

## ASSESSMENT REPORT

### M.S. in Environmental Management (MSEM)

## ACADEMIC YEAR 2019 – 2020

### I. LOGISTICS

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1. Please indicate the name and email of the program contact person to whom feedback should be sent (usually Chair, Program Director, or Faculty Assessment Coordinator).

John Callaway, MSEM Graduate Program Director  
callaway@usfca.edu

2. Please indicate if you are submitting report for (a) a Major, (b) a Minor, (c) an aggregate report for a Major & Minor (in which case, each should be explained in a separate paragraph as in this template), (d) a Graduate or (e) a Certificate Program

d) this is a report for the Graduate MS in Environmental Management (MSEM) Program.

3. Please note that a Curricular Map should accompany every assessment report. Has there been any revisions to the Curricular Map since October 2019?

There have been no revisions to the Curricular Map in the last year.

## II. MISSION STATEMENT & PROGRAM LEARNING OUTCOMES

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- 1. Were any changes made to the program mission statement since the last assessment cycle in October 2019? Kindly state “Yes” or “No.” Please provide the current mission statement below. If you are submitting an aggregate report, please provide the current mission statements of both the major and the minor program**

There have been no changes to the MSEM Mission Statement in the last year.

### **Mission Statement (Graduate):**

The Environmental Management Program will educate graduate students to provide management solutions to environmental problems using innovative, interdisciplinary approaches in an environmentally just manner.

- 2. Were any changes made to the program learning outcomes (PLOs) since the last assessment cycle in October 2019? Kindly state “Yes” or “No.” Please provide the current PLOs below. If you are submitting an aggregate report, please provide the current PLOs for both the major and the minor programs.**

There have been no changes to the Program Learning Outcomes in the last year.

### **PLOs (Graduate MS in Environmental Management):**

1. Demonstrate an interdisciplinary approach in analysis of environmental issues and management strategies.
2. Utilize both theory and applied knowledge to evaluate and recommend management strategies for environmental issues.
3. Choose and apply appropriate tools, techniques, and (or) technologies to analyze environmental issues.
4. Skillfully communicate environmental management issues through written reports, oral, and visual presentations.

- 3. State the particular Program Learning Outcome(s) you assessed for the academic year 2019-2020.**

### **PLO being assessed:**

4. Skillfully communicate environmental management issues through written reports, oral, and visual presentations.

### III. METHODOLOGY

#### **Methodology used:**

Faculty attended the capstone presentations by graduating students for the Master's Project course at the end of the Spring semester on May 14, 2020. Capstone presentations were ~12-15 min each with additional time for questions (total of 20 min for each student). Given the circumstances with COVID, all presentations were made online via zoom. There were four Master's Project sections, taught by Stephanie Siehr, Tom MacDonald, Amalia Kokkinaki, and Aviva Rossi. Given their direct role in guiding students presentations, these faculty did not participate in the assessment, but faculty who were not teaching a section of the Master's Project course reviewed presentations within a section that was relevant to their area of expertise (see list of participating faculty evaluators below).

Each faculty member evaluated the student presentations using a set of standard criteria that the Department had developed in advance. The criteria were based on a rubric that was developed for assessment of the same PLO in 2016, although two categories used in 2016 were dropped from the 2020 assessment because faculty felt that there were not informative (Timing and Response to questions). The 2016 rubric is included at the end of this report, along with the modified 2020 score sheet that was used for each student.

Faculty members ranked each student presentation as Exceptional (3), Proficient (2), Approaching Proficient (1), or Below Proficient (0), for each of the four categories from the rubric:

- 1) scientific content,
- 2) organization,
- 3) speaking skills, and
- 4) slides and documentation.

Most students were evaluated by a single faculty member, with the exception of one section where AJ Purdy and David Saah were present, and both evaluated the same six students. A total of 19 individual students were evaluated, with 25 separate evaluations completed (six students were evaluated twice). Scores from all 25 evaluations were compiled for analysis.

