University of California, Merced
Engineering Service Learning Program

Service Learning Assessment Notebook:

1. Overview: Program Evaluation and Research Information System

2. Service Learning Surveys (Pre- and Post-)

3. UC Merced Service Learning Rubrics
   a. Faculty Evaluation of Service Learning Student
   b. Faculty Evaluation of Service Learning Team
   c. Student Evaluation of Self
   d. Student Evaluation of Team Members

4. Instructor Survey

5. Client Survey
   a. Mid-Term Survey
   b. Final Survey
   c. Client Interview Protocol

6. Research Study Survey

University of California, Merced--Engineering Service Learning Program
Program Evaluation and Research Information System

Several studies have documented the positive impacts of service learning on students [e.g., Astin et al. 2000; Astin & Sax 1998; Eyler & Giles 1999], commonly exploring one or more of the following factors: academic performance, service values, self-regulation, leadership, teamwork, critical thinking, interest in subject matter, ongoing commitment to service, and choice of career. Although these studies have been valuable in highlighting which outcomes appear to most positively benefit from a service learning experience, they also present a gap in research and our understanding of service learning. These studies represent two primary methodological approaches: (1) qualitative program evaluation, and (2) large research studies (with no connection to specific programmatic mechanisms). As a result, they are limited in their ability to provide a comprehensive understanding of service learning outcomes [Gelmon 2000]. Further, the current research has provided little basis for dissemination of evaluation tools or replication so that such tools can be used in other education assessment contexts. Nevertheless, this research has been critical to laying the foundation for the comprehensive approach outlined in this proposal. Here, we present a merger between the traditional program evaluation approach and the basic research study. In addition, we offer this approach through the medium of an information management system that can be disseminated across programs and institutions. [See Figure 1].

As a result, ***this program evaluation and research information system will provide a comprehensive means for assessing service learning, but it will go beyond this to provide institutions and programs with the tools necessary to assess any kind of Engineering education innovation, including courses, problem-based learning, recruitment strategies, and Engineering culture change.***

Figure 1.

Program Evaluation
Evaluating the impact of service learning on these outcomes is a challenging task that will require extensive formative and summative evaluation methods. The evaluation will focus on insuring that the SL program is being initially and continually conducted as planned, and that the programmatic goals of increasing recruitment and retention are being met. Progress toward our programmatic goals is the most important issue and we propose a broad array of evaluation metrics. By using a variety of tools and techniques, we expect to capture positive impacts and deficiencies in spite of the inherent variation in individual methods. Each program evaluation method will be described below.

Service Learning Student Survey
All students enrolled in service learning will complete a pre and post survey. The pre- and post surveys collect demographic information, but are also focused on obtaining student information on six factors: (1) Personal Development (empowerment, skills, and career) (2) Social Development (teamwork and cultural awareness) (3) Ethical Responsibility Development (4) Perceptions of the Engineering Culture (5) Civic Participation, and (6) Academic Achievement.

Each question on the survey maps to one of the above factors and each of the factors is linked to the goals of service learning. Our goal is to go beyond the traditional program evaluation that is focused on assessing satisfaction and quantitatively assess service learning students on meaningful factors. This information will allow us to improve the program and also provide a means through which to develop conceptual models of the impacts of service learning.

Content Assessment: Quantifying Process and Substance
To assess the substantive, content-related ABET outcomes, UC Merced will go beyond the traditional self-report mechanisms and satisfaction surveys. As Eyler [2000] indicates, "what is needed are measures that allow students to show, rather then tell us, that they have attained greater understanding." The most direct measurement of our outcomes will be the student work product ratings for those students enrolled in service learning. The work product ratings will be provided through self and peer evaluation, faculty and client evaluation, and the SL Executive Committee. By using these different methods of content assessment, we will be capable of collecting and assessing quantitative feedback on both process and substantive content. To do this, we are implementing an evaluation rubric, which will focus on the Engineering process.

Instructor Survey
UC Merced instructors who teach the service learning courses will also complete a survey.

Client Assessment
A mid-semester client survey will be adapted from the existing EPICS Partners Questionnaire. Evaluation of those clients involved in our service learning program is critical. [Ferrari & Worrall 2000]. This survey will focus on the project and student performance in terms of client satisfaction with (1) communications with the team, (2)

responsiveness of the team to the problem, (3) student skill level, (4) work quality, and (5) professionalism. Comments will be solicited as to how the project could have been better executed and how the SL experience could have been improved from the client's perspective. Aside from determining client satisfaction with the process and the team through the survey, a client interview will be conducted. The interview will focus on student skills and project outcomes to serve as an additional external measure of student work products. Finally, as mentioned above, clients will participate in the evaluation of student work products and outcomes.

Research Study

It is often the case that program evaluation cannot achieve answers to important questions regarding student learning. Most programs across the United States implement program evaluation at its most basic level, typically incorporating what is commonly known as a "satisfaction survey" upon completion of the program. We, however, have devised a comprehensive and novel approach to program evaluation as we described above. Nevertheless, one of our goals is to enhance the quality of Engineering education and to impact Engineering's academic culture. To do this, we need to answer several research questions, questions that we can answer through a research study. To this end, our research study will consist of: (1) student survey; and (2) registrar data analysis.

Student Survey

The student survey will be very similar to the survey given to service learning students; however, certain questions will be added in order to determine whether the student has participated in service learning, for how many credits, and whether his or her high school environment required any type of community or service learning. Students will be recruited from all Engineering majors to participate in this study. We will begin to collect data at the end of Fall 2005 to establish a baseline, and the survey will be administered at the end of each semester. We anticipate being able to quantitatively answer critical questions about the role and impact of SL and other educational innovations in the Engineering curriculum. Further, by asking specific questions regarding a student's experience with service learning and in Engineering, we will be capable of analyzing the data in such a way as to determine short-term and long-term impacts of such innovations, including changes over time.

Registrar Data Analysis

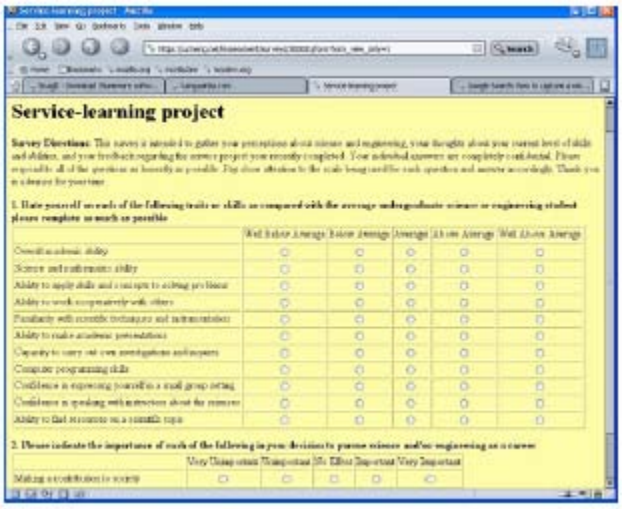
In order to build in an additional level of evaluation and research, as well as an internal check of our data, we plan to conduct a registrar data analysis. Through cooperation with the UC Merced Registrar, we will request available data on Engineering students. Examples of the type of data collected include: gender, ethnicity, age, high school rank, high school GPA, SAT score, ACT score, major, residency, citizenship, major GPA, overall GPA, financial aid, courses enrolled in, and credits earned. The registrar data analysis adds a level of complexity and comprehensiveness to our system that allows us to assess additional outcomes. Further, by analyzing these data in relation to the data we collect from surveys, we can ensure the accuracy and consistency of our data overall. We are currently seeking Human Subjects approval for this aspect of our effort.

Information Management System: UCM Online

The centerpiece of our plan is an information management system for the proposed student, faculty, and client tracking. The system consists of an object-oriented database, which will be populated with objects representing the major conceptual units of the tracking effort: students, courses, service learning projects, student outcomes, etc. In the case of the program evaluation, these objects will contain all data relevant to the students' Engineering educational experience at UC Merced. In the case of the research study, these objects will amass a comprehensive database of student responses throughout the years, allowing us to answer critical research questions never before answered. Objects that monitor student performance will be integrated into the system to provide notification functions to other objects, students, and faculty as considered valuable for students and faculty with the goal of improving the student learning experience. External applications used to query or analyze information in the associated database will be provided with containers of objects, where any personal data (such as grades in specific courses or family educational achievement) will be blanked out, depending on the access rights of the person originating the query. Additionally, methods will be available that perform statistical analysis on objects such as calculating correlations between properties of object sets without returning individual object's data to the user. More generally, users will have access to the information in the database though a Web-based content management system built using an open and scriptable applications development environment. Consequently, students will have the ability to design, develop, implement, and use their own personalized information systems supported by these data as appropriate.

