

Program Outcomes Assessment

BA/BS in Physics

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General Information (Program Outcomes Assessment)

Standing Requirements

Mission Statement

The Department of Chemistry and Physics provides comprehensive, student-centered education leading to Bachelors degrees in chemistry and physics. Students gain knowledge and problem-solving skills through rigorous lecture and laboratory course work as well as through challenging independent research experiences. We are committed to preparing students to pursue careers as scientists, engineers, teachers, and health professionals. We contribute to the scientific literacy of students in other disciplines through our general education courses. Faculty advance knowledge through their own research and provide service to the University and scientific communities, as well as to the public.

Outcomes Library

BA/BS in Physics Outcome Set

Outcome #1 Fundamental Concepts

Students pursuing a baccalaureate degree in physics will exhibit a sound grasp of fundamental concepts in the discipline.

Outcome	Mapping
Outcome #1	No Mapping

Outcome #2 Problem Solving

Students pursuing a baccalaureate degree in physics will be able to employ problem solving skills together with scientific models and mathematical techniques to explain and predict behavior of physical systems.

Outcome	Mapping
Outcome #2	Foundational Studies: 2. Critically evaluate the ideas of others.

Outcome #3 Laboratory Procedures

Students pursuing a baccalaureate degree in physics will be able to carry out basic laboratory procedures demonstrating appropriate use of instrumentation, quantitative measurement, and data analysis.

Outcome	Mapping
Outcome #3	Foundational Studies: IIIa. Quantitative Literacy

Outcome #4 Communication

Students pursuing a baccalaureate degree in physics will be able to demonstrate professional communication skills.

Outcome	Mapping
Outcome #4	Foundational Studies: 10. Express themselves effectively, professionally, and persuasively both orally and in writing.

Curriculum Map

Active Curriculum Maps

Physics Curriculum Map (See appendix)

Alignment Set: BA/BS in Physics Outcome Set

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Communication of Outcomes

The Chair of the Department will summarize or ask the program review committee to summarize the program review findings at a Departmental Meeting near the end of the Spring Semester.

Archive (This area is to be used for archiving pre-TaskStream assessment data and for current documents.)

Archive

File Attachments:

- 1. Physics** (See appendix)
Assessment Summary
.....

2011-2012 Assessment Cycle

Assessment Plan

Outcomes and Measures

BA/BS in Physics Outcome Set

Outcome #3 Laboratory Procedures

Students pursuing a baccalaureate degree in physics will be able to carry out basic laboratory procedures demonstrating appropriate use of instrumentation, quantitative measurement, and data analysis.

Outcome #3

▼ Measure: Laboratory Procedures Direct - Other

Details/Description: The physics faculty will meet to complete the "Laboratory Procedures Rubric" (see Supporting Attachments" below) with the aid of graded laboratory reports from PHYS 215L, 216L, 315 and 316 and notes/observations made by faculty members concerning the students' laboratory work in these courses.

Target: 100% of the categories in the rubric will be rated at least satisfactory. A satisfactory rating in a category means that at least 80% of the students are rated satisfactory or better in that category.

Implementation Plan (timeline): By March 1 (even-numbered years): faculty members are given a copy of the rubric.
By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Laboratory Skills Rubric.docx (Word Document (Open XML)) (See appendix)

Outcome #4 Communication

Students pursuing a baccalaureate degree in physics will be able to demonstrate professional communication skills.

Outcome #4

▼ Measure: Oral Communication Direct - Other

Details/Description: Faculty members will make direct observations of student presentations in PHYS 315, 316, 405, and 499 and at professional meetings. These observations will be followed by a roundtable discussion by those making the observations.

Target: Observers will agree that at least 80% of the graduating physics majors have oral communication skills that are at least satisfactory.

Implementation Plan (timeline): By March 1 (even-numbered years): physics faculty are reminded to be prepared to evaluate students' oral presentation skills.
By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Oral communication rubric.xlsx (Excel Workbook (Open XML)) (See appendix)

▼ Measure: Written Communication Direct - Other


Details/Description: Faculty will be asked to submit representative samples of student writing from lab reports, exams, or other assignments from upper level courses. This will be followed by a roundtable discussion of the faculty.

Target: At least 80% of the physics majors in these courses will exhibit written communication skills appropriate for that level.

Implementation Plan (timeline): By March 1 (even-numbered years): faculty members are reminded of the need to submit samples of student writing.
By April 1: copies of samples are submitted to the committee and the meeting is scheduled.
By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Written Communication Skills Rubric.docx (Word Document (Open XML)) (See appendix)

Assessment Findings

Finding per Measure

BA/BS in Physics Outcome Set

Outcome #3 Laboratory Procedures

Students pursuing a baccalaureate degree in physics will be able to carry out basic laboratory procedures demonstrating appropriate use of instrumentation, quantitative measurement, and data analysis.