Scores from Spring 2020 were compared with the assessment of Project presentations that was done in Spring 2016 (and included in the 2016-2017 MSEM Assessment Report). As noted above, two additional categories were assessed in Spring 2016 (Timing and Response to questions), and a different scoring approach was used. Rather than the 0-3 numeric scale used in 2020, in 2016 the possible points within the six different categories varied from 2 to 5, with a total possible score of 20 points (see the scoring rubric from 2016 that is included below for details). The overall approach to scoring based on four possible rankings within each category was similar in both 2016 and 2020. To facilitate comparisons across years, scores from the two assessments were converted to percentage of the possible score for each category (e.g., 4.5 out of 5, or 2 out of 3); percentages were also calculated for the Total or overall score.

**Evaluators:**

Allison Luengen (evaluated 7 students)

Adam (AJ) Purdy (6 students)

David Saah (6 students)

Jack Lendvay (5 students)

Deneb Karentz (1 student)

**V. RESULTS & MAJOR FINDINGS**

Overall, the vast majority of students were scored as “Exceptional” or “Proficient” in regards to PLO #4 (95% of scores were in these categories), indicating that students have mastered the oral and visual communication objectives set up in this PLO. The majority of scores across all four categories was “Proficient”, with 56 out of 100 scores in this category, followed by “Exceptional” (39). Across all four categories, only 5 out of 100 scores were “Approaching Proficient”, and no students were scored in any category as “Below Proficient”. Data for total counts and the percentages based on these counts are presented in Table 1 (counts) and Table 2 (percentages). Similarly, the average and median scores reflect that students were ranked predominantly in one of the top two categories, across all four categories, with the overall average score being 2.34 (out of 3 possible; see Table 3 for details on averages, standard deviation and medians).

Table 1. Count of the number of students scored in each category (25 evaluations were completed, with 100 in the “Total/Overall” category).

<b>Criterion</b>	<b>Exceptional (3)</b>	<b>Proficient (2)</b>	<b>Approaching Proficient (1)</b>	<b>Below Proficient (0)</b>
<b>Scientific content</b>	7	17	1	0
<b>Organization</b>	13	12	0	0
<b>Speaking skills</b>	15	10	0	0
<b>Slides and documentation</b>	4	17	4	0
<b>TOTAL/OVERALL</b>	<b>39</b>	<b>56</b>	<b>5</b>	<b>0</b>

Table 2. Percentage of evaluations scored in each category.

<b>Criterion</b>	<b>Exceptional (3)</b>	<b>Proficient (2)</b>	<b>Approaching Proficient (1)</b>	<b>Below Proficient (0)</b>
<b>Scientific content</b>	28%	68%	4%	0%
<b>Organization</b>	52%	48%	0%	0%
<b>Speaking skills</b>	60%	40%	0%	0%
<b>Slides and documentation</b>	16%	68%	16%	0%
<b>TOTAL/OVERALL</b>	<b>39%</b>	<b>56%</b>	<b>5%</b>	<b>0%</b>

Table 3. Average scores, standard deviations, and median for the four categories used to evaluate student presentations.

<b>Criterion</b>	<b>Average</b>	<b>% of possible</b>	<b>Std Dev</b>	<b>Median</b>	<b>Count</b>
<b>Scientific content</b>	2.2	74.7	0.52	2	25
<b>Organization</b>	2.5	84.0	0.51	3	25
<b>Speaking skills</b>	2.6	86.7	0.50	3	25
<b>Slides and documentation</b>	2.0	66.7	0.58	2	25
<b>TOTAL/OVERALL</b>	<b>2.3</b>	<b>78.0</b>	<b>0.57</b>	<b>2</b>	<b>100</b>