Another important feature of the information management system is to prevent over-assessment of students. By compiling student responses to assessment in one place, we can avoid asking students the same question multiple times and reduce the number of assessment instruments they fill out. This will improve response rate and help to ensure accurate outcomes. All software development will take place using the open source Web application server Zope (www.zope.org) and R language/environment (www.r-project.org) for statistical computing and graphics; hence, the software for executing our DLR assessment tool is freely available via the Internet.

The following figure is a screenshot of our current prototype:



CONCLUSION

The University of California at Merced is a completely new campus. It provides a unique intellectual environment for defining an academic culture without having to expend money, time or effort to dismantle pre-existing departmental structures or boundaries. The interdisciplinary founding Engineering faculty are strongly and unanimously committed to maintaining a non-departmental structure for Engineering, as well as to innovation in teaching, high quality research and effective outreach, a combination of skills that is ideally suited to implementing progressive education as well as quantitatively evaluating and disseminating its success. Within this context, a service learning (SL) experience is being created for all undergraduate students, to achieve a three-fold impact on Engineering education: (1) increasing the recruitment, retention and diversity of Engineering students; (2) enhancing the quality of Engineering education; and (3) changing the culture of Engineering in academia. The unique circumstances at UC Merced are ideal for testing the effectiveness of these goals. From the outset, there exists the opportunity to develop a comprehensive, versatile, expandable, web-based evaluation and tracking system, and to develop an information management framework that can facilitate complementary efficiencies in faculty outreach efforts to schools and junior colleges, assessment of success in student recruitment, assessment of student performance and satisfaction in individual courses, compliance with accreditation criteria, and tracking of student retention, progress and career pathways.

University of California, Merced
Engineering Service Learning Program

Service Learning Survey (Pre)

Directions:
This survey is intended to gather your perceptions about science and engineering, your thoughts about your current level of skills and abilities, and gather information about your general academic and professional careers.

Your individual answers are completely confidential. Please respond to all of the questions as honestly as possible. **Pay close attention to the scale being used for each question and answer accordingly.**

Thank you in advance for your time.

Demographic & Background Information:

Your Sex:
□Male
□Female

As of today how old are you?

Is English your native language?
□Yes
□No

What is your citizenship status?
□U.S. Citizen
□Permanent Resident
□Neither

Your Ethnicity:
□African-American/Black
□American Indian/Alaskan Native
□Chinese/ Chinese-American
□East Indian/Pakistani
□Filipino/Filipino-American
□Hmong/Hmong-American
□Japanese/Japanese-American
□Korean/Korean-American
□Mexican/Mexican-American/Chicano/Latino
□Pacific Islander
□Vietnamese/Vietnamese-American
□White/Caucasian (Non-Hispanic)
□Decline to State
□Other (Please Specify)_____

Do you have a disability, as defined by Rehabilitation Act, 1973, or the Americans with Disabilities Act, ADA, 1990?
□Yes
□No
□Decline to State

Are you married?
□Yes
□No

Do you have any children?
□No
□1 or more on the way
□1
□2
□3
□More than 3

How far is your permanent home from UC-Merced?
□In the same town
□In the district
□In the county
□Same geographic region (i.e. Central California)
□Within California

□Within the US
□Other

Have you ever participated in the UC Merced service-learning program?

□Yes

□No

If so, how long ago were you involved in the UC Merced service-learning program?
□Last term
□2 terms ago
□3 terms ago
□4 terms ago
□5 terms ago
□6 terms ago
□Over 6 terms ago

How many units/credits of service-learning credits do you have?
□1
□2
□3
□4
□More than 4

Have you ever participated in a service-learning program in high school?

□Yes

□No

Have you participated in a college/university service-learning program, other than UC-Merced?

□Yes

□No

Last High School Attended:

Did you graduate from high school?
□Yes
□No
□GED
□State Diploma
□Other

If so, what type of high school did you graduate from?
□Public School
□Private School
□Charter School
□Religious School
□Magnet School

What was the average letter grade you received in high school?

During high school, how many years did you take the following subjects and what was your average grade(s) received:

	Zero	.5	1	1.5	2	2.5	3	3.5	4	More than 4	Average Grade
Biological Science	□	□	□	□	□	□	□	□	□	□	
Computer Science	□	□	□	□	□	□	□	□	□	□	
English	□	□	□	□	□	□	□	□	□	□	
Foreign Language	□	□	□	□	□	□	□	□	□	□	
History	□	□	□	□	□	□	□	□	□	□	
Math	□	□	□	□	□	□	□	□	□	□	
Physical Science	□	□	□	□	□	□	□	□	□	□	
Political Science	□	□	□	□	□	□	□	□	□	□	
The Arts	□	□	□	□	□	□	□	□	□	□	

What is your enrollment status?
□Full-time
□Part-time
□Non-degree seeking student

Year in school:
□Fr
□So
□Jr
□Sr
□5th yr

In terms of college selection, UC-Merced was your:
□First choice
□Second choice
□Third choice
□Less than third choice

Are you a transfer student?
□Yes
□No

Your Major(s):

Overall UC-Merced GPA:

Major(s) GPA:

SAT Verbal Score:
SAT Math Score:
ACT Composite Score (If applicable):

What is your final degree objective?

□None
□Vocational certificate
□Associate of Arts (or equivalent)
□Bachelors
□Masters
□MD
□JD
□PhD
□Other (Please Specify):

What is your career objective upon graduation?
□Industry
□Faculty
□Academia (other than faculty member)
□Research
□Non-profit
□Government
□Military
□K-12
□Other (Please Specify):

What is your parent(s) or legal guardian(s) present income level?
□Less than $15,000
□$15,000-$30,000
□$30,001-$45,000
□$45,001-$60,000
□$60,001-$75,000
□ $75,001-$90,000
□$90,001-$100,000
□Over $100,000
□Don't Know

Father's Highest Education Level:
□Did not Graduate High School
□High School Graduate
□Some College
□Associate Arts
□Bachelors
□Master's Degree
□Professional Degree
□Doctoral Degree
□Not Applicable/Don't Know

Mother's Highest Education Level:
□Did not Graduate High School
□High School Graduate
□Some College
□Associate Arts
□Bachelors
□Master's Degree
□Professional Degree
□Doctoral Degree
□Not Applicable/Don't Know

Currently, my parents are:
□Married/living together
□Divorced/separated/not living together
□One or both deceased

Do you qualify for federal work-study?

□Yes

□No

□Don't Know

Do you receive federal work-study?

□Yes

□No

□Don't Know

Do you receive federal student loans?

□Yes

□No

□Don't Know

Are you concerned with your ability to finance your college education?
□No
□Somewhat
□Yes

Survey Questions:

Rate yourself on each of the following traits or skills as compared with the average undergraduate science or engineering student:

	Well Below Average	Below Average	Average	Above Average	Well Above Average
Overall academic ability	□	□	□	□	□
Science and mathematics ability	□	□	□	□	□
Ability to apply skills and concepts to solving problems	□	□	□	□	□
Capacity to carry out own investigations and inquiries	□	□	□	□	□
Time Management	□	□	□	□	□
Familiarity with scientific techniques and instrumentation	□	□	□	□	□
Public speaking ability	□	□	□	□	□
Computer programming skills	□	□	□	□	□
Confidence in expressing yourself in a small group setting	□	□	□	□	□
Clear career goal(s)	□	□	□	□	□
Ability to find resources on a scientific topic	□	□	□	□	□
Ability to explain scientific concepts to others	□	□	□	□	□
Leadership ability	□	□	□	□	□
Confidence in speaking with instructors about the sciences	□	□	□	□	□
Ability to apply what learned in college to real world problems	□	□	□	□	□
Self-confidence	□	□	□	□	□
Understanding the importance of others perceptions	□	□	□	□	□
Writing ability	□	□	□	□	□
Ability to make academic presentations	□	□	□	□	□
Ability to work cooperatively with others	□	□	□	□	□

Please indicate the importance of each of the following in your decision to pursue science and/or engineering as a career:

	Very Unimportant	Unimportant	No Effect	Important	Very Important
Making a contribution to society	□	□	□	□	□
Making a theoretical contribution to science	□	□	□	□	□
Securing a financially stable or profitable career	□	□	□	□	□
Interest in experimental discovery	□	□	□	□	□
Interest in solving problems	□	□	□	□	□
Interest in understanding natural phenomena	□	□	□	□	□
To be a community leader	□	□	□	□	□
Interest in the subject matter	□	□	□	□	□
Interest in technology	□	□	□	□	□
Parent/legal guardian is in the field	□	□	□	□	□
Sibling is in the field	□	□	□	□	□
Other family member is in the field	□	□	□	□	□
Friend is in the field	□	□	□	□	□