Outcome #3

▼ Measure: Laboratory Procedures Direct - Other

Details/Description: The physics faculty will meet to complete the "Laboratory Procedures Rubric" (see Supporting Attachments" below) with the aid of graded laboratory reports from PHYS 215L, 216L, 315 and 316 and notes/observations made by faculty members concerning the students' laboratory work in these courses.

Target: 100% of the categories in the rubric will be rated at least satisfactory. A satisfactory rating in a category means that at least 80% of the students are rated satisfactory or better in that category.

Implementation Plan (timeline): By March 1 (even-numbered years): faculty members are given a copy of the rubric.
By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Laboratory Skills Rubric.docx (Word Document (Open XML)) (See appendix)

Findings for Laboratory Procedures

Summary of Findings: Physics faculty were each given a copy of the Laboratory Skills Rubric and were asked to complete the rubric for each physics major that took physics laboratory courses in the academic years 2010-2011 and 2011-2012.


Faculty met on April 6, 2012 to discuss the results. Using all scores, averages were calculated for each student in each category of the rubric. The results show that at least 80% of the students are rated as satisfactory or better in each category. A copy of the results is shown in the attachment below.

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

Substantiating Evidence:

 Lab skills results 4-9-2012.docx (Word Document (Open XML)) (See appendix)

Outcome #4 Communication

Students pursuing a baccalaureate degree in physics will be able to demonstrate professional communication skills.

Outcome #4

▼ Measure: Oral Communication Direct - Other

Details/Description: Faculty members will make direct observations of student presentations in PHYS 315, 316, 405, and 499 and at professional meetings. These observations will be followed by a roundtable discussion by those making the observations.

Target: Observers will agree that at least 80% of the graduating physics majors have oral communication skills that are at least satisfactory.

Implementation Plan (timeline): By March 1 (even-numbered years): physics faculty are reminded to be prepared to evaluate students' oral presentation skills.
By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Oral communication rubric.xlsx (Excel Workbook (Open XML)) (See appendix)

Findings for Oral Communication


Summary of Findings: Physics faculty were each given a copy of the Oral Communication Skills Rubric and were asked to complete the rubric for each physics major who made oral presentations as part of the requirements for physics courses and laboratories or at physics professional meetings during academic years 2010-2011 and 2011-2012. Faculty met on April 6, 2012 to discuss the results. Using all scores, averages were calculated for each student in each category of the rubric. The results show that at least 80% of the students are rated as satisfactory or better in each category. A copy of the results is shown in the attachment below.

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

Substantiating Evidence:

 Oral Communication results 4-9-2012.docx (Word Document (Open XML)) (See appendix)

▼ Measure: Written Communication Direct - Other


Details/Description: Faculty will be asked to submit representative samples of student writing from lab reports, exams, or other assignments from upper level courses. This will be followed by a roundtable discussion of the faculty.

Target: At least 80% of the physics majors in these courses will exhibit written communication skills appropriate for that level.

Implementation Plan (timeline): By March 1 (even-numbered years): faculty members are reminded of the need to submit samples of student writing.
By April 1: copies of samples are submitted to the committee and the meeting is scheduled.
By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Written Communication Skills Rubric.docx (Word Document (Open XML)) (See appendix)

Findings for Written Communication


Summary of Findings: Physics faculty were each given a copy of the Written Communication Skills Rubric and were asked to complete the rubric for each physics major using exams, reports and assignments that were written as part of the requirements for physics courses and laboratories during academic years 2010-2011 and 2011-2012. Faculty met on April 6, 2012 to discuss the results. Using all scores, averages were calculated for each student in each category of the rubric. The results show that at least 80% of the students are rated as satisfactory or better in each category. A copy of the results is shown in the attachment below.

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

Substantiating Evidence:

 Written Communication results 4-9-2012.docx (Word Document (Open XML)) (See appendix)

Overall Recommendations

No text specified

Overall Reflection

No text specified

Action Plan

Actions

BA/BS in Physics Outcome Set

Outcome #3 Laboratory Procedures

Students pursuing a baccalaureate degree in physics will be able to carry out basic laboratory procedures demonstrating appropriate use of instrumentation, quantitative measurement, and data analysis.

Outcome #3

▼ **Action:** continue to monitor

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

Outcome #4 Communication

Students pursuing a baccalaureate degree in physics will be able to demonstrate professional communication skills.

Outcome #4

▼ **Action:** Continue to monitor

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

📄 **Status Report**

Action Statuses

BA/BS in Physics Outcome Set

Outcome #3 Laboratory Procedures

Students pursuing a baccalaureate degree in physics will be able to carry out basic laboratory procedures demonstrating appropriate use of instrumentation, quantitative measurement, and data analysis.