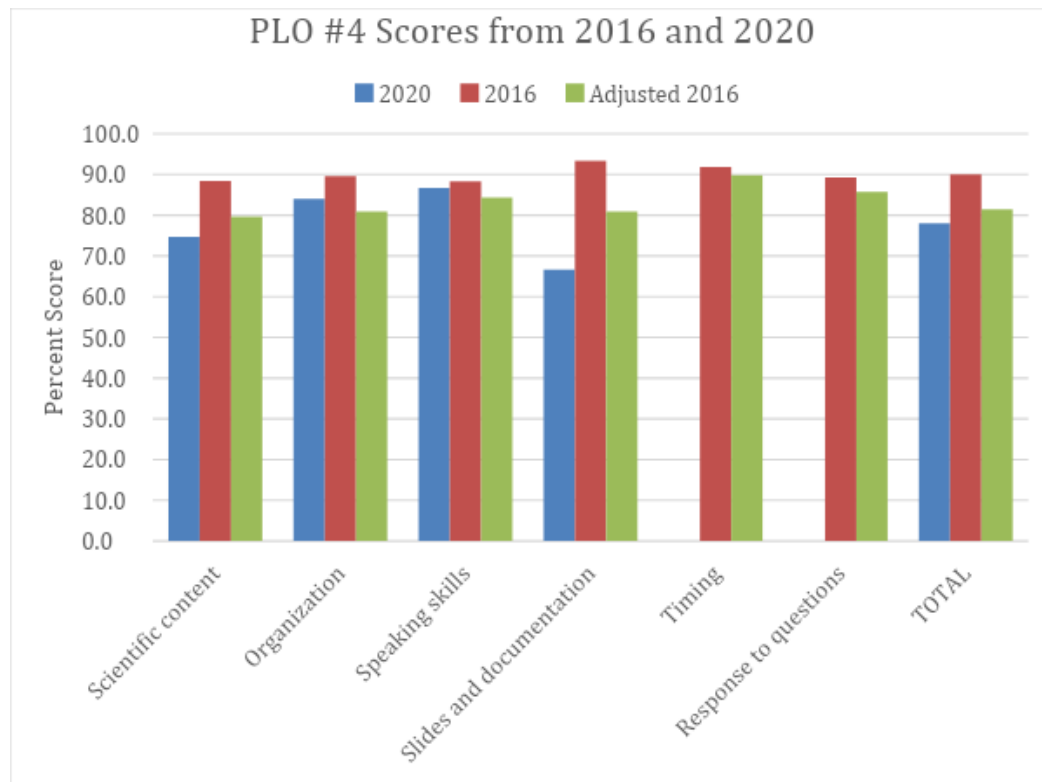
Across the four categories, students scored best in Speaking skills (avg. 2.60), followed closely by Organization (avg. 2.52). Scores for the other two categories were lower: Scientific content: (avg. 2.20 with 1 out of 25 “Approaching Proficient” in this category) and Slides and documentation (avg. 2.00 with 4 out of 25 in “Approaching Proficient”). There were only 4 scores of “Exceptional” in the Slides and documentation category; this was the lowest number of “Exceptional” scores for any of the four categories.

In comparison with the 2016 scores (Figure 1), the Total scores were lower in 2020 (avg. 78.0 in 2020 vs. 90.0 in 2016). Because the scoring system was different, 2016 scores were converted to an adjusted score using the four rankings and equivalent scores from 2020 (the four rankings were the same in 2016 and 2020 but scoring was different), and it appears that a large component of the differences in scores from 2016 to 2020 was due to scoring (Total score as adjusted for 2016 = 81.5). The scores based on 2020 scoring from 2016 are shown as “Adjusted 2016” on Figure 1.

Across the four categories within PLO #4, scores for Speaking skills were the most similar across years, regardless of scoring method; scores for Organization were also relatively similar, especially in comparing with the Adjusted 2016 scores. Content scores were lower in 2020 vs. 2016, but again the difference was much less when scoring in

2016 was adjusted (2020: 74.7; 2016: 88.4; Adjusted 2016: 79.6). Slides and documentation were substantially lower in 2020 (66.7) vs. 2016 (93.4) and the Adjusted 2016 scores (81.0). We did not complete statistical comparisons across the two years, but the reduction in scores for Slides and documentation between 2020 and the Adjusted 2016 scores was the largest at 17.7%; Scientific content dropped 6.2%, while other categories showed a slight increase, and Total scores dropped 4.3%. Despite the drop in scores from 2016 to 2020, the scores in 2020, still indicate that students have mastered the oral and visual communication objectives in PLO #4.

In addition to the change in the scoring system, the reduction in scores in 2020 vs. 2016 could be due to changes related to presentation format. In 2016 Projects were presented in person, while 2020 Projects were presented virtually. Some of the reduction in scores could be related to this change in format; however, Slides and documentation was the category with the largest drop in scores, and it is not clear why this would be affected by the virtual format more than other categories.



**Figure 1.** Comparison of assessment scores from 2020 and 2016 for PLO 4. Two categories (Timing and Response to questions) were not evaluated in 2020.

