2017-2018 Assessment Cycle COS_Physics BS

Mission (due 12/4/17)

University Mission

The University of Louisiana at Lafayette offers an exceptional education informed by diverse worldviews grounded in tradition, heritage, and culture. We develop leaders and innovators who advance knowledge, cultivate aesthetic sensibility, and improve the human condition.

University Values

We strive to create a community of leaders and innovators in an environment that fosters a desire to advance and disseminate knowledge. We support the mission of the university by actualizing our core values of equity, integrity, intellectual curiosity, creativity, tradition, transparency, respect, collaboration, pluralism, and sustainability.

University Vision

We strive to be included in the top 25% of our peer institutions by 2020, improving our national and international status and recognition.

College / VP and Program / Department Mission

Mission of College or VP-area
Provide the mission for the College or VP-area in the space provided. If none is available, write "None Available in 2017-2018."
Our mission is to serve our students, the citizens of Louisiana, the nation, and the world, through innovative and stimulating educational experiences and compelling research initiatives that create knowledge, deepen our basic understanding of the world around us, further economic development, and enhance quality of life. In support of our mission, The College of Sciences seeks to:

Develop broad-thinking students into mature, ethical professionals, scientists, and researchers with the necessary creativity, critical thinking, and problem solving skills required to make significant contributions to industry, government, and the academic sector.
Recruit and support top-notch teaching and research faculty engaged in scientific endeavors that are recognized nationally for their relevance and impact.
Enrich scientific research and education through on-campus collaborations, multidisciplinary programs, large-scale multi-institution initiatives, as well as partnerships with government and industry.
Foster scientific literacy within the University, the citizens of Louisiana, and the nation by providing stimulating courses for our students and by partnering with educators at the K-12 and community college level.
Provide leadership in the translation and application of research into practical solutions that will benefit our local community, the state of Louisiana, our natural environment, industries of the Gulf Coast region, and society as a whole.

The Ray P. Authement College of Sciences will emerge as a preeminent college of sciences in the Southeast and Gulf Coast region of the United States. The College will be recognized nationally for its innovative education, scholarly research activities addressing our nation's grand challenges, and for its diverse student body with exemplary academic achievements, leadership abilities, and global perspectives.

Mission of Program / Department
Provide the program / department mission in the space provided. The mission statement should concisely define the purpose, functions, and key constituents. If none is available, write "None Available in 2017-2018."
The mission for the Bachelor's of Science degree in Physics is to produce students who are well rounded, scientific thinkers. In order to ensure this goal, we are implementing assessment tools to determine how well students are prepared

in a few key areas: fundamental laws of physics, how well students assimilate physics material, communication and technical skills.

Attachment (optional)
Upload any documents which support the program / department assessment process.

Assessment Plan (due 12/4/17)

Assessment Plan (Goals / Objectives, Assessment Measures and Criteria for Success)

Assessment List

Goal/Objective	All candidates for the B.S. Degree in Physics will be able to demonstrate knowledge of fundamental physical laws and ability to apply them to the solution of practical problems in physics and related fields.(Imported)
Legends	SLO - Student Learning Outcome/Objective (academic units);
Standards/Outcomes	
Assessment Measures	

Assessment Measure	Criterion	Attachments
Direct - Fundamental Physical Laws (Other)	Assessment Measure: Direct - Other (Academic Direct Measure) Criterion: Each candidate's knowledge is evaluated by their ability to answer a consistent (GRE-Physics type) content-related question, which will be embedded into a final exam for all 300-level and 400-level courses (excluding Phys 491, 492, 497,498) required by the B.S. Program curriculum. Number of students assessed = All At least 70% of students enrolled in a course will answer a consistent embedded question correctly.	

Goal/Objective	All candidates for the B.S. Degree in Physics will be able to evaluate and assimilate new scientific information from scientific journals, books, and web-resources(Imported)
Legends	SLO - Student Learning Outcome/Objective (academic units);
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Assessment Measures	

Assessment Measure	Criterion	Attachments
Direct - Presentation	Each candidate is required to review scientific findings on a particular research topic and deliver the presentation at the departmental seminar during the first semester of his/her senior year. The committee of three faculty members	

		evaluates the candidate's understanding of presented scientific information by asking questions and completing student's seminar evaluation forms. Number of students assessed = All The outcome will be measured during the senior year when student is enrolled in Phys491.To achieve a goal, a full 100% of students will attain at least 70% average of the maximum score on the content part of the evaluation form	

Goal/Objective	All candidates for the B.S. Degree in Physics will be able to communicate scientific/professional ideas both orally and in writing(Imported)
Legends	
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Assessment Measures	

Assessment Measure	**Criterion**	**Attachments**
Direct - Presentation	Each candidate will deliver at least two research seminars during their Senior Year, which will be evaluated independently by the committee of three faculty members by completing student's seminar evaluation forms. Each student evaluation form will contain special section evaluating student's ability to communicate scientific/professional ideas both orally and in writing. The outcome will be measured at the end of each student educational period (senior status) when student is enrolled in Phys491 or 492 . To achieve a goal, a full 100% of students will attain at least 70% average of the maximum score on the presentation part of the evaluation form.	