Outcome #3

▼ **Action:** continue to monitor

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

Status for continue to monitor

No Status Added

Outcome #4 Communication

Students pursuing a baccalaureate degree in physics will be able to demonstrate professional communication skills.

Outcome #4

▼ **Action:** Continue to monitor

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

Status for Continue to monitor

No Status Added

Status Summary

No text specified

Summary of Next Steps

No text specified

2012-2013 Assessment Cycle

Assessment Plan

Outcomes and Measures

BA/BS in Physics Outcome Set

Outcome #1 Fundamental Concepts

Students pursuing a baccalaureate degree in physics will exhibit a sound grasp of fundamental concepts in the discipline.

Outcome #1

▼ Measure: Fundamental Concepts Direct - Exam

Details/Description: All physics majors will take the Major Field Test in Physics near the end of their senior year and the Assessment Committee will discuss the results.

Target: Our students will score at the "Fair" level or better.

Implementation Plan (timeline): By April 1 (each year): one physics faculty member will administer the exam to all senior physics majors.
During odd-numbered years: within one week of receiving the results from ETS, the Department Chairperson will transmit the results along with the results from the previous year (an even-numbered year) to the committee who will meet within a week to discuss the results of those years.

Responsible Individual(s): Valentina French

Outcome #2 Problem Solving

Students pursuing a baccalaureate degree in physics will be able to employ problem solving skills together with scientific models and mathematical techniques to explain and predict behavior of physical systems.

Outcome #2

▼ Measure: Problem Solving Direct - Other


Details/Description: The physics faculty will meet and complete the "Problem Solving Skills Rubric" (see "Supporting Attachments") with the aid of graded exams and projects from the following courses: PHYS 215, 216, 310, 311, 341, 342, 420, and 497.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (odd-numbered years): the three faculty members are each given a copy of the rubric and are reminded to assemble a collection of copies of graded exams and projects from the previous year (an even-numbered year) and the current year.
By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 [Problem Solving Rubric-Assessment.docx \(Word Document \(Open XML\)\) \(See appendix\)](#)

Assessment Findings

Finding per Measure

BA/BS in Physics Outcome Set

Outcome #1 Fundamental Concepts

Students pursuing a baccalaureate degree in physics will exhibit a sound grasp of fundamental concepts in the discipline.

Outcome #1

▼ Measure: Fundamental Concepts Direct - Exam

Details/Description: All physics majors will take the Major Field Test in Physics near the end of their senior year and the Assessment Committee will discuss the results.

Target: Our students will score at the "Fair" level or better.

Implementation Plan (timeline): By April 1 (each year): one physics faculty member will administer the exam to all senior physics majors.
During odd-numbered years: within one week of receiving the results from ETS, the Department Chairperson will transmit the results along with the results from the previous year (an even-numbered year) to the committee who will meet within a week to discuss the results of those years.

Responsible Individual(s): Valentina French

Findings for Fundamental Concepts

Summary of Findings: Results of the Major Field Test show that 60% of the students scored at the "Fair" level or better. This satisfies the expected target that most of our students score at the "Fair" level or better.


We have recently made some changes to the program and it will take the next couple of years to see the results of these changes in terms of student performance. We expect even a greater percentage of students to score at the "Fair" level or better.

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

Substantiating Evidence:

 Field Test Results spring 2013.docx (Word Document (Open XML)) (See appendix)

Outcome #2 Problem Solving

Students pursuing a baccalaureate degree in physics will be able to employ problem solving skills together with scientific models and mathematical techniques to explain and predict behavior of physical systems.

Outcome #2

▼ Measure: Problem Solving Direct - Other


Details/Description: The physics faculty will meet and complete the "Problem Solving Skills Rubric" (see "Supporting Attachments") with the aid of graded exams and projects from the following courses: PHYS 215, 216, 310, 311, 341, 342, 420, and 497.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (odd-numbered years): the three faculty members are each given a copy of the rubric and are reminded to assemble a collection of copies of graded exams and projects from the previous year (an even-numbered year) and the current year.
By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Problem Solving Rubric-Assessment.docx (Word Document (Open XML)) (See appendix)

Findings for Problem Solving

Summary of Findings: Physics faculty were each given a copy of the Problem Solving Skills Rubric (see Supporting Attachments) and were asked to complete the rubric for each physics major who took the physics courses listed in the description of outcome #2 in the academic years 2011-2012 and 2012-2013.


Faculty met on April 15, 2013 to discuss the results. Using all scores, averages were calculated for each student in each category of the rubric. The results show that at least 70% of the students are rated as satisfactory or better in each category. A copy of the results is shown in the attachment below.

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

Substantiating Evidence:

 Assessment -spring 2013.docx (Word Document (Open XML)) (See appendix)

Overall Recommendations

No text specified

Overall Reflection

No text specified

Action Plan

Actions

BA/BS in Physics Outcome Set

Outcome #3 Laboratory Procedures

Students pursuing a baccalaureate degree in physics will be able to carry out basic laboratory procedures demonstrating appropriate use of instrumentation, quantitative measurement, and data analysis.

