

UNIT REPORT

**Assessment Plan and Learning
Outcomes Reports 2019**

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Learning Outcome Report

1701 Conduct original and independent research

Learning Outcome Statement:

Students will demonstrate an ability to conduct original and independent research involving observations, developing and testing hypotheses, and interpretation of their results.

Means of Assessment:

Both PLO's are assessed by external Judges of student presentations at the annual departmental colloquium. The colloquium is a scientific meeting that is set up and run by our students. There are two types of presentations: posters and oral presentations. Between 10 and 20 judges from the industries that hire our graduates fill in forms that are used to assess the performance of the students in their scientific research (PLO 1) and scientific communication/presentation (PLO 2).

The Geology and Geophysics MS and the Geological Sciences PhD are grouped and evaluated together. The Environmental Science MS is evaluated separately when enough ES MS students participate in the colloquium.

Evaluations consist of two parts, an overall evaluation that scores the presentation, its content and clarity on a scale of 0 to 100. Both science and presentation learning outcomes are combined in this form. We collect these scores and analyze them for the overall quality, but because they combine assessment of both science and presentation, we do not use them for the individual PLO's.

The second form asks Yes/No questions specific to each PLO separately. There are 12 questions that address the individual PLO's for both posters and presentations. For posters, questions 1 through 6 address Learning Outcome 1 while questions 7 - 12 address Learning Outcome 2. For oral presentations questions 1 through 5 address Learning Outcome 1 and questions 6 through 12 address Learning Outcome 2.

Dr. Diane Doser collates and summarizes the performance of the students as a whole and circulates the results to the entire faculty. The assessments summarize how our students meet professional standards. The department standard is that 70% of students receive a Positive response on every question. For the posters, Positive responses are Yes on Questions 1 through 6 and 10, 12, 13 and 14, and No on Questions 7 through 9, and 11. For the oral presentations, A positive response is YES on all questions except for number 9.

Below are the scoring sheets for poster and oral presentations.

27th Annual Student Colloquium Poster Presentation Judging Form

(THIS PART OF THE FORM WILL NOT BE GIVEN TO STUDENT – PLEASE PUT COMMENTS TO STUDENT ON BACK PAGE OF THIS FORM)

Presenter: _____ Judge: _____

Title of Poster: _____

Text (Possible points)

Introduction (10) _____

Methods and results (15) _____

Conclusions (15) _____

Illustrations

Relevance to text (15)

Figure captions and citations (10) _____

Visual Impact

Conclusion (15) _____

Logical ordering (10) _____

Simplicity (10) _____

Feedback for Student Poster Presentation – 2013 Colloquium

(THIS SHEET WILL BE GIVEN BACK TO THE STUDENT PRESENTER)

We would appreciate you taking a minute or two to fill out this form for each student you judge. The information is used as part of our yearly departmental assessment of our program. This helps us to evaluate how well we are training our students for professional careers in the geosciences. Thank you for your help in this important process!

Presenter: _____

Poster Content

- | | | |
|---|-----|----|
| 1) Student clearly stated purpose of research | Yes | No |
| 2) Student summarized previous work on topic | Yes | No |
| 3) Student clearly indicated their research contribution to project | Yes | No |
| 4) Student described how research was conducted | Yes | No |
| 5) Student provided implications of where work was leading | Yes | No |

Poster Appearance/Presentation

- | | | |
|--|-----|----|
| 6) Good overall layout and flow for poster | Yes | No |
| 7) Figures/lettering too small or hard to read | Yes | No |
| 8) Poor choice of colors/poster too cluttered | Yes | No |
| 9) Graphs/maps difficult to understand | Yes | No |
| 10) Presenter was relaxed | Yes | No |
| 11) Presenter used too much jargon | Yes | No |
| 12) Presenter was articulate and concise | Yes | No |

27th Annual Student Colloquium

Oral Presentation Judging Form

(THIS PART OF THE FORM WILL NOT BE GIVEN TO STUDENT – PLEASE PUT COMMENTS TO STUDENT ON BACK PAGE OF THIS FORM)

Presenter: _____ Judge: _____

Title of Presentation: _____

Timing

Start:

End:

Elapsed Time:

Presentation (Possible points)