Consider your thoughts about science and engineering, and indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The way science is taught encourages questioning	□	□	□	□	□

Sometimes scientists cannot find the answers to their questions	□	□	□	□	□
Engineers do not have enough time for family, friends, or fun	□	□	□	□	□
It may be said that scientific ideas evolve in their development	□	□	□	□	□
Becoming a scientist or engineer takes too many years of education	□	□	□	□	□
When I think of an engineer, I think of a confident person	□	□	□	□	□
Science promotes collaboration	□	□	□	□	□
As an engineer you are given a great deal of opportunity to apply theory	□	□	□	□	□
Learning science is mostly memorizing facts	□	□	□	□	□
The work of scientists and engineers benefits society	□	□	□	□	□
Learning science is mostly applying theories or concepts to new and/or practical situations	□	□	□	□	□
Learning science is mostly synthesizing of information	□	□	□	□	□
Hands-on learning is important to learning new concepts	□	□	□	□	□

Think about your own learning style and the ways in which you manage your life decisions. Then, indicate the extent to which you agree or disagree with each of the following statements:

	Never	Rarely	Sometimes	Frequently	Always
I work hard to do well, even if I don't like a task	□	□	□	□	□
I try to understand the tasks before I attempt to solve them	□	□	□	□	□
I am willing to do extra work on tasks to improve my knowledge	□	□	□	□	□
I try to figure out my goals and what I need to do to accomplish them	□	□	□	□	□
I check my accuracy as I progress through a task	□	□	□	□	□
I make my own decisions regarding what to do with my life	□	□	□	□	□
I can have a positive impact on local social problems	□	□	□	□	□
The extent of my achievement is often determined by chance	□	□	□	□	□
I try to learn from my success and failures	□	□	□	□	□
I plan and manage my time to maximize my effort	□	□	□	□	□
I have little control over the things that happen to me	□	□	□	□	□
I believe I can succeed at most things if I apply myself	□	□	□	□	□

Think about your experiences working in a team and indicate the extent to which you agree or disagree with each statement below:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I help to solve problems by using information provided by the team	□	□	□	□	□
I focus on completing the team task successfully	□	□	□	□	□
I attempt to change incorrect information immediately	□	□	□	□	□
I respect the thoughts and opinions of others in the team	□	□	□	□	□
I lead when appropriate, mobilizing the group for high performance	□	□	□	□	□
Working on a team helps me to learn	□	□	□	□	□
I enjoy working on teams	□	□	□	□	□

Reflect on your past learning experiences and involvement with the community. Then, indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I think people should find time to contribute to their community	□	□	□	□	□
Being involved in a program to improve my community is important	□	□	□	□	□
I am concerned about local community issues	□	□	□	□	□
It is important for me to find a career that directly benefits others	□	□	□	□	□

Consider your academic and professional experiences and reflect on the skills you have obtained. Then, rate your skill level in the following areas:

	Well Below Average	Below Average	Average	Above Average	Well Above Average
Ability to apply knowledge of mathematics, science and engineering	☐	☐	☐	☐	☐
Ability to design and conduct experiments, and analyze and interpret data	☐	☐	☐	☐	☐
Ability to design a system, process or component to meet desired needs	☐	☐	☐	☐	☐
Ability to function on a multi-disciplinary team	☐	☐	☐	☐	☐
Ability to identify, formulate and solve engineering problems	☐	☐	☐	☐	☐
Understanding of ethical and professional responsibilities	☐	☐	☐	☐	☐
Ability to communicate effectively	☐	☐	☐	☐	☐
Ability to impact global and societal engineering problems	☐	☐	☐	☐	☐
Recognition and ability to engage in life-long learning	☐	☐	☐	☐	☐
Knowledge of contemporary issues	☐	☐	☐	☐	☐
Ability to use techniques, skills and modern engineering tools	☐	☐	☐	☐	☐
Ability to work effectively with a client	☐	☐	☐	☐	☐
Ability to manage an engineering project	☐	☐	☐	☐	☐
Appreciation of real-world constraints on engineering solutions	☐	☐	☐	☐	☐
Ability to understand the relationship between theoretical models and applied field work	☐	☐	☐	☐	☐

Reflect on your experience with individuals from other cultures and indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I have interacted with people from different cultures	☐	☐	☐	☐	☐
I have an appreciation for different cultures	☐	☐	☐	☐	☐
I have acquired relationships with people from different cultures	☐	☐	☐	☐	☐
I have experienced different social and economic environments	☐	☐	☐	☐	☐
My academic and professional experiences have influenced my attitude towards communities that are different than my own	☐	☐	☐	☐	☐

THANK YOU FOR YOUR TIME

Service Learning Survey (Post)

Directions:
This survey is intended to gather your perceptions about science and engineering, your thoughts about your current level of skills and abilities, and gather information about your general academic and professional careers.

Your individual answers are completely confidential. Please respond to all of the questions as honestly as possible. **Pay close attention to the scale being used for each question and answer accordingly.**

Thank you in advance for your time.

What is your final degree objective?

□None
□Vocational certificate
□Associate of Arts (or equivalent)
□Bachelors
□Masters
□MD
□JD
□PhD
□Other (Please Specify):

What is your career objective upon graduation?

□Industry
□Faculty
□Academia (other than faculty member)
□Research
□Non-profit
□Government
□Military
□K-12
□Other (Please Specify):

Survey Questions:

Rate yourself on each of the following traits or skills as compared with the average undergraduate science or engineering student:

	Well Below Average	Below Average	Average	Above Average	Well Above Average
Overall academic ability	□	□	□	□	□
Science and mathematics ability	□	□	□	□	□
Ability to apply skills and concepts to solving problems	□	□	□	□	□
Capacity to carry out own investigations and inquiries	□	□	□	□	□
Time Management	□	□	□	□	□
Familiarity with scientific techniques and instrumentation	□	□	□	□	□
Public speaking ability	□	□	□	□	□
Computer programming skills	□	□	□	□	□
Confidence in expressing yourself in a small group setting	□	□	□	□	□
Clear career goal(s)	□	□	□	□	□
Ability to find resources on a scientific topic	□	□	□	□	□
Ability to explain scientific concepts to others	□	□	□	□	□
Leadership ability	□	□	□	□	□
Confidence in speaking with instructors about the sciences	□	□	□	□	□
Ability to apply what learned in college to real world problems	□	□	□	□	□
Self-confidence	□	□	□	□	□
Understanding the importance of others perceptions	□	□	□	□	□
Writing ability	□	□	□	□	□
Ability to make academic presentations	□	□	□	□	□
Ability to work cooperatively with others	□	□	□	□	□

Please indicate the importance of each of the following in your decision to pursue science and/or engineering as a career:

	Very Unimportant	Unimportant	No Effect	Important	Very Important
Making a contribution to society	□	□	□	□	□
Making a theoretical contribution to science	□	□	□	□	□
Securing a financially stable or profitable career	□	□	□	□	□
Interest in experimental discovery	□	□	□	□	□
Interest in solving problems	□	□	□	□	□
Interest in understanding natural phenomena	□	□	□	□	□
To be a community leader	□	□	□	□	□
Interest in the subject matter	□	□	□	□	□
Interest in technology	□	□	□	□	□
Parent/legal guardian is in the field	□	□	□	□	□
Sibling is in the field	□	□	□	□	□
Other family member is in the field	□	□	□	□	□
Friend is in the field	□	□	□	□	□

Consider your thoughts about science and engineering, and indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The way science is taught encourages questioning	□	□	□	□	□

Sometimes scientists cannot find the answers to their questions	□	□	□	□	□
Engineers do not have enough time for family, friends, or fun	□	□	□	□	□
It may be said that scientific ideas evolve in their development	□	□	□	□	□
Becoming a scientist or engineer takes too many years of education	□	□	□	□	□
When I think of an engineer, I think of a confident person	□	□	□	□	□
Science promotes collaboration	□	□	□	□	□
As an engineer you are given a great deal of opportunity to apply theory	□	□	□	□	□
Learning science is mostly memorizing facts	□	□	□	□	□
The work of scientists and engineers benefits society	□	□	□	□	□
Learning science is mostly applying theories or concepts to new and/or practical situations	□	□	□	□	□
Learning science is mostly synthesizing of information	□	□	□	□	□
Hands-on learning is important to learning new concepts	□	□	□	□	□

