

University of Louisiana at Lafayette

Detailed Assessment Report 2015-2016 Physics MS

As of: 11/17/2016 11:53 AM CENTRAL

(Includes those Action Plans with Budget Amounts marked *One-Time, Recurring, No Request.*)

Mission / Purpose

Our program leads to a practical stand-alone MS degree or is an excellent stepping-stone towards a PhD program elsewhere. Students take advanced classes in small-class settings, which are easier to personalize. Students work on research projects in a very close and direct feedback with their research advisers, work which many times leads to publications. This experience and the students' CV strengthening greatly enhance their skills and chances to get jobs or be accepted in PhD programs, if that is what they seek.

Student Learning Outcomes/Objectives, with Any Associations and Related Measures, Targets, Findings, and Action Plans

SLO 1: Disciplinary Knowledge

All candidates in the M.S. program will be able to demonstrate knowledge across the discipline, and have a deeper understanding in their area of specialization. General knowledge is assessed through regular classes and knowledge in their specialized field is assessed through two seminar presentations, proposal defense, and thesis/project defense. Non-thesis track students take an additional written exam.

Related Measures

M 1: Examinations

All candidates in the M.S. program are evaluated throughout the program through examinations that evaluate their level of preparation in the different academic subjects they are trained. The department maintains the same standards as those of the Graduate School: a minimum GPA of 3.0, no more than 2 grades of C, no grades of D, no grades of F.

For a non-thesis track candidate, the total requirement is completed with the passing of a written 3-hours comprehensive examination covering the student's course work, research work, and basic topics in advanced mechanics and electromagnetism, before graduation. The thesis track students are having their comprehensive examination in oral form, during the time of their thesis defense.

The performance evaluation is done as described in the Targets of this Measure.

Source of Evidence: Writing exam to assure certain proficiency level

Target:

(1) Regular classes: Each candidate's proficiency in the specific subject of a class is evaluated through a final grade. The target is to have all students pass with a grade of B. (2) Comprehensive exam: for the non thesis track, the written exam is considered passed if the candidate obtains a minimum of 50% in each of the tested areas. The target is to have all students taking the exam pass. (3) Comprehensive exam: for the thesis track, the committee will vote to give a score from 1-5 for this assessment on the scale: 1=does not meet expectations; 2=approaching expectations; 3=meets expectations; 4=slightly above expectations, 5=exceeds

expectations. A score of three (3) is considered a pass. The target is to have 100% of the students taking this exam pass.

Finding (2015-2016) - Target: Partially Met

During the 2015-2016 academic year, twelve students were enrolled in their Master Degree in Physics, each taking an average of 3 classes per semester. Target (1): A total of four grades of C were obtained, and one grade of F. This target was not met. Target (2): One student on non-thesis track took the written comprehensive exam. The student has not passed three of the four subjects tested. This target was not met. Target (3): Two students on thesis track took the oral comprehensive exam while defending their theses. They obtained scores of (3) and (4) and therefore passed. This target was met.

Related Action Plans (by Established cycle, then alpha):

Professional Behaviour Education

The graduate coordinator will organize for all incoming students a seminar to discuss professional and ethical behavior in the academia. The topics covered will include: student-advisor health and professional relations, recommendation letters and rules, technical presentations, addressing requests, expected skills at graduation.

Established in Cycle: 2015-2016

Implementation Status: Planned

Priority: High

Relationships (Measure | Outcome/Objective):

Measure: Examinations | **Outcome/Objective:** Disciplinary Knowledge

Measure: Research skills evaluations | **Outcome/Objective:** Design and Carry Out Research, Scientific Communication, Dissemination of Results

Responsible Person/Group: Graduate Coordinator

SLO 2: Design and Carry Out Research, Scientific Communication, Dissemination of Results

All candidates in the M.S. program will have the skills and knowledge necessary to design and complete a research project under the guidance of a faculty member who is a member of the Graduate Faculty. All candidates in the M.S. program will have the skills necessary to analyze results and disseminate them verbally and in writing, typically associated with presentations and publications, respectively. Students on thesis track write and defend a thesis and present two seminars; students on non-thesis track finalize the project, present two seminars, and write a final report on the findings.

Related Measures

M 2: Research skills evaluations

Each candidate's ability to analyze and synthesize data, as well as to present the results of their research, is evaluated by a committee of faculty members through a number of public oral events. For the **thesis track** the evaluation is done in four rounds: two seminar presentations (PHYS595/596), proposal defense, and thesis defense. For the **non-thesis track**, the evaluation is done in three rounds: two seminar presentations (PHYS595/596) and a research proposal defense. During all oral events, the committee and the public will ask questions to evaluate the candidate's understanding of the nature of the research, as well as problems associated with the analysis and interpretation of data. In addition, during a thesis defense, questions covering the student's course work can be asked by committee members only.