Goal/Objective	All candidates for the B.S. Degree in Physics will have strong independent-learning, analytical, and problem-solving skills for advanced graduate studies in physics or related discipline and/or for careers in science, engineering, and industry.(Imported)
Legends	SLO - Student Learning Outcome/Objective (academic units);
Standards/Outcomes	
Assessment Measures	

Assessment Measure	**Criterion**	**Attachments**

	Direct - Project	All students are required to enroll and successfully complete Phys498 (Senior Research II) that involves an independent research project under a faculty member supervision during their Senior year. The research results are reported at the departmental seminar (during the second-semester of the Senior Year) and evaluated by the committee of three faculty members by completing advanced student's seminar evaluation forms that reflect on candidate's understanding of the nature of the research project, current state of knowledge in a particular research area, as well as candidate's skills to produce innovative research results using appropriate physical/mathematical knowledge. Number of students assessed = All The outcome will be measured during the senior year when a student is enrolled in Phys492. To achieve a goal, full 100% of students will attain at least 70% average of the maximum score on the content part of the advanced-research project evaluation form.	

Program / Department Assessment Narrative

The primary purpose of assessment is to use data to inform decisions and improve programs (student learning) and departments (operations); this is an on-going process of defining goals and expectations, collecting results, analyzing data, comparing current and past results and initiatives, and making decisions based on these reflections. In the space below, describe the program's or department's overall plan for improving student learning and/or operations (the "assessment plan"). Consider the following:
1) What strategies exist to assess the outcomes?
2) What does the program/department expect to achieve with the goals and objectives identified above?
3) How might prior or current initiatives (improvements) influence the anticipated outcomes this year?
4) What is the plan for using data to improve student learning and/or operations?
5) How will data be shared within the Program/Department (and, where appropriate, the College/VP-area)?

Assessment Process

Someone who graduates with a Bachelor's of Science degree in Physics should not only have knowledge of the fundamental laws of physics, but should also have strong analytical and problem solving skills. The goal of the Physics department is to develop these skills so that our graduates are well rounded, scientific thinkers. To ensure that we meet his goal, we assess our students by evaluating their ability to solve GRE-type physics problems embedded in final exams and by evaluating their presentations given at our physics seminars.

The students' performance on a GRE-type physics problem will help us assess their knowledge of the laws of physics as well as their ability to apply this knowledge when solving a physics problem. In addition to taking classes, senior undergraduate physics students must perform research under the guidance of a faculty member. It is important for physics students to experience research in order to develop their ability as a scientific thinker and improve their analytical and problem solving skills. By evaluating their presentations at our physics seminar, we can assess their ability to carry out a research project, analyze data, draw conclusions, and communicate the results of their research.

The results of these assessments will be discussed at our Physics Department meetings. At these meetings, we can discuss ways to improve the outcomes of these assessments and possibly modify our criteria for these assessments.

Results & Improvements (due 9/15/18)

Results and Improvement Narratives

Assessment List Findings for the Assessment Measure level for All candidates for the B.S. Degree in Physics will be able to demonstrate knowledge of fundamental physical laws and ability to apply them to the solution of practical problems in physics and related fields.(Imported)

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Criterion: Each candidate’s knowledge is evaluated by their ability to answer a consistent (GRE-Physics type) content-related question, which will be embedded into a final exam for all 300-level and 400-level courses (excluding Phys 491, 492, 497,498) required by the B.S. Program curriculum. Number of students assessed = All At least 70% of students enrolled in a course will answer a consistent embedded question correctly.</td></tr>
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<tr><td>Direct - Fundamental Physical Laws (Other)</td><td>Has the criterion Assessment Measure: Direct - Other (Academic Direct Measure) Criterion: Each candidate’s knowledge is evaluated by their ability to answer a consistent (GRE-Physics type) content-related question, which will be embedded into a final exam for all 300-level and 400-level</td><td>Here are the scores for the embedded test questions. Students who scored 70% or above on the embedded test question are considered to have answered the question correctly. Phys 411, Spring 2018: 3 out of 3 students scored above a 70% on Assessment question Phys 323, Fall 2017: 1</td><td></td><td>- Assessment Process: Targets / Criteria for Success changed: The Physics Department will be adjusting the criterion for this assessment measure. The criterion we used for this assessment cycle did not clearly explain the score we expected students to achieve on the embedded question. We will change the criterion as follows:</td></tr>
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	courses (excluding Phys 491, 492, 497,498) required by the B.S. Program curriculum. Number of students assessed = All At least 70% of students enrolled in a course will answer a consistent embedded question correctly. been met yet? Met	out of 4 students scored above a 70% on Assessment question Phys 301, Fall 2017: 5 out of 7 students scored above a 70% on Assessment question Phys 405, Fall 2017: 3 students scored above a 70%, 2 students did not show up. The students who did not show up will not be included when assessing these results.		this assessment will be met if 70% of the students score 70% or higher on the embedded question. This new criterion more clearly communicates the score we expect students to achieve on the embedded question.