Think about your own learning style and the ways in which you manage your life decisions. Then, indicate the extent to which you agree or disagree with each of the following statements:

	Never	Rarely	Sometimes	Frequently	Always
I work hard to do well, even if I don't like a task	□	□	□	□	□
I try to understand the tasks before I attempt to solve them	□	□	□	□	□
I am willing to do extra work on tasks to improve my knowledge	□	□	□	□	□
I try to figure out my goals and what I need to do to accomplish them	□	□	□	□	□
I check my accuracy as I progress through a task	□	□	□	□	□
I make my own decisions regarding what to do with my life	□	□	□	□	□
I can have a positive impact on local social problems	□	□	□	□	□
The extent of my achievement is often determined by chance	□	□	□	□	□
I try to learn from my success and failures	□	□	□	□	□
I plan and manage my time to maximize my effort	□	□	□	□	□
I have little control over the things that happen to me	□	□	□	□	□
I believe I can succeed at most things if I apply myself	□	□	□	□	□

Think about your experiences working in a team and indicate the extent to which you agree or disagree with each statement below:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I help to solve problems by using information provided by the team	□	□	□	□	□
I focus on completing the team task successfully	□	□	□	□	□
I attempt to change incorrect information immediately	□	□	□	□	□
I respect the thoughts and opinions of others in the team	□	□	□	□	□
I lead when appropriate, mobilizing the group for high performance	□	□	□	□	□
Working on a team helps me to learn	□	□	□	□	□
I enjoy working on teams	□	□	□	□	□

Reflect on your past learning experiences and involvement with the community. Then, indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I think people should find time to contribute to their community	□	□	□	□	□
Being involved in a program to improve my community is important	□	□	□	□	□
I am concerned about local community issues	□	□	□	□	□
It is important for me to find a career that directly benefits others	□	□	□	□	□

As a result of working on the service-learning project, please rate your skill level in the following areas:

	Well Below Average	Below Average	Average	Above Average	Well Above Average
Ability to apply knowledge of mathematics, science and engineering	□	□	□	□	□
Ability to design and conduct experiments, and analyze and interpret data	□	□	□	□	□
Ability to design a system, process or component to meet desired needs	□	□	□	□	□
Ability to function on a multi-disciplinary team	□	□	□	□	□
Ability to identify, formulate and solve engineering problems	□	□	□	□	□
Understanding of ethical and professional responsibilities	□	□	□	□	□
Ability to communicate effectively	□	□	□	□	□
Ability to impact global and societal engineering problems	□	□	□	□	□
Recognition and ability to engage in life-long learning	□	□	□	□	□
Knowledge of contemporary issues	□	□	□	□	□
Ability to use techniques, skills and modern engineering tools	□	□	□	□	□
Ability to work effectively with a client	□	□	□	□	□
Ability to manage an engineering project	□	□	□	□	□
Appreciation of real-world constraints on engineering solutions	□	□	□	□	□
Ability to understand the relationship between theoretical models and applied field work	□	□	□	□	□

Reflect on your experience with individuals from other cultures and indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I have interacted with people from different cultures	□	□	□	□	□
I have an appreciation for different cultures	□	□	□	□	□
I have acquired relationships with people from different cultures	□	□	□	□	□
I have experienced different social and economic environments	□	□	□	□	□
My academic and professional experiences have influenced my attitude towards communities that are different than my own	□	□	□	□	□
My service-learning experience has increased my interpersonal skills	□	□	□	□	□
My service-learning experience has given me an appreciation for what I have	□	□	□	□	□
My service-learning experience has caused me to view people and communities in a different context	□	□	□	□	□

Think about your service-learning experience and indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I was able to apply the concepts I have learned in my classes to the service learning experience	□	□	□	□	□
The service learning experience helped me better understand some of the concepts presented in the course	□	□	□	□	□
I would recommend the class to other students	□	□	□	□	□
The service-learning project has taught me valuable experiences	□	□	□	□	□
I spent much more time on the service-learning project than expected	□	□	□	□	□

Enough time was spent in class preparing me for my service-learning experience	□	□	□	□	□
The time spent on the service-learning project was reasonable	□	□	□	□	□
Overall, I am satisfied with the service-learning experience	□	□	□	□	□
The active learning in the project was challenging	□	□	□	□	□
The service-learning experience incorporated theory into practice	□	□	□	□	□
Service-learning provided me with connections between the classroom and the real world	□	□	□	□	□
The service-learning experience made it easier to understand class material	□	□	□	□	□
The service-learning experience enhanced and expanded the importance of class lectures	□	□	□	□	□
The service-learning experience provided the opportunity to practice what is learned in class	□	□	□	□	□
The service learning experience has increased my interest in science/engineering	□	□	□	□	□

Please rate your instructor on the opportunities afforded to you in the course:

	Never	Rarely	Sometimes	Frequently	Always
a) The instructor tied together the concepts taught in class with the project	□	□	□	□	□
b) The instructor provided me with feedback on my performance throughout the project	□	□	□	□	□
c) The instructor was available for guidance on the project	□	□	□	□	□
d) The instructor provided opportunities to apply what we learned in class to the project	□	□	□	□	□
e) The instructor encouraged us to interact with the clients	□	□	□	□	□
f) The instructor was enthusiastic about the service learning component of the course	□	□	□	□	□

Open-Ended Questions:

Do you intend to continue to serve in your community in the future? □Yes □No □Unsure

Discuss how your service-learning project did or did not meet your expectations.

What have you learned about yourself or others since becoming involved in the service-learning project?

What suggestions, if any, do you have for improving the service-learning program?

Describe your overall level of satisfaction with your service-learning experience.

What were some of the challenge(s) of your project?

What advice would you give to a student who is thinking about participating in a service-learning project?

Are there question(s) we should have asked on this survey? We are looking for questions that will help us understand your service learning experience and can be used to improve the program. If you have any suggestions, please list them here.

THANK YOU FOR YOUR TIME

UC Merced Service Learning Rubric
Faculty Evaluation of Service Learning Student

Service Learning Team:_____

Student Being Evaluated:_____

Instructions: Use the following scoring guideline to evaluate the following topics. Give an overall rating to **each criteria** on a scale of 1-5. If the criteria listed are not applicable to the team or project, please use the N/A rating.

Scale:

5=Well Above Average
4 = Above Average
3 = Average
2 = Below Average
1 = Well Below Average

N/A = Not Applicable

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Communication (Oral & Written)	Presentations are made clearly and effectively		
	Confidence in expressing opinions in a small group setting		
	Confidence in expressing opinions to client		
	Able to explain scientific concepts to others		
	Writing ability		
	Able to communicate effectively		
	Able to present position with adequate supporting details		
	Documentation is well written, clear, complete and concise		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Teamwork	Leadership ability		
	Able to work cooperatively with others		
	Able to function on a multi-disciplinary team		
	Able to be a responsible team member		
	Assists others in assimilating to the team		
	Able to lead team effectively		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Community Awareness & Ethical Responsibility	Understanding of ethical and professional responsibilities		
	Ability to impact global and societal engineering problems		
	Recognition and ability to engage in life-long learning		
	Appreciation for different cultures		
	Able to describe how the project will benefit the community		
	Demonstrates basic ethical behavior toward team members and project		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Project Management	Time Management		
	Works effectively with a client		
	Able to gather needed resources		
	Appreciation of real-world constraints on engineering solutions		
	Able to use resources that are readily available		
	Able to manage an engineering project		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Technical Skills	Familiarity with scientific techniques and instrumentation		
	Computer programming skills		
	Ability to find resources on a scientific topic		
	Ability to use techniques, skills and modern engineering tools		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Design Process	Ability to apply skills and concepts to solving problems		
	Ability to design and conduct experiments, and analyze and interpret data		
	Ability to design a system, process or component to meet desired needs		
	Ability to identify, formulate and solve engineering problems		
	Able to appraise progress on the project(s) relative to the design process		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Application of Engineering Knowledge	Ability to apply knowledge of mathematics, science and engineering		
	Knowledge of contemporary issues		
	Ability to understand the relationship between theoretical models and real-world applications		

TOTAL	**TOTAL SCORE:**	**Overall Comments:**

UC Merced Service Learning Rubric
Faculty Evaluation of Service Learning Team

Service Learning Team:_____

Members of Team:_____

Instructions: Use the following scoring guideline to evaluate the following topics. Give an overall rating to **each criteria** on a scale of 1-5. If the criteria listed are not applicable to the team or project, please use the N/A rating.

