognize the difference between summary, paraphrase, and quote ➢ Practice using texts of authors with attribution in class writing & essays ➢ Synthesis of ideas exercises	Students essays submitted to turnitin.com will not show evidence of intentional plagiarism

Guiding Principle	Summer Bridge (SB) Outcomes (SWBAT)	Where Aligned with Syllabus	Assessment
<u>Leadership and Teamwork</u>: To work effectively in both leadership and team roles, capably making connections and integrating their expertise with the expertise of others	Provide effective and useful feedback to peers Take responsibility for effectively summarizing essays to peers Work collaboratively to lead a discussion among peers Explain the lecture practices of a professor to peers to provide strategies for successful learning	**WRI 01** ➢ Peer feedback sessions for each essay **RAD, Academic Vocabulary & Editing** ➢ Feedback on presentations **RAD** ➢ Jigsaw readings ➢ Student-led Academic Discussion assignment ➢ Lecture Analysis assignment ➢ Note-taking practice	Feedback journal entries Peers' recapping what has been summarized in jigsaw

Guiding Principle	Summer Bridge (SB) Outcomes (SWBAT)	Where Aligned with Syllabus	Assessment
<u>Aesthetic Understanding & Creativity:</u> To appreciate and be knowledgeable about human creative expression including literature and the arts.	Discover new genre or authors Explain the interesting or unique features of a story Advise peers about the value of a story Enjoy the expression of culture through fairy tales	**RAD** ➢ Extensive readings and shared reports ➢ Fairy Tale Rewrite	Extensive reading reports & recommendations Portfolio Compilation

Guiding Principle	Summer Bridge (SB) Outcomes (SWBAT)	Where Aligned with Syllabus	Assessment
<u>Development of Personal Potential</u>: To be responsible for achieving the full promise of their abilities, including psychological and physical well-being.	Develop understanding of their personal learning strategies and strengths Demonstrate increasing autonomy in task completion Assess their skills realistically Outline a specific plan for areas needing improvement	**Orientation** ➢ Completion of questionnaires about learning strategies and styles **WRI 01** ➢ Group discussions of differences that exist among learners and adjustments they could make to enhance their weaknesses, including usual writing habits and attitudes about writing **RAD** ➢ Group discussions & activities exploring reading strategies, reading habits, annotation skills ➢ Timed reading tasks & tracking improvements ➢ Increasing complexity of essay assignments & deadlines to meet portfolio completion	Summarize Styles & Strategies questionnaires Journal entries Reading response journals – demonstrating more than one method Table of timed-readings scores Feedback journal entries Submit all assignments on time and in correct format Keep vocabulary diary Self-evaluation forms for essay submission (both cover notes & self-assessment sheets) Portfolio cover notes Feedback journal entries Academic Vocabulary & Editing journals Portfolio cover notes

WRI 117: Writing for the Social Sciences and Humanities

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 6: Faculty Instructional Groups

Faculty Instructional Groups (FIG) provide members the opportunity to discuss examples of student learning outcomes that inform continuous instructional improvement. Before each academic year, Writing Program faculty will be divided into groups of 5-7 lecturers. Members of each FIG unit will include at least two established lecturers having more than one year of experience in the Writing Program, with one experienced member acting as group leader. This role is considered part of service responsibilities to the WP and will factor into continuing appointment status. In most cases, groups will be arranged thematically according to one of the WP's foundational courses (e.g., WRI 1, WRI 10, CORE 1, WRI 100).

The purpose of the groups:

- to discuss any aspect of Writing Program business with potential to have a topic considered more generally by everyone in the program;
- to establish a community of teachers who share questions, concerns, and suggestions about teaching at UC Merced;
- to coordinate FIG procedures, such as classroom visits, diagnostic reading, grading calibration, and syllabus alignment.