Outcome #3

▼ Action: continue to monitor

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

Outcome #4 Communication

Students pursuing a baccalaureate degree in physics will be able to demonstrate professional communication skills.

Outcome #4

▼ **Action:** Continue to monitor

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

📄 Status Report

Action Statuses

BA/BS in Physics Outcome Set

Outcome #3 Laboratory Procedures

Students pursuing a baccalaureate degree in physics will be able to carry out basic laboratory procedures demonstrating appropriate use of instrumentation, quantitative measurement, and data analysis.

Outcome #3

▼ **Action:** continue to monitor

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

.....
Status for continue to monitor

Current Status: Completed

Resource Allocation(s) Status: Outcome # 3 is assessed in 2013-214 assessment cycle. In 2012-2013 we monitor and collect evidence for assessment in the next assessment cycle.

Next Steps/Additional Information: No action needed. Target objective met during previous assessment cycle.

Outcome #4 Communication

Students pursuing a baccalaureate degree in physics will be able to demonstrate professional communication skills.

Outcome #4

▼ **Action:** Continue to monitor

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

Status for Continue to monitor

Current Status: Completed

Resource Allocation(s) Status: Outcome # 4 is assessed in 2013-214 assessment cycle. In 2012-2013 we monitor and collect evidence for assessment in the next assessment cycle.

Next Steps/Additional Information: No action needed. Objective target was met during the previous assessment cycle.

Status Summary

No text specified

Summary of Next Steps

No text specified



2013-2014 Assessment Cycle

Assessment Plan

Outcomes and Measures

BA/BS in Physics Outcome Set

Outcome #3 Laboratory Procedures

Students pursuing a baccalaureate degree in physics will be able to carry out basic laboratory procedures demonstrating appropriate use of instrumentation, quantitative measurement, and data analysis.

Outcome #3

▼ Measure: Laboratory Procedures Direct - Other


Details/Description: The physics faculty will meet to complete the "Laboratory Procedures Rubric" (see "Supporting Attachments" below) with the aid of graded laboratory reports from PHYS 215L, 216L, 315 and 316 and notes/observations made by faculty members concerning the students' laboratory work in these courses.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (even-numbered years): faculty members are each given a copy of the rubric and are reminded to assemble a collection of copies of graded laboratory reports from the previous year (an odd-numbered year) and the current year. By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Laboratory Skills Rubric.docx (Word Document (Open XML)) (See appendix)

Outcome #4 Communication

Students pursuing a baccalaureate degree in physics will be able to demonstrate professional communication skills.

Outcome #4

▼ Measure: Oral Communication Direct - Other

Details/Description: Physics faculty members will make direct observations of student presentations in PHYS 215L, 216L, 315, 316, 405, and at professional meetings. Faculty members will meet and complete the "oral Communication Skills Rubric" (see "Supporting Attachments") based on these direct observations.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (even-numbered years): physics faculty are each given a copy of the rubric and are reminded to be prepared to evaluate students' oral presentation skills based on student presentations from the previous year (an odd-numbered year) and the current year. By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Oral communication rubric.xlsx (Excel Workbook (Open XML)) (See appendix)

▼ **Measure:** Written Communication

Direct - Other


Details/Description: The physics faculty will meet and complete the "Written Communication Skills Rubric" (see "Supporting Attachments") with the aid of written laboratory reports from PHYS 215L, 216L, 315, 316.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (even-numbered years): physics faculty members are each given a copy of the rubric and are reminded to assemble a collection of copies of graded laboratory reports from the previous year (an odd-numbered year) and the current year. By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Written Communication Skills Rubric.docx (Word Document (Open XML)) (See appendix)

 **Assessment Findings**

Finding per Measure

BA/BS in Physics Outcome Set

Outcome #3 Laboratory Procedures

Students pursuing a baccalaureate degree in physics will be able to carry out basic laboratory procedures demonstrating appropriate use of instrumentation, quantitative measurement, and data analysis.

Outcome #3

▼ **Measure:** Laboratory Procedures

Direct - Other


Details/Description: The physics faculty will meet to complete the "Laboratory Procedures Rubric" (see "Supporting Attachments" below) with the aid of graded laboratory reports from PHYS 215L, 216L, 315 and 316 and notes/observations made by faculty members concerning the students' laboratory work in these courses.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (even-numbered years): faculty members are each given a copy of the rubric and are reminded to assemble a collection of copies of graded laboratory reports from the previous year (an odd-numbered year) and the current year. By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Laboratory Skills Rubric.docx (Word Document (Open XML)) (See appendix)

Findings for Laboratory Procedures

Summary of Findings: Physics faculty were each given a copy of the "Laboratory Skills Rubric" (see "Supporting Attachments") and were asked to complete the rubric for each physics major who took the physics laboratory courses listed in the description of outcome #3 in the academic years 2012-2013 and 2013-2014.