Scale:

5=Well Above Average
4 = Above Average
3 = Average
2 = Below Average
1 = Well Below Average

N/A = Not Applicable

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Communication (Oral & Written)	Presentations are made clearly and effectively		
	Confidence in expressing opinions in a small group setting		
	Confidence in expressing opinions to client		
	Able to explain scientific concepts to others		
	Writing ability		
	Able to communicate effectively		
	Able to present position with adequate supporting details		
	Documentation is well written, clear, complete and concise		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Teamwork	Leadership ability		
	Able to work cooperatively with others		
	Able to function on a multi-disciplinary team		
	Able to be a responsible team member		
	Assists others in assimilating to the team		
	Able to lead team effectively		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Community Awareness & Ethical Responsibility	Understanding of ethical and professional responsibilities		
	Ability to impact global and societal engineering problems		
	Recognition and ability to engage in life-long learning		
	Appreciation for different cultures		
	Able to describe how the project will benefit the community		
	Demonstrates basic ethical behavior toward team members and project		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Project Management	Time Management		
	Works effectively with a client		
	Able to manage an engineering project		
	Appreciation of real-world constraints on engineering solutions		
	Able to use resources that are readily available		
	Able to gather needed resources		

Topic	Criteria	Overall Rating Score (1-5):	Comments:

Technical Skills	Familiarity with scientific techniques and instrumentation		
	Computer programming skills		
	Ability to find resources on a scientific topic		
	Ability to use techniques, skills and modern engineering tools		

Topic	**Criteria**	**Overall Rating Score (1-5):**	**Comments:**
Design Process	Ability to apply skills and concepts to solving problems		
	Ability to design and conduct experiments, and analyze and interpret data		
	Ability to design a system, process or component to meet desired needs		
	Ability to identify, formulate and solve engineering problems		
	Able to appraise progress on the project(s) relative to the design process		

Topic	**Criteria**	**Overall Rating Score (1-5):**	**Comments:**
Application of Engineering Knowledge	Ability to apply knowledge of mathematics, science and engineering		
	Knowledge of contemporary issues		
	Ability to understand the relationship between theoretical models and real-world applications		

TOTAL	**TOTAL SCORE:**	**Overall Comments:**

UC Merced Service Learning Rubric
Student Evaluation of Self

Service Learning Team:_____

Members on Team:_____

Instructions: Use the following scoring guideline to evaluate the following topics. Give an overall rating to **each criteria** on a scale of 1-5. If the criteria listed are not applicable to your team or project, please use the N/A rating. Try to consider your own abilities as you see them in relation to your team members. Be honest in your ratings.

Scale:

5=Well Above Average
4 = Above Average
3 = Average
2 = Below Average
1 = Well Below Average

N/A = Not Applicable

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Communication (Oral & Written)	Presentations are made clearly and effectively		
	Confidence in expressing opinions in a small group setting		
	Confidence in expressing opinions to client		
	Able to explain scientific concepts to others		
	Writing ability		
	Able to communicate effectively		
	Able to present position with adequate supporting details		
	Documentation is well written, clear, complete and concise		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Teamwork	Leadership ability		
	Able to work cooperatively with others		
	Able to function on a multi-disciplinary team		
	Able to be a responsible team member		
	Assists others in assimilating to the team		
	Able to lead team effectively		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Community Awareness & Ethical Responsibility	Understanding of ethical and professional responsibilities		
	Ability to impact global and societal engineering problems		
	Recognition and ability to engage in life-long learning		
	Appreciation for different cultures		
	Able to describe how the project will benefit the community		
	Demonstrates basic ethical behavior toward team members and project		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Project Management	Time Management		
	Works effectively with a client		
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	Appreciation of real-world constraints on engineering solutions		
	Able to use resources that are readily available		
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Topic	Criteria	Overall Rating Score (1-5):	Comments:

Technical Skills	Familiarity with scientific techniques and instrumentation		
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Topic	**Criteria**	**Overall Rating Score (1-5):**	**Comments:**
Design Process	Ability to apply skills and concepts to solving problems		
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	Able to appraise progress on the project(s) relative to the design process		

Topic	**Criteria**	**Overall Rating Score (1-5):**	**Comments:**
Application of Engineering Knowledge	Ability to apply knowledge of mathematics, science and engineering		
	Knowledge of contemporary issues		
	Ability to understand the relationship between theoretical models and real-world applications		

TOTAL	TOTAL SCORE:	Overall Comments:

Final Question: In the space provided below, write in the names of all group members (including yourself). Add additional lines if necessary. You have been given $1,000 to allocate among your group members (including yourself) such that the amount of money awarded indicates your judgment of the overall value of each member's relative contribution. Consider factors such as effort, evidence of advance preparation for group meetings, quantity of contribution, quality of contribution, and meeting of deadlines. The total dollar amount must add up to $1,000 and you cannot spread the money evenly over the group members.

Team Member Name	Dollar Amount Allocated:
	Total: $1,000

The information on this form will be kept confidential by your instructor.

UC Merced Service Learning Rubric
Student Evaluation of Team Members

Service Learning Team:_____

Member Being Evaluated:_____

Instructions: Use the following scoring guideline to evaluate the following topics. Give an overall rating to **each criteria** on a scale of 1-5. If the criteria listed are not applicable to your team or project, please use the N/A rating. Keep in mind that you will be rating each member of your service learning team using the following rubric. Be honest in your rating. **Note:** If you assign the same score to every team member on all listed criteria, you will lose points. You must make an effort to differentiate between your team members and assign appropriate ratings.

Scale:

5=Well Above Average
4 = Above Average
3 = Average
2 = Below Average
1 = Well Below Average

N/A = Not Applicable

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Communication (Oral & Written)	Presentations are made clearly and effectively		
	Confidence in expressing opinions in a small group setting		
	Confidence in expressing opinions to client		
	Able to explain scientific concepts to others		
	Writing ability		
	Able to communicate effectively		
	Able to present position with adequate supporting details		
	Documentation is well written, clear, complete and concise		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Teamwork	Leadership ability		
	Able to work cooperatively with others		
	Able to function on a multi-disciplinary team		
	Able to be a responsible team member		
	Assists others in assimilating to the team		
	Able to lead team effectively		

Topic	Criteria	Overall Rating Score (1-5):	Comments:
Community Awareness & Ethical Responsibility	Understanding of ethical and professional responsibilities		
	Ability to impact global and societal engineering problems		
	Recognition and ability to engage in life-long learning		
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Topic	Criteria	Overall Rating Score (1-5):	Comments:
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Topic	**Criteria**	**Overall Rating Score (1-5):**	**Comments:**
Design Process	Ability to apply skills and concepts to solving problems		
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	Ability to design a system, process or component to meet desired needs		
	Ability to identify, formulate and solve engineering problems		
	Able to appraise progress on the project(s) relative to the design process		

Topic	**Criteria**	**Overall Rating Score (1-5):**	**Comments:**
Application of Engineering Knowledge	Ability to apply knowledge of mathematics, science and engineering		
	Knowledge of contemporary issues		
	Ability to understand the relationship between theoretical models and real-world applications		

TOTAL	**TOTAL SCORE:**	**Overall Comments:**

University of California, Merced
Engineering Service Learning Program

INSTRUCTOR SURVEY

This survey was developed using some questions from the following instruments:

1. The Western Region Campus Compact Consortium Faculty Email Questionnaire (2002) was developed by A. Furco, M. S. Ammon, A. Kornfield, & E. Middaugh at the Service-Learning Research & Development Center, University of California, Berkeley.

2. The College of Natural Resources Faculty Email Survey (2003) was developed by M. S. Ammon, E. Middaugh, & Kyra Naumoff at the Service-Learning Research & Development Center, University of California, Berkeley.

General Questions:

What is your academic discipline?

What is your academic position?

☐Professor
☐Associate Professor
☐Assistant Professor
☐Adjunct Professor
☐Instructor/Lecturer
☐GSI/GSR/TA
☐Other

Is this your first time teaching a service-learning course?

☐Yes
☐No

Have you used service-learning techniques in your teaching prior to this year?

☐Yes
☐No

How long have you been involved with service-learning?

☐Less than 1 year
☐1-3 years
☐4-6 years
☐7 or more years

From what sources have you become informed about service-learning? (Check all that apply.)