Responsibilities of the FIGs:

1. Establish a schedule and procedure for meetings. Groups should convene weekly for the first month of the semester, and bi-weekly thereafter. Given schedule constraints, after the first month groups may consider alternate methods of communication, such as a CROPS discussion forum.
2. Represent group interests and concerns at WP meetings, as such feedback arises from the group meetings. Each group should send at least one established and one new WP lecturer to the larger WP meetings. These participants may rotate among members of a FIG.
3. Collaborate as a group in reading of pre- and post-test diagnostic writing samples. Pre-tests will be read during the first month of weekly meetings; post-tests will be read in the two weeks following the end of instruction.
4. Evaluate a sample of student writing, for the purpose of grading calibration and as a focus for discussion. (Recommended for mid-semester or shortly thereafter.)
5. Discuss the WASC process, as it pertains to syllabus alignment.
6. Coordinate classroom visitation partners and complete the observation packet.

General Schedule:

Week 1 – set meeting schedule and procedures
Weeks 1-4 – meet regularly; read and discuss pre-test diagnostics; discuss WASC process
Week 4 – by this week, groups should have arranged triads and coordinated schedules
Weeks 4-12 – complete the classroom visitation process

Writing Program faculty should view these collaborative instructional groups as both the primary resource for questions and concerns, and as the structure through which they can monitor, adapt, and record their teaching practices. As such, faculty are encouraged to use the groups to work on WP initiatives, develop their teaching portfolios, document evidence of teaching outside the classroom, and similar projects.

APPENDIX 7: Curricular Map of PLOs for the Minor in Writing

This curricular map articulates the alignment of program learning outcomes (PLOs)[6] in each Writing Program course. It also shows progression from introductory to advanced levels of anticipated student learning: 1 = introductory, 2 = intermediate, and 3 = advanced.

	PLO 1	PLO2	PLO 3	PLO 4	PLO 5
WRI 1	1	1	1	1	
WRI 10	1	1	2	2	
WRI 25	2	1	1	2	1
WRI 30	2	1	1	2	1
WRI 100	2	2	2	2	1
WRI 105	2	2	2	2	2
WRI 110	3	2	3	2	1
WRI 115	2	2	3	3	1
WRI 116	2	2	3	3	1
WRI 117	2	2	3	3	1
WRI 118	2	3	3	3	1
WRI 119	2	3	3	3	1
WRI 125	3	2	3	3	3

[6] **Program Learning Outcomes for the Minor in Writing**

1. Collaborate successfully as members of an academic community;
2. Analyze and apply the requisite styles, structures, and standards of relevant professions, genres, and academic disciplines;
3. Apply ethical standards to the practice of academic research and public discourse;
4. Demonstrate thorough engagement with the iterative processes of reading, writing, and speaking;
5. Craft language that reveals aesthetic awareness.

WRI 130	3	2	3	3	3
WRI 131	3	3	3	3	2

APPENDIX 8: Curricular Map of Writing Program PLOs with the Eight Guiding Principles of General Education

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;

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;

Communication: To convey information to and communicate and interact effectively with multiple audiences, using advanced skills in written and other modes of communication;

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;

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;

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

Aesthetic Understanding and Creativity: to appreciate and be knowledgeable about human creative expression, including literature and the arts; and

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

	PLO 1	PLO2	PLO 3	PLO 4	PLO 5
Scientific Literacy		x	x		
Decision Making		x	x		
Communication	x			x	x
Self & Society	x				
Ethics & Responsibility			x		
Leadership & Teamwork	x			x	
Aesthetic Understanding & Creativity					x
Development					

of Personal Potential	x		x	x	

Appendix 9: Sample Diagnostic Report

Diagnostic Writing Exam: Data Summary Report
Writing 10 (Spring 2007)

Report prepared by: Eve Holwell & Anne Zanzucchi

Pre-Test, January 2007

Total WRI 10 students:	187
Exams Submitted:	185
Exams Read:	69 (38% of submitted exams)
Third Reads:	28 (60% accuracy)
Passes:	32 (46% pass)