Faculty met on March 24th, 2014 to discuss the results. Using all scores, averages were calculated for each student in each category of the rubric. The results show that all categories in the rubric were rated better than "Fair". A copy of the results is shown in the attachment below.

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

Substantiating Evidence:

 Laboratory Skills Results spring 2014.docx (Word Document (Open XML)) (See appendix)

Outcome #4 Communication

Students pursuing a baccalaureate degree in physics will be able to demonstrate professional communication skills.

Outcome #4

▼ **Measure:** Oral Communication
Direct - Other

Details/Description: Physics faculty members will make direct observations of student presentations in PHYS 215L, 216L, 315, 316, 405, and at professional meetings. Faculty members will meet and complete the "oral Communication Skills Rubric" (see "Supporting Attachments") based on these direct observations.


Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (even-numbered years): physics faculty are each given a copy of the rubric and are reminded to be prepared to evaluate students' oral presentation skills based on student presentations from the previous year (an odd-numbered year) and the current year.

By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Oral communication rubric.xlsx (Excel Workbook (Open XML)) (See appendix)

Findings for Oral Communication

Summary of Findings: Physics faculty were each given a copy of the "Oral Communication Skills Rubric" (see "Supporting Attachments") and were asked to complete the rubric for each physics major who took the physics courses listed in the description of outcome #4 or made conference presentations in the academic years 2012-2013 and 2013-2014.


Faculty met on March 24th, 2014 to discuss the results. Using all scores, averages were calculated for each student in each category of the rubric. The results show that all categories in the rubric were rated "Good" or better. A copy of the results is shown in the attachment below.

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

Substantiating Evidence:

 Oral Communication Skills Results spring 2014.docx (Word Document (Open XML)) (See appendix)

▼ **Measure:** Written Communication
Direct - Other


Details/Description: The physics faculty will meet and complete the "Written Communication Skills Rubric" (see "Supporting Attachments") with the aid of written laboratory reports from PHYS 215L, 216L, 315, 316.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (even-numbered years): physics faculty members are each given a copy of the rubric and are reminded to assemble a collection of copies of graded laboratory reports from the previous year (an odd-numbered year) and the current year. By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Written Communication Skills Rubric.docx (Word Document (Open XML)) (See appendix)

Findings for Written Communication

Summary of Findings: Physics faculty were each given a copy of the "Written Communication Skills Rubric" (see "Supporting Attachments") and were asked to complete the rubric for each physics major who took the physics courses listed in the description of outcome #4 in the academic years 2012-2013 and 2013-2014.


Faculty met on March 24th, 2014 to discuss the results. Using all scores, averages were calculated for each student in each category of the rubric. The results show that all categories in the rubric were rated "Good" or better. A copy of the results is shown in the attachment below.

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

Substantiating Evidence:

 Written Communication Results spring 2014.docx (Word Document (Open XML)) (See appendix)

Overall Recommendations

No text specified

Overall Reflection

No text specified

 **Action Plan**

Actions

BA/BS in Physics Outcome Set

Outcome #3 Laboratory Procedures

Students pursuing a baccalaureate degree in physics will be able to carry out basic laboratory procedures demonstrating appropriate use of instrumentation, quantitative measurement, and data analysis.

Outcome #3

▼ **Action:** continue to monitor

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

Outcome #4 Communication

Students pursuing a baccalaureate degree in physics will be able to demonstrate professional communication skills.

Outcome #4

▼ **Action:** Continue to monitor

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

📄 Status Report

Action Statuses

BA/BS in Physics Outcome Set

Outcome #3 Laboratory Procedures

Students pursuing a baccalaureate degree in physics will be able to carry out basic laboratory procedures demonstrating appropriate use of instrumentation, quantitative measurement, and data analysis.

Outcome #3

▼ **Action:** continue to monitor

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

Status for continue to monitor

No Status Added

Outcome #4 Communication

Students pursuing a baccalaureate degree in physics will be able to demonstrate professional communication skills.

Outcome #4

▼ **Action:** Continue to monitor

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

Status for Continue to monitor

No Status Added

Status Summary

No text specified

Summary of Next Steps

No text specified

2014-2015 Assessment Cycle

Assessment Plan

Outcomes and Measures

BA/BS in Physics Outcome Set

Outcome #1 Fundamental Concepts

Students pursuing a baccalaureate degree in physics will exhibit a sound grasp of fundamental concepts in the discipline.

Outcome #1

▼ Measure: Fundamental Concepts Direct - Exam

Details/Description: All physics majors will take the Major Field Test in Physics near the end of their senior year and the Assessment Committee will discuss the results.