The performance evaluation is done as described in the Targets of this Measure.

Source of Evidence: Project, either individual or group

Target:

(1) Proposal defense: Each candidate's ability to design and conduct a research project is evaluated by a faculty committee selected by the student during the Research Proposal Defense. The committee members vote with a final pass/fail evaluation (i.e. more passes than fails). The target is to have all students pass.

(2) Thesis defense: For a thesis defense, the committee will vote to give a score from 1-5 for this assessment on the scale: 1=does not meet expectations; 2=approaching expectations; 3=meets expectations; 4=slightly above expectations, 5=exceeds expectations. A score of three (3) is considered a pass. The target is to have 70% of students pass.

(3) Seminar presentations: For the seminar presentations, the evaluation is done by an ad-hoc committee comprised of at least three graduate faculty members. The questionnaire contains two sections: scientific content (10 questions) and presentation skills (8 questions). For each question, the following grading scheme is used: 1=unsatisfactory; 2=satisfactory; 3=good; 4=very good; 5=exceptional. An average score above 2.5 (50%) is considered a "pass". An average of the two seminar presentations is considered their final score. The target is to have all students pass.

Finding (2015-2016) - Target: Met

During the 2015-2016 academic year, three students completed their Master Degree in Physics. We have eleven graduate students on track for full-time enrolled in the fall, seven continuing and four new. Six of the ongoing students have started working on their projects and are expected to defend their proposals in FA16.

Target (1): Five students proposed their research subject to their committees. All passed. The target is met.

Target (2): Two students defended their thesis in front of their committees. They obtained grades of 4 and 5, both above 3. Therefore 100% of students passed. The target is met.

Target (3): Four students presented seminars. Average results for the four students who completed their MS degree: Student 1: 77% academic content, 89% presentation skills; Student 2: 52% academic content, 72% presentation skills; Student 3: 85% academic content, 83% presentation skills; Student 4: 62% academic content, 79% presentation skills; All four students passed. The target is met.

Related Action Plans (by Established cycle, then alpha):

Professional Behaviour Education

The graduate coordinator will organize for all incoming students a seminar to discuss professional and ethical behavior in the academia. The topics covered will include: student-advisor health and professional relations, recommendation letters and rules, technical presentations, addressing requests, expected skills at graduation.

Established in Cycle: 2015-2016

Implementation Status: Planned

Priority: High

Relationships (Measure | Outcome/Objective):

Measure: Examinations | **Outcome/Objective:** Disciplinary Knowledge

Measure: Research skills evaluations | **Outcome/Objective:**
Design and Carry Out Research, Scientific Communication,
Dissemination of Results

Responsible Person/Group: Graduate Coordinator

SLO 3: to be removed

Related Measures

M 3: to be removed

Source of Evidence: Client satisfaction survey (student, faculty)

Target:
to be removed

Finding (2015-2016) - Target: Met

to be removed

Analysis Questions and Analysis Answers

How were assessment results shared and evaluated within the unit?

A report is given by the Graduate Coordinator to the department at an all-inclusive Faculty Meeting twice a year.

Identify which action plans [created in prior cycle(s)] were implemented in this current cycle. For each of these implemented plans, were there any measurable or perceivable effects? How, if at all, did the findings appear to be affected by the implemented action plan?

Action plan 1: Enforce early research proposal defense. We had success in some cases and no success in others. What we observed was that the combination between the background preparation of a particular student and with his/her chosen field of research is an unpredictable quantity. We have one student who defended his proposal one semester earlier than the norm. Two students' proposal is delayed and the rest are on track.

Action plan 2: Four-semester individualized plan for each student. This plan is successfully implemented for all students. It appears to help students work towards their goal. The requirements are clearly included in a table that is individualized for each student during one-to-one meetings with the Graduate Coordinator. As the student progresses into the program, the requirements are shown as being achieved.

Action plan 3: Introduce concentration tracks. This action plan is in incipient stage. It requires extensive planning and research and it has not been implemented yet.

What has the unit learned from the current assessment cycle? What is working well, and what is working less well in achieving desired outcomes?

- 1) We reassured that the incoming student body is very diverse and trying to apply rigid rules does not work in all cases. We have to be prepared for alternate solutions.
- 2) We learned that making an initial plan with each student, individually, at the start of the program, is very beneficial and keeps students focused and organized.