Assessment List Findings for the Assessment Measure level for All candidates for the B.S. Degree in Physics will be able to evaluate and assimilate new scientific information from scientific journals, books, and web-resources(Imported)

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Assessment Measure	**Criterion**
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Assessment Findings	

Assessment Measure	Criterion	Summary	Attachments of the Assessments	Improvement Narratives
Direct - Presentation	Has the criterion Each candidate is required to review scientific findings on a particular research topic and deliver the presentation at the departmental seminar during the first semester of his/her senior year. The committee of three faculty members evaluates the candidate's understanding of presented scientific information by asking questions and completing student's seminar evaluation forms. Number of students assessed = All The outcome will be measured during the senior year when student is enrolled in Phys491.To achieve a goal, a full 100% of students will attain at least 70% average of the maximum score on the content part of the evaluation form been met yet? Not met	Two students gave presentations during the seminar during the Fall 2017 semester. They were evaluated by three faculty members. Here are the average scores for the content part of the evaluation Student 1: 20.7/30 = 69% Student 2: 19/30 = 63%		- Assessment Process: Continuous monitoring: We are continuing with our action plan from previous cycles without alteration. Our outcomes do not seem to warrant large alterations, and we will continue to monitor the success of our students in relation to our previous plans.

Assessment List Findings for the Assessment Measure level for All candidates for the B.S. Degree in Physics will be able to communicate scientific/professional ideas both orally and in writing(Imported)

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		presentation part of the evaluation form. been met yet? Met	Student 2: 36/40 = 90 %		

Assessment List Findings for the Assessment Measure level for All candidates for the B.S. Degree in Physics will have strong independent-learning, analytical, and problem-solving skills for advanced graduate studies in physics or related discipline and/or for careers in science, engineering, and industry.(Imported)

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Assessment Findings

Assessment Measure	Criterion	Summary	Attachments of the Assessments	Improvement Narratives
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Reflection (Due 9/15/18)

Reflection

The primary purpose of assessment is to use data to inform decisions and improve programs and operations; this is an on-going process of defining goals and expectations, collecting results, analyzing data, comparing current and past results and initiatives, and making decisions based on these reflections. Recalling this purpose, respond to the questions below.

1) How were assessment results shared in the program / department?
Please select all that apply. If "other", please use the text box to elaborate.
Distributed via email
Presented formally at staff / department / committee meetings
Discussed informally
Other (explain in text box below) (selected)

The results for this assessment cycle have not yet been shared with the department. They will be shared at the next Physics Department meeting.

2) How frequently were assessment results shared?

Frequently (>4 times per cycle)
Periodically (2-4 times per cycle)
Once per cycle
Results were not shared this cycle (selected)

3) With whom were assessment results shared?
Please select all that apply.
Department Head
Dean / Asst. or Assoc. Dean
Departmental assessment committee
Other faculty / staff

4) Consider the impact of prior applied changes. Specifically, compare current results to previous results to evaluate the impact of a previously reported change. Demonstrate how the use of results improved student learning and/or operations.

The physics department has not changed the assessment measures for the past three cycles. For some of the assessment measures in the previous cycles, a low number of students were assessed. This makes it difficult to draw conclusions from the data and then implement changes. However, for the 2017-2018 cycle, more students were assessed, particularly for the first assessment measure. The Physics Department can discuss possible improvements at the next department meeting.

5) Over the past three assessment cycles, what has been the overall impact of "closing the loop"? Provide examples of improvements in student learning, program quality, or department operations that are directly linked to assessment data and follow-up analysis.

There has been some improvement in student learning this cycle. The standards for three out of the four assessment measures were met in the 2017-2018 cycle. Compared to the other cycles, this is an improvement. The students who gave presentations for the 2017-2018 cycle showed significant improvement in their evaluations from the Fall 2017 semester to the Spring 2018 semester. However, as explained in the previous question, we assessed a low number of students in previous cycles, so it is difficult to draw conclusions from our results.

Attachments (optional)
Upload any documents which support the program / department assessment process.