Post-Test, May 2007

Total WRI 10 students:	187
Exams Submitted:	153[7]
Exams Read:	64 (42% of submitted exams)
Third Reads:	30 (51% accuracy)[8]
Passes:	36 (56% pass)

Comparable Student Codes

Total Received Exams:	35
Increase:	13 (37%)
Decrease:	7 (20%)
Same:	15 (43%)

Notes on increases: Most often, increases included a 2 step difference. This difference was commonly between a significant pass or fail, a 3-5 or a 2-4 being characteristic of the most common increases in scores. More than half of the improvements are two levels of change (7 exams of 13 total). The other 6 exams indicate one level of change.

Notes on decreases: Qualitative data about student work with decreased score note that the post-test lacks a level of care, citing "lack of effort" (10MM19) and "well-argued, and "gets" the prompt, but doesn't fully appreciate it" (10CB19). This suggests that the end of semester diagnostic includes fewer incentives for student success. Recommendations during discussion included program-wide inclusion of the diagnostics in student portfolios, possibly with self-assessment to add depth to our analysis of samples. To generate further student investment in diagnostic writing, other possibilities include greater student participation in the assessment process, e.g. generating a rubric (Duke & Sanchez 1994), or prompts connected to WRI 1 and WRI 10 course content (White 1998).

Notes on same: No change means the average score remained the same. In most cases, readers' split scores reflected in an increase, but the third read score was equivalent to the pre-test score. For example, a writing sample could have been ranked 3 / 1 with 3 as the third read and 3 / 4 with 3 as the third read. This suggests some significant improvements, though the consensus is ultimately the same score. Absolute same scores were 5 of the 15. Split increases were 8 of the

[7] Variance in submitted exams may involve a missing section or significant student absences on diagnostic exam day.

[8] Post-test norming sessions included conversations about scoring guide in lieu of writing samples, which may have contributed to split scores.

15, and split decreases were 2 of the 15. With split values of increase, decrease and no change added the above numbers, the numbers would change in the following ways: Increase (60%), Decrease (26%), and Same (14%).

Summary Chart of Pass Versus Fail Features

Categories	Three Scores	Four Scores	Split Scores
Paragraphing & Structure	-- lacks coherent structure -- rambles, circular logic -- awkward transitions	-- paragraphs are unified in thought and structure -- clear topic sentences	-- repetition -- ambition -- generalities
Focus & Development	-- lacks examples -- superficial treatment of prompt -- does not respond to prompt -- lacks depth	-- evidence of understanding of prompt -- focused and specific engagement with text and arguments	-- lacks coherent structure -- loses momentum -- gains momentum
Reading Comprehension & Summary	-- could summarize argument more fully -- incomplete understanding of prompt & reading -- all summary, no argument	-- appropriate examples -- sufficient examples -- balance between summary and argument	-- responds to text illogically -- too speculative
Logic & Argument	-- responds illogically to text & prompt -- broad claims -- simplistic reasoning	-- strong reasoning -- acceptable reasoning -- extra effort to shape argument and grow ideas	-- creative but unsubstantiated claims -- unclear thesis -- argument needs structure -- misunderstood text
Grammar & Mechanics	-- frequent minor errors	-- precise word choice -- sentence variety -- definite or evident voice	-- simplistic style -- ESL -- simplistic sentence structures

Note: No one feature amounts of a three, four or split score. This chart represents a pattern of phrases used to characterize dominant aspects of samples. Since the diagnostic is a blend of these features, these descriptions are meant to articulate what the differences between borderline samples represent.