Target: Our students will score at the "Fair" level or better.

Implementation Plan (timeline): By April 1 (each year): one physics faculty member will administer the exam to all senior physics majors.
During odd-numbered years: within one week of receiving the results from ETS, the Department Chairperson will transmit the results along with the results from the previous year (an even-numbered year) to the committee who will meet within a week to discuss the results of those years.

Responsible Individual(s): Valentina French

Outcome #2 Problem Solving

Students pursuing a baccalaureate degree in physics will be able to employ problem solving skills together with scientific models and mathematical techniques to explain and predict behavior of physical systems.

Outcome #2

▼ Measure: Problem Solving Direct - Other


Details/Description: The physics faculty will meet and complete the "Problem Solving Skills Rubric" (see "Supporting Attachments") with the aid of graded exams and projects from the following courses: PHYS 215, 216, 310, 311, 341, 342, 420, and 497.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (odd-numbered years): the three faculty members are each given a copy of the rubric and are reminded to assemble a collection of copies of graded exams and projects from the previous year (an even-numbered year) and the current year.
By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Problem Solving Rubric-Assessment.docx (Word Document (Open XML)) (See appendix)

Assessment Findings

Finding per Measure

BA/BS in Physics Outcome Set

Outcome #1 Fundamental Concepts

Students pursuing a baccalaureate degree in physics will exhibit a sound grasp of fundamental concepts in the discipline.

Outcome #1

▼ Measure: Fundamental Concepts Direct - Exam

Details/Description: All physics majors will take the Major Field Test in Physics near the end of their senior year and the Assessment Committee will discuss the results.

Target: Our students will score at the "Fair" level or better.

Implementation Plan (timeline): By April 1 (each year): one physics faculty member will administer the exam to all senior physics majors.
During odd-numbered years: within one week of receiving the results from ETS, the Department Chairperson will transmit the results along with the results from the previous year (an even-numbered year) to the committee who will meet within a week to discuss the results of those years.

Responsible Individual(s): Valentina French

Findings for Fundamental Concepts


Summary of Findings: Summary of Findings: Results of the Major Field Test show that 60% of the students scored at the "Fair" level or better. This satisfies the expected target that most of our students score at the "Fair" level or better.

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

Substantiating Evidence:

 Field Test Results Spring 2014-15.docx (Word Document (Open XML)) (See appendix)

Outcome #2 Problem Solving

Students pursuing a baccalaureate degree in physics will be able to employ problem solving skills together with scientific models and mathematical techniques to explain and predict behavior of physical systems.

Outcome #2

▼ Measure: Problem Solving Direct - Other


Details/Description: The physics faculty will meet and complete the "Problem Solving Skills Rubric" (see "Supporting Attachments") with the aid of graded exams and projects from the following courses: PHYS 215, 216, 310, 311, 341, 342, 420, and 497.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (odd-numbered years): the three faculty members are each given a copy of the rubric and are reminded to assemble a collection of copies of graded exams and projects from the previous year (an even-numbered year) and the current year.
By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Problem Solving Rubric-Assessment.docx (Word Document (Open XML)) (See appendix)

Findings for Problem Solving

Summary of Findings: Physics faculty were each given a copy of the Problem Solving Skills Rubric (see Supporting Attachments) and were asked to complete the rubric for each physics major who took the physics courses listed in the description of outcome #2 in the academic years

2013-2014 and 2014-2015.


Faculty met on April 24, 2015 to discuss the results. Using all scores, averages were calculated for each student in each category of the rubric. The results show that at least 70% of the students are rated as satisfactory or better in each category. A copy of the results is shown in the attachment below.

Results: Target Achievement: Met

Recommendations :

Reflections/Notes :

Substantiating Evidence:

 Assessment Spring 2015.docx (Word Document (Open XML)) (See appendix)

Overall Recommendations

No text specified

Overall Reflection

No text specified

Action Plan

Actions

BA/BS in Physics Outcome Set

Outcome #1 Fundamental Concepts

Students pursuing a baccalaureate degree in physics will exhibit a sound grasp of fundamental concepts in the discipline.

Outcome #1

▼ **Action:** Continue to monitor

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

Outcome #2 Problem Solving

Students pursuing a baccalaureate degree in physics will be able to employ problem solving skills together with scientific models and mathematical techniques to explain and predict behavior of physical systems.

Outcome #2

▼ **Action:** Continue to monitor

This Action is associated with the following Findings

No supporting Findings have been linked to this Action.

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

 **Status Report**

Action Statuses

BA/BS in Physics Outcome Set

Outcome #1 Fundamental Concepts

Students pursuing a baccalaureate degree in physics will exhibit a sound grasp of fundamental concepts in the discipline.