☐Not previously heard about service-learning
☐Colleague at UC Merced
☐Colleague elsewhere
☐Administrator
☐Presentation
☐Journal/Book
☐Newspaper/TV
☐Conference
☐Service-learning Coordinator/ Center
☐Student
☐Own Academic Training
☐Other (please specify)

Please indicate which types of projects were conducted in your service-learning course: (Check all that apply)

☐Teach K-12 grade students in local schools
☐Design hands-on examples, lessons, or demonstrations for other settings
☐Assist community agencies/organizations in their basic operations
☐Collect (and maybe organize) environmental/agricultural/nutritional data for agency/org
☐Analyze community issue and offer recommendations or design/plan program to address need
☐Organize/Lead/Work with community members to craft solution to particular problem
☐Other (please specify)

I am interested in developing a service-learning component in one or more of my regular courses.
☐Yes
☐No
☐Maybe

Service-learning might fit with one or more courses that I teach.
☐Yes
☐No
☐Maybe

Service-learning might fit with other courses in my discipline or school.
☐Yes
☐No
☐Maybe

I think other faculty members in my discipline would advocate for the use of service-learning or a similar technique.
☐Yes
☐No
☐Maybe

What kind of support for service-learning have you received from your institution? (Check all that apply.)
☐Curriculum Development
☐Course Assessment
☐Public Recognition of Efforts
☐Credit toward Promotion/Tenure
☐Assistance with Student Placement
☐Assistance with Student Recruitment
☐Grant/Funding
☐Transportation Assistance for Students
☐Other
☐None

What kind of support for service-learning have you received from the community organizations where students are involved in service? (Check all that apply.)
☐Orientation for Students
☐Training of Students
☐Transportation Assistance for Students
☐Documentation of Student Participation (e.g., hours served)
☐Evaluation of Students
☐Other
☐None

Please rate the importance of each the following with respect to your <u>own</u> involvement in service-learning:

	Very Unimportant	Unimportant	No Effect	Important	Very Important
To become better engaged in the local community	☐	☐	☐	☐	☐
To maintain previous connections in the local community	☐	☐	☐	☐	☐
To improve student academic learning	☐	☐	☐	☐	☐
To fulfill institutional obligations	☐	☐	☐	☐	☐
To collaborate with colleagues	☐	☐	☐	☐	☐
To advance my own career	☐	☐	☐	☐	☐
To further my own research	☐	☐	☐	☐	☐
To reenergize my teaching	☐	☐	☐	☐	☐
To offer students new societal perspectives	☐	☐	☐	☐	☐

Please rate the importance of each type of support necessary for your future involvement in service-learning:

	Very Unimportant	Unimportant	No Effect	Important	Very Important
Strong support provided by my dean/department/division chair	☐	☐	☐	☐	☐
Credit given toward promotion and tenure	☐	☐	☐	☐	☐
Recognition afforded by own professional organizations/associations	☐	☐	☐	☐	☐
Ideas provided for linking service-learning to my own research	☐	☐	☐	☐	☐
Opportunities provided to publish articles on use of service-learning	☐	☐	☐	☐	☐
Support provided by colleagues in my discipline	☐	☐	☐	☐	☐
Access provided to community partners	☐	☐	☐	☐	☐
Concrete examples provided of how service-learning might be incorporated in my courses	☐	☐	☐	☐	☐
Professional development available on service-learning issues	☐	☐	☐	☐	☐
Funding available to support course-based service-learning activities	☐	☐	☐	☐	☐
Assistance given with student placement and supervision	☐	☐	☐	☐	☐
Assistance with assessment	☐	☐	☐	☐	☐

Based on your perspective and experience with your service-learning course this quarter, indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I feel that the service my students completed through this class was beneficial to the community	☐	☐	☐	☐	☐
Using service-learning required more of my time as a teacher; but it was worth it	☐	☐	☐	☐	☐
I feel that the service the students completed interfered with their academic responsibilities	☐	☐	☐	☐	☐
The idea of combining service to the community with college course work should be practiced in more classes	☐	☐	☐	☐	☐
I received enough assistance with the logistics of service-learning (identifying placement sites, follow-up with students, etc)	☐	☐	☐	☐	☐
I will not use service-learning as a teaching strategy in future courses	☐	☐	☐	☐	☐
I have a basic understanding of service-learning strategies	☐	☐	☐	☐	☐
The amount of time needed to supervise and/or support the student teams was often burdensome	☐	☐	☐	☐	☐
I am satisfied with the level of support provided by the UC Merced service-learning staff	☐	☐	☐	☐	☐
I have a basic understanding of how to develop, implement, and evaluate a service-learning activity	☐	☐	☐	☐	☐
I understand the place of service-learning in higher education	☐	☐	☐	☐	☐
The agency/organization was satisfied with the work of the student teams	☐	☐	☐	☐	☐

Rate the activities and/or services provided by the UC Merced Service Learning Program in the following areas:

	Well Below Average	Below Average	Average	Above Average	Well Above Average
Assistance with service-learning technical resources/information	☐	☐	☐	☐	☐
Placement and support services for your students	☐	☐	☐	☐	☐
Recognition for your efforts	☐	☐	☐	☐	☐
Learning materials/forms for your students	☐	☐	☐	☐	☐
Communication between you and the staff	☐	☐	☐	☐	☐
Community service site development/maintenance for students	☐	☐	☐	☐	☐
Placements which are directly related to your academic coursework	☐	☐	☐	☐	☐
Resources and information to incorporate the pedagogy of service-learning into your classes	☐	☐	☐	☐	☐
Materials to assess and monitor students who learn in a service mode	☐	☐	☐	☐	☐
Overall support	☐	☐	☐	☐	☐

Open-Ended Questions:

Briefly describe your goals for the service-learning course students.

How does the quality of learning with a service-learning component compare to traditional classroom learning?

Describe the strengths of the service-learning course.

Describe any challenges you had with regard to the service-learning course.

What recommendations would you give to other faculty who are about to teach a service-learning course for the first time?

Would you teach another service-learning course? Indicate the reasons for your response.

PO Box 2039
Merced, CA 95344

A Woman’s Place
815 W. 18th Street
Merced, CA 95340

Monday, October 17, 2005

Dear Ms. Joan Bowers:

Thank you for participating in UC Merced's Engineering Service Learning Program this Fall semester. Since we are reaching our mid-semester point, now is a perfect time to find out your thoughts. We are very interested in learning how the program and the student team are working out for your agency and its engineering need.

Your feedback regarding your experience is very important to us. Please take your time in filling out the survey and return by fax or mail by October 28, 2005, to:

FAX # 209-724-2912

or

UC Merced
School of Engineering
Service Learning Program
Attn: Rosalina Aranda
PO Box 2039, Merced, CA 95344

If you have any questions or concerns, please contact me personally at 209-205-0973 or at raranda@ucmerced.edu.

Regards,
Rosalina Aranda
Service Learning Program Coordinator
UC Merced
School of Engineering
Service Learning Program

Service Learning Mid-Semester Client Survey

Directions:
We appreciate your utilization of student service-learners and are grateful for your participation in the UC Merced Service Learning Program. This mid-semester survey is intended to gather any feedback thus far about the service-learning project being conducted at your agency and your experience with your UC Merced service learning team.

Please remember that the questions pertain to the service-learning team as a whole and are not meant to assess any individual student.

Thank you in advance for your time.

General Information:

Give a brief description of the project conducted for your agency.

_____

_____

_____

Is this the first service-learning project that your agency/organization has been involved with?

□Yes

□No

Has your agency participated in a college/university service-learning program, other than UC-Merced?

□Yes

□No

Based on your perspective and experience *thus far in the semester*, consider the service-learning project and team as a whole and indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The student team works collaboratively to carry out the objectives of the project	□	□	□	□	□
I would like more faculty/staff contact or participation from UC Merced	□	□	□	□	□
The students are dedicated and committed to the service-learning project	□	□	□	□	□
There is sufficient communication between the Service-Learning staff at UC Merced and our agency/organization	□	□	□	□	□
The student team is working effectively with the staff at our agency/organization	□	□	□	□	□
The student team seems to have sufficient skills and abilities to fulfill the project tasks and responsibilities	□	□	□	□	□
The amount of time needed to supervise and/or support the student team is often burdensome	□	□	□	□	□
I am satisfied with the level of support provided by the UC Merced Service Learning Staff	□	□	□	□	□
When finished, the service-learning project will benefit the community	□	□	□	□	□
The student team is reliable and can be counted on to perform their assigned duties	□	□	□	□	□
I am satisfied with the outcomes of the service-learning project as carried out by the student team thus far	□	□	□	□	□
When completed, the service-learning project will make an impact on the ability of our agency/organization to meet community needs	□	□	□	□	□

Open-Ended Questions:

If you would like to comment on the project and/or team thus far, please use the space below. Feel free to comment on any challenges, problems, resource needs, concerns, successes, etc.

THANK YOU FOR YOUR TIME

University of California, Merced
Engineering Service Learning Program

CLIENT SURVEY

Give a brief description of the project conducted for your agency.

