

Student Learning Outcomes Assessment Summary

Physics, MS

College of Natural Science and Mathematics

AY 2012-13 & 2013-14

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5 students graduated with an MS degree (3 MS Physics, 1 MS Computational Physics, 1 MS Interdisciplinary Degree).

Note the department's Physics MS program consolidation in 2012. Beginning in AY 2012-13 the department offers an MS Physics degree with optional concentrations in either physics, computational physics, or space physics.

1. Assessment information collected

- a) Discussion of thesis defenses in department meeting with respect to oral presentation skills, level of understanding of project, responses to questions to test critical thinking skills.
- b) Discussion of quality of written thesis by department chair and graduate student committee members.
- c) Publications or presentations: 1 published and 1 submitted paper in peer-reviewed physics journal; 3 students presented posters [APS meeting, Denver; UAF research day]; 1 student travel grant to conference.
- d) Employment: 1 student joined PhD program at University of Waterloo, 3 students are employed in physics related jobs, and 1 of the recent graduates is currently not seeking employment.
- e) Questionnaire and request for written supplemental information to be answered by students upon graduation: 2 responses received. [1: strongly disagree, up to 5: strongly agree]

Both students can recommend UAF for graduate studies (4), the quality of instruction in the physics department (4.5), are pleased with their research experience in degree program (4.5), their experience as a TA (4), and feeling prepared for next step in professional development (3.5).

Lowest score was reached in “my research work was adequately funded (one student chose 2, the other did not answer it).

Written supplemental information was provided by one of the students who did not provide suggestions for change, but commented favorably on instructional program, approachable faculty, research program and research advisor.

2. Conclusions drawn from the information summarized above

- a) Faculty who attended the defenses agreed that students' oral presentation skills, students' understanding of project, and students' responses to questions that test critical thinking skills were overall very good.
- b) Department chair and committee members agreed that MS theses of all the graduates were very good regarding content of thesis and writing skills.
- c) The department does not require publications or conference presentations from MS students, but notes it as a success of our quality graduate program.
- d) Employment of students is strong; all students seeking employment or further education in PhD program were successful.
- e) Overall the evaluation of the graduate program was very positive.

Students feel prepared for their next step in professional career, but not exceedingly. This might be due to the students' goal to enter the private sector, and the associated uncertainty of finding employment in difficult economical times. The department will rephrase this part of the questionnaire to ask for reasons why they feel prepared or not. In addition the department could provide information to our graduate students about employment history of our graduates to make the current students feel better prepared.

One student felt that he was not adequately funded (2), and the other student did not respond to this question. Both students were provided a continuous TA during their education at UAF, but both had family. The department needs to do a better job in convincing students that both, TA and RA, are student funding sources that are competitive sources not just at UAF but also at other universities.

All graduate students met or exceeded the assessment criteria.

3. Curricular changes resulting from conclusions drawn above

No curricular changes were recommended based on this information and analysis. The faculty is, however, considering the following proposed changes to SLOA procedures:

- Develop a questionnaire for faculty to evaluate student's thesis and defense performance more quantitatively.
- Develop a data base for published student papers, conference presentations, student outreach, etc
- Develop a data base for employment of our graduates
- Establish a permanent SLOA committee
- Establish a procedure that ensures that students submit questionnaire upon graduation

4. Identify the faculty members involved in reaching the conclusions drawn above and agreeing upon the curricular changes resulting

The department continues to consider to all aspects of the SLOA process, up to and including the proposal and implementation of curricular changes, as a body of the whole. Discussions on curricular assessment are taken up via regular agenda item at the beginning of each fall, subsequent to the receipt and compilation of exit surveys.