Beyond AWPE Scoring Guide Features

Pre-Test

- "some interesting examples but weak language skills (10CJ18A)
- "solid argument but based on a misperception?" (10HD19A, 10TK01A)
- Generalities (10BP19A, 10FK18A)
- Development issues (10JU18A, 10CT18A)
- ESL issues (10MV19A, 10SP18A, 10CJA)

Post-Test

- Effect of time limits (10JG17)
- Generalities (10CB09, 10BD07)
- "sense of fun" and inventiveness (10SV20)
- "flashes of higher-level thinking" (10LM18, 10CM19)
- Audience issues (10CB06)
- Lack of effort (10MM19, 10CB19, 10JD07)

Summary: Holistic scoring language, like any assessment measure, will have limited means of identifying the quality of students' reading, writing and critical thinking skills. As a program, we could design a richer holistic rubric and revise the diagnostic prompt to (1.) improve placement accuracy, (2.) remain conscious of writing characteristics to share with students, and (3.) identify holistic contradictions, or dominant writing characteristics that are simultaneously weak and strong. Holistic contradictions, e.g. interesting thinking but weak language skills, are characteristic of some English Learner papers according to these diagnostic readings and outside research (Hamp-Lyons 1995; Lee 2006). Additional holistic conflicts in several WRI 10 samples include logical arguments based on a misreading of original text. Summer sessions of WRI 1 and WRI 10 will experiment with process-oriented diagnostic writing to explore and address these questions. To supplement the one draft timed writing method, students will be given extended time plan and discuss ideas related to a prompt. The goal will be to offer students methods for applying the writing process to product-oriented writing situations. For student samples of effective pre-writing in existing post-test diagnostics, see attached appendix (10EB07, 10SV20). The objectives to this approach include fostering better skill preparation for the timed-writing experience and connecting process-oriented classroom pedagogy to timed-writing situations.

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Jonathan Dixon

10EB07 ✓

(2)

Jonathan says that there is more to language than just a vocabulary and grammar. Because of this, computers are bad communicators. Jon then says that to communicate on a high level, a theory of mind is required. This is the ability to understand what is going on inside someone else's head. I believe that all of this is true.

Brain as complex computer
Human communication learned over many years
- Partly learned from observing/interacting w/ world
To be good requires theory of mind

Once we have a computer w/ the ability to develop theory of mind, won't it be able to effectively read minds

When robots begin communicating, won't they begin to understand outside world more and more and then they are themselves, eventually rebelling

FAO REPORT: WRITING PROGRAM, WITH GENERAL EDUCATION
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FAO REPORT: WRITING PROGRAM, WITH GENERAL EDUCATION

APRIL 2009

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[1] align well with the Writing Program's five Learning Outcomes,[2] leaving just scientific literacy in general education as a potential mismatch with WP 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.

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.

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[1] 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.

[2] 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

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.

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 blue 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.

(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.

(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 12.*

<u>For Core 1</u>

(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: <u>Communication</u> -- To convey information to, communicate with, and interact effectively with multiple audiences, using advanced skills in written and other forms of communication; <u>Self and Society</u> -- 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.

(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.

(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.

(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.

(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).

<u>For Core 100 (Equivalent)</u>

(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.

(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.

(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.

(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.

(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
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 scientific literacy diagnostic and refine AY 2009-2010 rubric
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: electronic portfolio, comparable essay assignments in arts and sciences	Core 1: discussion of evidence of integrated learning and application Core 100: discussion of how creativity is assessed and evaluated, rubric development

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

(6) Demonstrate engagement with the iterative processes of reading, writing and speaking
(7) Analyze and apply the basic written styles, structures, and standards of academic and professional communication
(8) Collaborate successfully as members of an academic discourse community
(9) Apply ethical standards to the practice of academic research and public discourse
(10) C raft language that reveals aesthetic awareness

Part C. How does your curriculum support your Program Learning Outcomes?

General Education 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.

	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	A	A	A	I	I	A	I
WRI 101: Psychology	A	A	A	A	A	I	I	A
WRI 116: Natural Sciences	A	A	A	A	A	A	I	A
WRI 117: Social Sciences	A	A	A	A	I	I	A	A
WRI 118: Management	I	A	A	I	I	A	I	A
WRI 119: Engineering	A	A	A	A	A	A	I	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

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 have nearly completed 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** [3]
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	

[3] 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.

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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

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