_____
_____

Is this the first service-learning project that your agency/organization has been involved with?
☐Yes
☐No

Has your agency participated in a college/university service-learning program, other than UC-Merced?
☐Yes
☐No

Would you have been able to carry out the project without assistance from the UC Merced Service Learning Student Team?
☐Yes
☐No
☐Maybe

Was the project completed?
☐Yes
☐No

Did the project meet your agency/organization expectations?
☐Yes
☐No
☐Somewhat

Would you be willing to serve as a client for a future service-learning team from UC Merced?
☐Yes
☐No
☐Maybe

Based on your perspective and experience, consider the service-learning project and team as a whole and indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The student team worked collaboratively to carry out the objectives of the project	☐	☐	☐	☐	☐
I would like more faculty/staff contact or participation from UC Merced	☐	☐	☐	☐	☐
The students were dedicated and committed to the service-learning project	☐	☐	☐	☐	☐
There was sufficient communication between the Service-Learning staff at UC Merced and our agency/organization	☐	☐	☐	☐	☐
The student team worked effectively with the staff at our agency/organization	☐	☐	☐	☐	☐
We want to continue to provide service-learning projects for the UC Merced	☐	☐	☐	☐	☐
The student team had sufficient skills and abilities to fulfill the project tasks and responsibilities	☐	☐	☐	☐	☐
The amount of time needed to supervise and/or support the student team was often burdensome	☐	☐	☐	☐	☐
I am satisfied with the level of support provided by the UC Merced Service Learning Staff	☐	☐	☐	☐	☐
The service-learning project benefited the community	☐	☐	☐	☐	☐
The student team was reliable and could be counted on to perform their assigned duties	☐	☐	☐	☐	☐
I am satisfied with the outcomes of the service-learning project as carried out by the student team	☐	☐	☐	☐	☐
The service-learning project made an impact on the ability of our agency/organization to meet community needs	☐	☐	☐	☐	☐
Our agency/organization was provided with sufficient resources on how best to design and implement a project for the student team	☐	☐	☐	☐	☐

Consider the service-learning team as a whole, and rate their skill level in the following areas:

	Well Below Average	Below Average	Average	Above Average	Well Above Average
Ability to apply knowledge of mathematics, science and engineering	☐	☐	☐	☐	☐
Ability to design and conduct experiments, and analyze and interpret data	☐	☐	☐	☐	☐
Ability to design a system, process or component to meet desired needs	☐	☐	☐	☐	☐
Ability to function on a multi-disciplinary team	☐	☐	☐	☐	☐
Ability to identify, formulate and solve engineering problems	☐	☐	☐	☐	☐
Understanding of ethical and professional responsibilities	☐	☐	☐	☐	☐
Ability to communicate effectively	☐	☐	☐	☐	☐
Ability to impact global and societal engineering problems	☐	☐	☐	☐	☐
Recognition and ability to engage in life-long learning	☐	☐	☐	☐	☐
Knowledge of contemporary issues	☐	☐	☐	☐	☐
Ability to use techniques, skills and modern engineering tools	☐	☐	☐	☐	☐
Ability to work effectively with our agency/organization	☐	☐	☐	☐	☐
Ability to manage an engineering project	☐	☐	☐	☐	☐
Appreciation of real-world constraints on engineering solutions	☐	☐	☐	☐	☐
Ability to understand the relationship between theoretical models and applied field work	☐	☐	☐	☐	☐
Ability to meet deadlines	☐	☐	☐	☐	☐
Ability to demonstrate leadership	☐	☐	☐	☐	☐

Open-Ended Questions:

How did or will the outcomes of this project benefit your organization?

What were the strengths of the service-learning program, project, and/or team?

Describe any challenges you had with regard to the service-learning program, project, and/or team.

What recommendations would you give to other clients who are about to do this for the first time?

Is there anything you would have liked from UC Merced that you did not receive (resources, guidance, etc)?

Would you participate in the UC Merced Service Learning program as a client again? Indicate the reasons for your response.

Is there anything else you would like to comment on that was not asked?

University of California, Merced
Engineering Service Learning Plan

CLIENT INTERVIEW PROTOCOL

We would start with the following broad question and then probe them as needed with the subsequent probing questions.

Primary Question:

Tell me about your experience with the service-learning group from UC Merced.

Probing Questions:

Is this a project you would have had to do yourself had it not been for the service-learning group, or was this project specifically designed for them?

What were the goals of this project for your organization and for the students? Were these goals met?

How will the outcomes of this project benefit your organization?

Did the process of working with the service-learning group impact your organization? (for example, did you change anything about how you do things internally)

What were the strong area(s) of the program?

Describe any challenges you had with regard to the program?
How did you deal with it?

What would you change about the experience for the next project?

What recommendations would you give to other clients who are about to do this for the first time?

Is there anything you would have liked form UC Merced that you did not receive (resources, guidance, etc)

Is there any other way, other than what you might have mentioned, that UC Merced can help make the program better for you next time?

Follow-Up or Conclusion Questions

Would you participate in the UC Merced Service Learning program as a client again?

Is there anything else you would like to comment on that I did not ask about?

University of California, Merced
Engineering Service Learning Program

RESEARCH STUDY SURVEY

Demographic & Background Information:

Your Sex:
☐Male
☐Female

As of today how old are you?

Is English your native language?
☐Yes
☐No

What is your citizenship status?
☐U.S. Citizen
☐Permanent Resident
☐Neither

Your Ethnicity:
☐African-American/Black
☐American Indian/Alaskan Native
☐Chinese/ Chinese-American
☐East Indian/Pakistani
☐Filipino/Filipino-American
☐Hmong/Hmong-American
☐Japanese/Japanese-American
☐Korean/Korean-American
☐Mexican/Mexican-American/Chicano/Latino
☐Pacific Islander
☐Vietnamese/Vietnamese-American
☐White/Caucasian (Non-Hispanic)
☐Decline to State
☐Other (Please Specify)_____

Do you have a disability, as defined by Rehabilitation Act, 1973, or the Americans with Disabilities Act, ADA, 1990?
☐Yes
☐No
☐Decline to State

Are you married?
☐Yes
☐No

Do you have any children?
☐No
☐1 or more on the way
☐1
☐2
☐3
☐More than 3

How far is your permanent home from UC-Merced?
☐In the same town
☐In the district
☐In the county
☐Same geographic region (i.e. Central California)
☐Within California
☐Within the US
☐Other

Have you ever participated in the UC Merced service-learning program?
☐Yes
☐No

If so, how long ago were you involved in the UC Merced service-learning program?

☐Last term
☐2 terms ago
☐3 terms ago
☐4 terms ago
☐5 terms ago
☐6 terms ago
☐Over 6 terms ago

How many units/credits of service-learning credits do you have?

☐1
☐2
☐3
☐4
☐More than 4

Have you ever participated in a service-learning program in high school?

☐Yes
☐No

Have you participated in a college/university service-learning program, other than UC-Merced?

☐Yes
☐No

Last High School Attended:

Did you graduate from high school?

☐Yes
☐No
☐GED
☐State Diploma
☐Other

If so, what type of high school did you graduate from?

☐Public School
☐Private School
☐Charter School
☐Religious School
☐Magnet School

What was the average letter grade you received in high school?

During high school, how many years did you take the following subjects and what was your average grade(s) received:

	Zero	.5	1	1.5	2	2.5	3	3.5	4	> 4	Avg Grade
Biological Science	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Computer Science	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
English	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Foreign Language	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
History	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Math	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Physical Science	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
Political Science	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
The Arts	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

What is your enrollment status?
☐Full-time
☐Part-time
☐Non-degree seeking student

Year in school:
☐Fr
☐So
☐Jr
☐Sr
☐5th yr

In terms of college selection, UC-Merced was your:
☐First choice
☐Second choice
☐Third choice
☐Less than third choice

Are you a transfer student?
☐Yes
☐No

Your Major(s):

Overall UC-Merced GPA:

Major(s) GPA:

SAT Verbal Score:
SAT Math Score:
ACT Composite Score (If applicable):

What is your final degree objective?
☐None
☐Vocational certificate
☐Associate of Arts (or equivalent)
☐Bachelors
☐Masters
☐MD
☐JD
☐PhD
☐Other (Please Specify):

What is your career objective upon graduation?
☐Industry
☐Faculty
☐Academia (other than faculty member)
☐Research
☐Non-profit
☐Government
☐Military
☐K-12
☐Other (Please Specify):

What is your parent(s) or legal guardian(s) present income level?
☐Less than $15,000
☐$15,000-$30,000
☐$30,001-$45,000
☐$45,001-$60,000
☐$60,001-$75,000
☐ $75,001-$90,000
☐$90,001-$100,000
☐Over $100,000
☐Don't Know

Father's Highest Education Level:

☐Did not Graduate High School
☐High School Graduate
☐Some College
☐Associate Arts
☐Bachelors
☐Master's Degree
☐Professional Degree
☐Doctoral Degree
☐Not Applicable/Don't Know

Mother's Highest Education Level:

☐Did not Graduate High School
☐High School Graduate
☐Some College
☐Associate Arts
☐Bachelors
☐Master's Degree
☐Professional Degree
☐Doctoral Degree
☐Not Applicable/Don't Know

Currently, my parents are:

☐Married/living together
☐Divorced/separated/not living together
☐One or both deceased

Do you qualify for federal work-study?