## V. CLOSING THE LOOP

In addition to reviewing the results and any feedback within the MSEM faculty and ENVS Department (via email and in regularly scheduled Department meetings), we will review the summary information included here in more detail with current and future instructors of the Master's Project so that they are mindful of potential improvements to student presentations for the Master's Project class. This information will be useful for Spring 2021 and future Master's Project classes. In the coming semester, we also will be reviewing and coordinating how different sections of the Master's Project class are implemented, as well as different sections of Research Methods, which is a preparatory (but not required) course for the Master's Project. The information from this assessment will be incorporated into these coordination efforts.

Feedback on the last assessment report from the FDCD was primarily positive and praised the analysis and utilization of information from the assessment and feedback to improve the MSEM. We have tried to continue in that tradition with this year's report and look forward to your further input.



## ADDITIONAL MATERIALS

Rubric for assessment of PLO #4 in 2016 and on the next page the score sheet used in 2020.

Criterion	Exceptional	Proficient	Approaching Proficient	Below Proficient
<b>Content</b>	Speaker provides an accurate and complete explanation of topic, drawing upon relevant literature/information. Listeners able to develop an understanding of the material. (5 pt.)	Speaker provides an adequate explanation of topic and presents significant level of relevant information.(4 pt.)	Explanation of topic too broad or somewhat inaccurate. Does not follow assignment carefully. Sections missing. Listeners gain little from the presentation (3)	Does not meet assignment requirements, is not current, and/or objective. (2 pt.)
<b>Organization</b>	Speaker presents information in logical, interesting sequence which audience can follow. Has a clear opening statement that catches audience's interest, and clearly stated conclusion that follows from the content presented. (5 pt.)	Speaker presents information in logical sequence which audience can follow. Introduction and/or conclusion not as robust as desired. (4 pt.)	Audience has difficulty following presentation because it jumps around. Conclusion does not necessarily flow from material presented. (3 pt.)	Audience cannot understand presentation because there is no consistent flow of information. (2 pt.)
<b>Speaking Skills</b>	Poised, articulate; proper volume; steady rate; good posture and eye contact; enthusiasm; confidence. All terms pronounced properly. (2 pt.)	Clear articulation but not as polished. Either inconsistent volume or rate. (1.5 pt.)	Some mumbling; little eye contact; uneven rate; little or no expression. (1 pt.)	Inaudible or too loud; no eye contact; rate too slow/fast; disinterested/ monotone. (0 pt.)
<b>Timing</b>	On time, with substantially all material covered and little extraneous material. (2 pt.)	Too long or short by more than 2 minutes. (1.5 pt.)	More or less by 3 minute. (1 pt.)	More or less by 4 minutes or more. (0 pt.)
<b>Response to Questions</b>	Fully yet concisely responds to questions, showing depth of knowledge.(2 pt.)	Responds to questions with pertinent information. (1.5 pt.)	Difficulty responding to questions, answer incomplete, shows limited understanding. (1 pt.)	Unable to answer questions. (0 pt.)
<b>Slides</b>	Speaker's slides are well designed and compelling and greatly enhance presentation. (4 pt.)	Speaker's slides enhance presentation. (3.5 pt.)	Speaker occasionally uses unnecessary or unclear slides. (3pt.)	Speaker uses superfluous slides that do not enhance presentation. (2 pt.)

<b>Learning objective: Skillfully communicate environmental management issues through written reports, oral, and visual presentations.</b>					
Name of student:					
<b>Criterion</b>	<b>Explanation of criterion</b>	<b>Exceptional (3)</b>	<b>Proficient (2)</b>	<b>Approaching Proficient (1)</b>	<b>Below Proficient (0)</b>
<b>Scientific content</b>	Speaker accurately and completely analyzes the topic, drawing upon relevant literature/information and full of quantitative details. Listeners able to develop an understanding of the material and answer questions fluently.				
<b>Organization</b>	Speaker presents information in logical, interesting sequence which audience can follow. Has a clear opening statement that catches audience's interest, and clearly stated conclusion that follows from the content presented.				
<b>Speaking Skills</b>	Poised, articulate; proper volume; steady rate; good posture and eye contact; enthusiasm; confidence.				
<b>Slides and documentation</b>	Speaker's slides are well designed and compelling and greatly enhance presentation. There is the right balance of words, picture, and figures or tables. All sources of facts and examples fully documented and mentioned in the talk.				