Outcome #1

▼ **Action:** Continue to monitor

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

Status for Continue to monitor

No Status Added

Outcome #2 Problem Solving

Students pursuing a baccalaureate degree in physics will be able to employ problem solving skills together with scientific models and mathematical techniques to explain and predict behavior of physical systems.

Outcome #2

▼ **Action:** Continue to monitor

Action Details: Target achievement met. Continue to monitor and reassess in two years.

Implementation Plan (timeline):

Key/Responsible Personnel:

Measures:

Resource Allocations:

Priority:

.....
Status for Continue to monitor

No Status Added

Status Summary

No text specified

Summary of Next Steps

No text specified

2015-2016 Assessment Cycle

Assessment Plan

Outcomes and Measures

BA/BS in Physics Outcome Set

Outcome #3 Laboratory Procedures

Students pursuing a baccalaureate degree in physics will be able to carry out basic laboratory procedures demonstrating appropriate use of instrumentation, quantitative measurement, and data analysis.

Outcome #3

▼ Measure: Laboratory Procedures Direct - Other


Details/Description: The physics faculty will meet to complete the "Laboratory Procedures Rubric" (see "Supporting Attachments" below) with the aid of graded laboratory reports from PHYS 215L, 216L, 315 and 316 and notes/observations made by faculty members concerning the students' laboratory work in these courses.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (even-numbered years): faculty members are each given a copy of the rubric and are reminded to assemble a collection of copies of graded laboratory reports from the previous year (an odd-numbered year) and the current year. By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Laboratory Skills Rubric.docx (Word Document (Open XML)) (See appendix)

Outcome #4 Communication

Students pursuing a baccalaureate degree in physics will be able to demonstrate professional communication skills.

Outcome #4

▼ Measure: Oral Communication Direct - Other

Details/Description: Physics faculty members will make direct observations of student presentations in PHYS 215L, 216L, 315, 316, 405, and at professional meetings. Faculty members will meet and complete the "oral Communication Skills Rubric" (see "Supporting Attachments") based on these direct observations.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (even-numbered years): physics faculty are each given a copy of the rubric and are reminded to be prepared to evaluate students' oral presentation skills based on student presentations from the previous year (an odd-numbered year) and the current year. By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Oral communication rubric.xlsx (Excel Workbook (Open XML)) (See appendix)

▼ **Measure:** Written Communication
Direct - Other


Details/Description: The physics faculty will meet and complete the "Written Communication Skills Rubric" (see "Supporting Attachments") with the aid of written laboratory reports from PHYS 215L, 216L, 315, 316.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (even-numbered years): physics faculty members are each given a copy of the rubric and are reminded to assemble a collection of copies of graded laboratory reports from the previous year (an odd-numbered year) and the current year. By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Written Communication Skills Rubric.docx (Word Document (Open XML)) (See appendix)

 **Assessment Findings**

Finding per Measure

BA/BS in Physics Outcome Set

Outcome #3 Laboratory Procedures

Students pursuing a baccalaureate degree in physics will be able to carry out basic laboratory procedures demonstrating appropriate use of instrumentation, quantitative measurement, and data analysis.

Outcome #3

▼ **Measure:** Laboratory Procedures
Direct - Other


Details/Description: The physics faculty will meet to complete the "Laboratory Procedures Rubric" (see "Supporting Attachments" below) with the aid of graded laboratory reports from PHYS 215L, 216L, 315 and 316 and notes/observations made by faculty members concerning the students' laboratory work in these courses.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (even-numbered years): faculty members are each given a copy of the rubric and are reminded to assemble a collection of copies of graded laboratory reports from the previous year (an odd-numbered year) and the current year. By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Laboratory Skills Rubric.docx (Word Document (Open XML)) (See appendix)

Findings for Laboratory Procedures

No Findings Added

Outcome #4 Communication

Students pursuing a baccalaureate degree in physics will be able to demonstrate professional communication skills.

Outcome #4

▼ **Measure:** Oral Communication
Direct - Other

Details/Description: Physics faculty members will make direct observations of student presentations in PHYS 215L, 216L, 315, 316, 405, and at professional meetings. Faculty members will meet and complete the "oral Communication Skills Rubric" (see "Supporting Attachments") based on these direct observations.

Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (even-numbered years): physics faculty are each given a copy of the rubric and are reminded to be prepared to evaluate students' oral presentation skills based on student presentations from the previous year (an odd-numbered year) and the current year.

By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Oral communication rubric.xlsx (Excel Workbook (Open XML)) (See appendix)

Findings for Oral Communication

No Findings Added

▼ **Measure: Written Communication**

Direct - Other

Details/Description: The physics faculty will meet and complete the "Written Communication Skills Rubric" (see "Supporting Attachments") with the aid of written laboratory reports from PHYS 215L, 216L, 315, 316.


Target: Essentially all of the categories in the rubric will be rated at least "Fair" with most of them rated "Good" or better.