☐Yes
☐No
☐Don't Know

Do you receive federal work-study?

☐Yes
☐No
☐Don't Know

Do you receive federal student loans?

☐Yes
☐No
☐Don't Know

Are you concerned with your ability to finance your college education?

☐No
☐Somewhat
☐Yes

Survey Questions:

Rate yourself on each of the following traits or skills as compared with the average undergraduate science or engineering student:

	Well Below Average	Below Average	Average	Above Average	Well Above Average
Overall academic ability	☐	☐	☐	☐	☐
Science and mathematics ability	☐	☐	☐	☐	☐
Ability to apply skills and concepts to solving problems	☐	☐	☐	☐	☐
Capacity to carry out own investigations and inquiries	☐	☐	☐	☐	☐
Time Management	☐	☐	☐	☐	☐
Familiarity with scientific techniques and instrumentation	☐	☐	☐	☐	☐
Public speaking ability	☐	☐	☐	☐	☐
Computer programming skills	☐	☐	☐	☐	☐
Confidence in expressing yourself in a small group setting	☐	☐	☐	☐	☐
Clear career goal(s)	☐	☐	☐	☐	☐
Ability to find resources on a scientific topic	☐	☐	☐	☐	☐
Ability to explain scientific concepts to others	☐	☐	☐	☐	☐
Leadership ability	☐	☐	☐	☐	☐
Confidence in speaking with instructors about the sciences	☐	☐	☐	☐	☐
Ability to apply what learned in college to real world problems	☐	☐	☐	☐	☐
Self-confidence	☐	☐	☐	☐	☐
Understanding the importance of others perceptions	☐	☐	☐	☐	☐
Writing ability	☐	☐	☐	☐	☐
Ability to make academic presentations	☐	☐	☐	☐	☐
Ability to work cooperatively with others	☐	☐	☐	☐	☐

Please indicate the importance of each of the following in your decision to pursue science and/or engineering as a career:

	Very Unimportant	Unimportant	No Effect	Important	Very Important
Making a contribution to society	☐	☐	☐	☐	☐
Making a theoretical contribution to science	☐	☐	☐	☐	☐
Securing a financially stable or profitable career	☐	☐	☐	☐	☐
Interest in experimental discovery	☐	☐	☐	☐	☐
Interest in solving problems	☐	☐	☐	☐	☐
Interest in understanding natural phenomena	☐	☐	☐	☐	☐
To be a community leader	☐	☐	☐	☐	☐
Interest in the subject matter	☐	☐	☐	☐	☐
Interest in technology	☐	☐	☐	☐	☐
Parent/legal guardian is in the field	☐	☐	☐	☐	☐
Sibling is in the field	☐	☐	☐	☐	☐
Other family member is in the field	☐	☐	☐	☐	☐
Friend is in the field	☐	☐	☐	☐	☐

Consider your thoughts about science and engineering, and indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The way science is taught encourages questioning	☐	☐	☐	☐	☐
Sometimes scientists cannot find the answers to their questions	☐	☐	☐	☐	☐
Engineers do not have enough time for family, friends, or fun	☐	☐	☐	☐	☐
It may be said that scientific ideas evolve in their development	☐	☐	☐	☐	☐
Becoming a scientist or engineer takes too many years of education	☐	☐	☐	☐	☐
When I think of an engineer, I think of a confident person	☐	☐	☐	☐	☐
Science promotes collaboration	☐	☐	☐	☐	☐
As an engineer you are given a great deal of opportunity to apply theory	☐	☐	☐	☐	☐
Learning science is mostly memorizing facts	☐	☐	☐	☐	☐
The work of scientists and engineers benefits society	☐	☐	☐	☐	☐
Learning science is mostly applying theories or concepts to new and/or practical situations	☐	☐	☐	☐	☐
Learning science is mostly synthesizing of information	☐	☐	☐	☐	☐
Hands-on learning is important to learning new concepts	☐	☐	☐	☐	☐

Think about your own learning style and the ways in which you manage your life decisions. Then, indicate the extent to which you agree or disagree with each of the following statements:

	Never	Rarely	Sometimes	Frequently	Always
I work hard to do well, even if I don't like a task	☐	☐	☐	☐	☐
I try to understand the tasks before I attempt to solve them	☐	☐	☐	☐	☐
I am willing to do extra work on tasks to improve my knowledge	☐	☐	☐	☐	☐
I try to figure out my goals and what I need to do to accomplish them	☐	☐	☐	☐	☐
I check my accuracy as I progress through a task	☐	☐	☐	☐	☐
I make my own decisions regarding what to do with my life	☐	☐	☐	☐	☐
I can have a positive impact on local social problems	☐	☐	☐	☐	☐
The extent of my achievement is often determined by chance	☐	☐	☐	☐	☐
I try to learn from my success and failures	☐	☐	☐	☐	☐
I plan and manage my time to maximize my effort	☐	☐	☐	☐	☐
I have little control over the things that happen to me	☐	☐	☐	☐	☐
I believe I can succeed at most things if I apply myself	☐	☐	☐	☐	☐

Think about your experiences working in a team and indicate the extent to which you agree or disagree with each statement below:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I help to solve problems by using information provided by the team	☐	☐	☐	☐	☐
I focus on completing the team task successfully	☐	☐	☐	☐	☐
I attempt to change incorrect information immediately	☐	☐	☐	☐	☐
I respect the thoughts and opinions of others in the team	☐	☐	☐	☐	☐
I lead when appropriate, mobilizing the group for high performance	☐	☐	☐	☐	☐
Working on a team helps me to learn	☐	☐	☐	☐	☐
I enjoy working on teams	☐	☐	☐	☐	☐

Reflect on your past learning experiences and involvement with the community. Then, indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I think people should find time to contribute to their community	☐	☐	☐	☐	☐
Being involved in a program to improve my community is important	☐	☐	☐	☐	☐
I am concerned about local community issues	☐	☐	☐	☐	☐
It is important for me to find a career that directly benefits others	☐	☐	☐	☐	☐

Consider your academic and professional experiences and reflect on the skills you have obtained. Then, rate your skill level in the following areas:

	Well Below Average	Below Average	Average	Above Average	Well Above Average
Ability to apply knowledge of mathematics, science and engineering	☐	☐	☐	☐	☐
Ability to design and conduct experiments, and analyze and interpret data	☐	☐	☐	☐	☐
Ability to design a system, process or component to meet desired needs	☐	☐	☐	☐	☐
Ability to function on a multi-disciplinary team	☐	☐	☐	☐	☐
Ability to identify, formulate and solve engineering problems	☐	☐	☐	☐	☐
Understanding of ethical and professional responsibilities	☐	☐	☐	☐	☐
Ability to communicate effectively	☐	☐	☐	☐	☐
Ability to impact global and societal engineering problems	☐	☐	☐	☐	☐
Recognition and ability to engage in life-long learning	☐	☐	☐	☐	☐
Knowledge of contemporary issues	☐	☐	☐	☐	☐
Ability to use techniques, skills and modern engineering tools	☐	☐	☐	☐	☐
Ability to work effectively with a client	☐	☐	☐	☐	☐
Ability to manage an engineering project	☐	☐	☐	☐	☐
Appreciation of real-world constraints on engineering solutions	☐	☐	☐	☐	☐
Ability to understand the relationship between theoretical models and applied field work	☐	☐	☐	☐	☐

Reflect on your experience with individuals from other cultures and indicate the extent to which you agree or disagree with each of the following statements:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I have interacted with people from different cultures	☐	☐	☐	☐	☐
I have an appreciation for different cultures	☐	☐	☐	☐	☐
I have acquired relationships with people from different cultures	☐	☐	☐	☐	☐
I have experienced different social and economic environments	☐	☐	☐	☐	☐
My academic and professional experiences have influenced my attitude towards communities that are different than my own	☐	☐	☐	☐	☐