Opening and audience rapport (5) _____

Delivery: smoothness and pacing (5) _____

Word choice: grammar and articulation (5) _____

Finishing time: time for at least one question (5) _____

Summary: organized and reinforced main points (5) _____

Visual Aids

Simplicity of slides (5) _____

Relevance/sequence appropriate (5) _____

Effectiveness: presentation supports data (5) _____

Legibility: readable from entire room (10) _____

Content and Organization

Logic: smooth progression of problem (15) _____

Methodologies: appropriate for study (15) _____

Conclusions and results well supported (20) _____

Total: _____/100

Feedback for Student Oral Presentation – 2012 Colloquium

(THIS SHEET WILL BE GIVEN BACK TO THE STUDENT PRESENTER)

We would appreciate you taking a minute or two to fill out this form for each student you judge. The information is used as part of our yearly departmental assessment of our program. This helps us to evaluate how well we are training our students for professional careers in the geosciences. Thank you for your help in this important process!

Presenter: _____

Presentation Content

1) Student clearly stated purpose of research	Yes	No
2) Student summarized previous work on topic	Yes	No
3) Student clearly indicated their research contribution to project	Yes	No
4) Student described how research was conducted	Yes	No
5) Student provided implications of where work was leading	Yes	No

Presentation Mechanics

6) Good slide transition	Yes	No
7) Presentation flowed logically	Yes	No
8) Spoke loudly enough for all to hear	Yes	No
9) Presenter was relaxed	Yes	No
10) Presenter used too much jargon	Yes	No
11) Presenter was articulate and concise	Yes	No
12) Presentation was right length of time (not too short or long)	Yes	No
13) Presenter spoke at right speed (not too fast or too slow)	Yes	No

Results of Assessment:

In 2019, there were 56 presentations (with 12 orals and 44 posters) for Colloquium 2019. The student presentations were evaluated by a team of 11 external judges. The presentation evaluation is designed to have two parts for the same group of questions: the first part is evaluated numerically on a scale of 1-5, and the results are used for presentation ranking purposes and not shared with students; the second part is evaluated with Yes/No responses to each question and the results and associated written feedbacks and comments are shared with individual students.

The assessments of both evaluations were summarized below and the learning outcome report was assessed based on the second part with Yes (positive)/No (negative) responses : the department standard is that 70% of students receive a positive response on every question.

Oral presentations:

For oral presentations, Question 1 through 6 address Learning Outcome 1 while Questions 7 - 14 address Learning Outcome 2 (see relevant report). And Question 15-18 are overall evaluations of the presentations:

Q1: Presentation content 91%
 Q2: Research purpose 52%
 Q3: Previous work 88%
 Q4: Own research contribution 97%
 Q5: How research was conducted 75%
 Q6: Implication 95%

Q15: Overall 76%
 Q16: Slides 88%
 Q17: Professional 95%

In 2019, the standard was not met, 70% of students received a positive response on 5 out of 6 questions. The remaining question address Research purpose, with 52% of students receiving a positive response. The data show a slightly different trend as compared to 2018. In 2018, 70% of students received a Positive response on 4 out of 5 questions. The remaining question in 2018 addressed previous work, with 65% of students receiving a positive response (88% in 2019). In 2017, 70% of students only received a Positive response on 3 out of 5 questions. The two remaining questions in 2017 addressed previous work (51% in 2017; 52% in 2019) and where the research is leading (62%; 95% in 2019).

Poster Presentations:

For posters, Questions 1 through 5 address Learning Outcome 1 while Questions 6 - 12 address Learning Outcome 2 (see relevant report).

MS student posters

Content
 1) clearly stated purpose of research 100%
 2) previous work 91%
 3) research contribution to work 95%
 4) how research was conducted 95%
 5) implication 95%
 Overall 95%
 Professional 100%

Relevant to this learning outcome 1, compared to 2018, there was an increase in positive responses for the MS student posters. In 2019, the standard was met, 70% of students received a positive response on 5 out of 5 questions.

PhD student posters

Feedback for poster
 Content
 1) clearly stated purpose of research 100%
 2) previous work 84%
 3) research contribution to work 100%
 4) how research was conducted 100%
 5) implication 89%

Overall 95%
 Professional 100%

Relevant to this learning outcome 1, compared to 2018, there was an increase in positive responses for the PhD student posters. In 2019, the standard was met, 70% of students received a positive response on 5 out of 5 questions.