Implementation Plan (timeline): By March 1 (even-numbered years): physics faculty members are each given a copy of the rubric and are reminded to assemble a collection of copies of graded laboratory reports from the previous year (an odd-numbered year) and the current year.

By April 15: the meeting is held and the results are transmitted to TaskStream.

Responsible Individual(s): Valentina French

Supporting Attachments:

 Written Communication Skills Rubric.docx (Word Document (Open XML)) (See appendix)

Findings for Written Communication

No Findings Added

Overall Recommendations

No text specified

Overall Reflection

No text specified

 **Action Plan**

 **Status Report**

2016-2017 Assessment Cycle

 **Assessment Plan**

 **Assessment Findings**

 **Action Plan**


 **Status Report**

2017-2018 Assessment Cycle

 **Assessment Plan**

 **Assessment Findings**

 **Action Plan**

 **Status Report**

2018-2019 Assessment Cycle

 **Assessment Plan**

 **Assessment Findings**

 **Action Plan**


 **Status Report**

2019-2020 Assessment Cycle

 **Assessment Plan**

 **Assessment Findings**

 **Action Plan**

 **Status Report**

Appendix

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- A. **Physics Curriculum Map** (Curriculum Map)
 - B. **Physics** (Adobe Acrobat Document)
 - C. **Laboratory Skills Rubric.docx** (Word Document (Open XML))
 - D. **Oral communication rubric.xlsx** (Excel Workbook (Open XML))
 - E. **Written Communication Skills Rubric.docx** (Word Document (Open XML))
 - F. **Lab skills results 4-9-2012.docx** (Word Document (Open XML))
 - G. **Oral Communication results 4-9-2012.docx** (Word Document (Open XML))
 - H. **Written Communication results 4-9-2012.docx** (Word Document (Open XML))
 - I. **Problem Solving Rubric-Assessment.docx** (Word Document (Open XML))
 - J. **Assessment -spring 2013.docx** (Word Document (Open XML))
 - K. **Field Test Results spring 2013.docx** (Word Document (Open XML))
 - L. **Laboratory Skills Rubric.docx** (Word Document (Open XML))
 - M. **Oral communication rubric.xlsx** (Excel Workbook (Open XML))
 - N. **Written Communication Skills Rubric.docx** (Word Document (Open XML))
 - O. **Laboratory Skills Results spring 2014.docx** (Word Document (Open XML))
 - P. **Oral Communication Skills Results spring 2014.docx** (Word Document (Open XML))
 - Q. **Written Communication Results spring 2014.docx** (Word Document (Open XML))
 - R. **Problem Solving Rubric-Assessment.docx** (Word Document (Open XML))
 - S. **Assessment Spring 2015.docx** (Word Document (Open XML))
 - T. **Field Test Results Spring 2014-15.docx** (Word Document (Open XML))
 - U. **Laboratory Skills Rubric.docx** (Word Document (Open XML))
 - V. **Oral communication rubric.xlsx** (Excel Workbook (Open XML))

W. **Written Communication Skills Rubric.docx** (Word Document
(Open XML))

College: CAS Department: PHYS
 Major: Physics Degree: BS

If **Program Elimination** is pending you need not complete the form.)

	Question	Type of Answer	From Available Info	Answer
	By March 1	Nationally Accredited	Y/N	
		Organization		
Student Learning Outcomes Clearly Articulated		Y/N	E. Robbins Fall 07 Survey Answer:N Y	N
		File (or source of information)	2004 CoAS Report	
Students Know their Learning Outcomes		Y/N		N
		File		
Program Actively Using Student Learning Outcomes		Y/N		N
Does Assessment Plan Exist?		Y/N	E. Robbins Fall 07 Survey Answer:N	N
		When Was It Adopted?		
		File/copy		
By May 15	Data Actively Collected & CBE	Data Ever Collected?	E. Robbins Fall 07 Survey Answer:N	
		Data Recently/ Actively Collected?	E. Robbins Fall 07 Survey Answer:N	
		Evidence		
	Data Systematically Analyzed & CBE	Data Analyzed?	E. Robbins Fall 07 Survey Answer:N	
		Evidence		
	Analysis Discussed in Depts & CBE	Analysis Discussed?	E. Robbins Fall 07 Survey Answer:N	
		Evidence		
	Analysis Impacts Curriculum for Pgm & CBE	Any Changes to Pgm Curriculum Since 2000	E. Robbins Fall 07 Survey Answer:Y	
		Were changes as a result of SLO, Data, Analysis?		
		Evidence		
	Assessment Plan Adjustments Discussed &CBE	Has the Assessment Plan been modified since 2001		
		Were changes as a result of SLO, Data, Analysis?		
		Evidence		
	Adjustments Implemented & CBE	Has the adjusted plan been implemented		
		Evidence		

Completed by: Eric Glendening