A summary of common comments/concerns raised by the judges were provided back to individual students. The average judges' scores for overall evaluations are 95%, 95%, and 76% for MS poster, PhD poster, and oral presentations, respectively.

Departmental/Program Review:

The results were placed in a restricted-access folder for faculty and discussed in a post-Colloquium faculty meeting.

Recommendations/Action Plans for Program:

Some graduate students' posters do not adequately describe the previous work. Most graduate students take the department seminar course during which seminar speakers made good examples of effective presentations and the students discuss the seminar contents and styles in groups with Dr. Kubicki, who will focus specifically on these issues. Individual faculty advisers will address these issues with their students prior to the next Colloquium.

Recommendations for Future Assessments:

In addition to the 70% positive feedback goal, maybe a numerical score for the overall presentation could be used as well as the new score systems used in CQ2019 provide evaluation on scale 0-5 now.

Follow-up on Last Year's Action Plan:

The faculty would like to revisit the standard to make sure it does not represent an unreasonably high expectation, since graduate students who participate in the student research colloquium are at different stages of progress. In this year, students who presented were identified with stages of progress (PhD oral, PhD poster, MS poster). In 2019, the standard was met.

Longer term follow up:**1702 Communicating research**

Learning Outcome Statement: Students will communicate their research through creating manuscripts and presentations.

Means of Assessment:

Both PLO's are assessed by external Judges of student presentations at the annual departmental colloquium. The colloquium is a scientific meeting that is set up and run by our students. There are two types of presentations: posters and oral presentations. Between 10 and 20 judges from the industries that hire our graduates fill in forms that are used to assess the performance of the students in their scientific research (PLO 1) and scientific communication/presentation (PLO 2).

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Dr. Diane Doser collates and summarizes the performance of the students as a whole and circulates the results to the entire faculty. The assessments summarize how our students meet professional standards. The department standard is that 70% of students receive a Positive response on every question. For the posters, Positive responses are Yes on Questions 1 through 6 and 10 through 14, and No on Questions 7 through 9. For the oral presentations, A positive response is YES on all questions except for number 9.

Results of Assessment:

The department standard is that 70% of students receive a Positive response on every question. The assessment was done based on the CQ2019 results, as summarized below.

MS Posters

Poster appearance/presentation

- 6) layout and flow 82%
- 7) right size of figure 86%
- 8) good choice of colors 91%
- 9) not difficult to understand 95%
- 10) relaxed 100%
- 11) not too much jargon 95%
- 12) articulate and concise 100%
- Overall 95%
- Professional 100%

PhD posters

- 6) layout and flow 95%
- 7) right size of figure 68%
- 8) good choice of colors 95%
- 9) not difficult to understand 84%
- 10) relaxed 79%
- 11) not too much jargon 89%
- 12) articulate and concise 95%
- Overall 95%
- Professional 100%

Oral Presentations

Presentation Mechanics

- Slide transition 89%
- Flow logic 82%
- Speak loudly 71%
- Relaxes 74%
- Not too much jargon 80%
- Articulate and concise 62%

Right time 74%
Right speed 76%
Overall 76%
Slides 88%
Professional 95%

The standard was met for MS posters, but not met for PhD posters (68% used the right size font and color) or oral presentations (62% are articulate and concise). The remaining questions on PhD posters and Oral presentations all received a Positive response on 6 out of 7 questions.

A summary of common comments/concerns raised by the judges is included to the feedback to individual students. The comments indicate the students need to practice their presentations in front of faculty or peers prior to colloquium, as common problems included not making eye contact, not speaking loud enough, speaking too quickly and lacking confidence. All scores pass the 70% index mark.

Departmental/Program Review:

The results were placed in a restricted-access folder for faculty and discussed in a post-Colloquium faculty meeting.

Recommendations/Action Plans for Program:

Some graduate students' posters do not adequately describe the previous work. Most graduate students take the department seminar course during which seminar speakers made good examples of effective presentations and the students discuss the seminar contents and styles in groups with Dr. Kubicki, who will focus specifically on these issues. Individual faculty advisers will address these issues with their students prior to the next Colloquium.

Recommendations for Future Assessments:

In addition to the 70% positive feedback goal, maybe a numerical score for the overall presentation could be used as well as the new score systems used in CQ2019 provide evaluation on scale 0-5 now.

Follow-up on Last Year's Action Plan:

Longer term follow up: