

PENNSYLVANIA STATE SYSTEM OF HIGHER EDUCATION
Academic Program Review Summary Form
Board Of Governors Policy 1986-04-A
Secondary Education, Mathematics
(2008 - 2009)

Please indicate:
 Annual Report
 Five-Year Review

University Lock Haven University **Degrees Offered** B.S. Ed.
Division/Unit Mathematics **Program** Secondary Mathematics Education
Date of Last Major Review 2003 **Completion Date of Current Review** 7/31/09

I. Composition of Review Team (five-year program reviews only)

Chair: Steve Williams
 External Review Team Members:
 Campus Review Team Members:

II. Program Data

Insert other relevant program data related to the program review in the blank rows.

	Insert Appropriate Academic Years Below				
	2004-05	2005-06	2006-07	2007-08	2008-09 (est.)
Student Enrollment (Annualized FTE)					
Program Budget / Cost (personnel, operating, equipment)					
Program Cost / Student FTE					
Faculty FTE					
Majors Enrolled (Fall Headcount)	45	56	63	75	69
Program Graduates	3	10	7	13	10

Either reflect the portion of the department's budget (personnel, operating, and equipment) associated with this program, or reflect the Common Cost Accounting instructional costs associated with this program. [Data at www.lhup.edu/planning-and-assessment/program/data.htm.]

[This is impossible to discern from the data provided.]

Accreditation Status (if any):
 Nationally Recognized

Accrediting Agency:
 NCTM/NCATE

Effective Date:
 July 2008/April 2009

Program Context

How This Program Relates to and Supports the University’s Mission and Strategic Plan

Concerning the university’s mission statement, Lock Haven’s nationally recognized secondary education mathematics program offers an affordable program that responds to societal and economic needs, preparing students for a productive career through diverse/multicultural experiences and a strong liberal arts education. Our moderately sized program allows for access to faculty, collegial relationships to form, and a culture of learning that is both caring and challenging to exist. Concerning the goals set forth in the university’s strategic plan, the secondary education mathematics program contributes to the following goals: 1-1, 1-3, 1-4, 1-9, 2-2, 2-3, 2-5, 2-7, 3-2, 3-3, 3-6, 3-7, 4-2, 4-5, 5-1, 5-6, 5-7, 6-1, 6-6, 6-7, 7-2, and 7-3.

External or Environmental Factors Affecting the Program

The National Council of Teachers of Mathematics (NCTM) and the National Council for Accreditation of Teacher Education (NCATE) are the two national accrediting bodies that set standards that affect the quality and content of the secondary education mathematics program. Likewise, the Pennsylvania Department of Education (PDE) makes decisions and requirements regarding teacher certification that influence the types of experiences and coursework our students are expected to master. According to PDE, students in the secondary education mathematics program must have the equivalent of a B.A. or B.S. in mathematics, along with many specific educational requirements, as well as maintain an overall grade-point-average of 3.000. In addition to this, Lock Haven University has required that students in all education programs have a 3.000 grade-point-average prior to entering the Professional Semester and maintain the 3.000 before entering Student-Teaching. In an area such as mathematics, these are very rigorous requirements.

Demand for This Program and its Graduates (Current and Anticipated)

There is no question that a strong secondary education mathematics program is a “must-have” for any university boasting strong education programs. According to the Bureau of Labor Statistics, the demand for mathematics teachers is high and is projected to remain high, especially in urban areas. In fact, the demand for quality secondary mathematics teachers is so high that many “fast-track” and alternative programs are being suggested and offered all around the country.

III. Progress Since Last Review

This should be a brief status report of principal actions taken since the last review, if applicable.

Student Learning Outcomes

Action Item	Steps Taken/Progress Reported	Date
NCTM/NCATE standards completely revised	An assessment plan was created to meet the new standards.	2004 – 2008

Other Program Outcomes

Action Item	Steps Taken/Progress Reported	Date
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student advisement was weak	The Coordinator of Secondary Education Mathematics advises all students. The Coordinator of Secondary Education Mathematics created a guidebook for all students and faculty.	2005, with updates on the guidebook each year

IV. Outcomes Assessment (PASSHE Board of Governors Policy 1997-01)

Student Learning Outcomes (list goals and outcomes)

See attached Learning Outcomes Assessment Worksheets.

Program Outcomes (list goals and outcomes)

See attached Program Outcomes Assessment Worksheets.

V. Strengths

Student Learning

In 2008, the secondary education mathematics program was nationally recognized by NCTM/NCATE, based on the alignment of the assessment plan to the national standards and the outcomes of student learning. During this rigorous review process, every indicator was met, with no “areas for consideration” or “additional comments” being stated, indicating that student learning in general is a strength of the program.

Concerning candidates’ knowledge of content, national reviewers stated: “Candidates’ knowledge of content is documented by Praxis II data. Data were reported for seven candidates with a mean score of 152.86, well above the passing score of 136. The department also uses grade point averages as a content assessment. Mathematics courses were aligned with the NCTM standards and that data indicate a range of 2.54 to 4.00 on individual students’ GPAs.”

Concerning candidates’ ability to understand and apply pedagogical and professional content knowledge, skills, and dispositions, national reviewers stated: “Candidates’ ability to understand and apply pedagogical and professional content knowledge, skills and dispositions is documented by the lesson plan portfolio, student-teaching competency form and teacher work sample. Analyses of the lesson plan portfolio data indicate that candidates have the ability of develop lessons that focus on the different aspects of teaching and learning. The student teaching competency form has an addendum aligned to the NCTM standards. The data for this assessment show that the mean in every category was above the minimal acceptable level of performance. The data from student teaching indicate that candidates are meeting the NCTM standards related to pedagogical and professional content knowledge, skills, and dispositions.”

Concerning candidate effects on P-12 student learning, national reviewers stated: “As a component of the teacher work sample, candidates are required to plan a unit of instruction focused on student learning. Candidates are required to evaluate the context of their teaching and demonstrate how it affects the unit of instruction, set appropriate goals linked to standards, develop an assessment plan that includes a pre and post test as well as formative assessments, create appropriate lessons using a variety of strategies, complete a detailed analysis of the pre/post test results as well as an analysis of individual learning goals for each student, and reflect on the entire unit and the impact on their students’ learning. The data from this assessment provide evidence that candidates are effecting P-

12 student learning. Data also support that candidates are integrating content and pedagogy at various transition points in the program.”

Other Program Areas

During national accreditation, the reviewers made the following comments concerning strengths in other program areas:

“The Unit has a strong field experience component. During the spring semester of candidates’ sophomore year they spend six six-hour days in the public schools with a cooperating teacher. During the same semester, candidates complete a field experience consisting of a one-day trip to an inner-city high school in Philadelphia. In the junior year, candidates complete a ten-hour diversity experience tutoring in one of the programs offered by the university. During the fall semester of their senior year, candidates complete 36 hours in the public schools observing, tutoring, conducting interviews, teaching, and other duties of the classroom teacher. During the candidate’s final semester at the university, they complete a 14 week, 35 hours per week student teaching experience.”

“It is evident that assessment results are evaluated and applied to the improvement of candidate performance and strengthening of the programs. The state of Pennsylvania does not allow students to become candidates without obtaining a 3.0 GPA in their content courses; there were several places within the program where students were prevented from becoming candidates. Therefore, a freshman seminar course was created and made mandatory for all incoming freshmen who are secondary mathematics education majors. In addition to the seminar, the secondary coordinator meets with all secondary math majors each semester and reviews their progress toward achieving candidacy. Another example of the use of data for program improvement was the redesign of the lesson plan format. Data indicated candidates were lacking in areas related to providing accommodations and modification for individual students. Therefore, accommodations and modification are now required categories in lesson plans. There is strong collaboration between the mathematics and education departments.”

VI. Areas in Need of Improvement

Student Learning

With the strong comments made by the nationally accrediting bodies, it is difficult to determine what improvements in student learning can be made, without artificially creating some. Of course, we would like for all students to be more knowledgeable in their content, but our candidates do seem to be doing well in this area. Our students could improve on their knowledge of meeting the needs of diverse learners, incorporating technology into their lessons, and using assessment to improve student learning.

Other Program Areas

The main “other” are for improvement is in the area of retention. While our retention numbers do not seem to be any different than other institutions, they can certainly be improved. The freshman seminar course that is offered seems to be helping, yet still only about half of those students who begin the program as freshmen become program graduates.

VII. Action Plan

Student Learning Outcomes

Goals	Action Plan	Steps To Be Taken	Date
Improve student learning of mathematical concepts	Encourage faculty to continue to hold high standards, improve their teaching, and provide student support; Require a course that reviews secondary mathematics from an advanced standpoint	Encourage faculty to discuss standards; encourage faculty to discuss various teaching strategies; encourage faculty to discuss ways to support students; Require a previously developed course that reviews secondary mathematics from an advanced standpoint	2009 and beyond
Meet the needs of diverse learners	Meet the new PDE standards for requiring coursework geared towards diverse learners	Begin requiring that all candidates meet the new PDE requirements for coursework geared towards diverse learners	beginning in 2009
Increase ability to incorporate technology into their lessons	Integrate the Educational Media course into the Methods courses; provide more content-specific technology instruction	Rewrite methods syllabi to incorporate the Educational Media content	2009
Improve student ability to use assessment results to improve student learning	Do a better job during Methods 2 at instructing students to use assessment results to improve student learning	Create a more succinct unit on Assessment for Methods 2 that will provide more information concerning how to use assessment results to improve student learning	2009

Other Program Outcomes

Goals	Action Plan	Steps To Be Taken	Date
Improve student retention	Create a program of support for freshmen beyond the Freshman Seminar course	Discuss with faculty how we can support freshmen students outside of the Freshmen Seminar course	2009

Resources

As the technology content is incorporated into the Methods courses, we may find that additional technology will be needed. A commitment from administration to fund such requests is requested. In addition to this, it is requested that administration allow the course that was created several years ago, concerning reviewing secondary mathematics from an advanced standpoint, to be offered, despite a possible enrollment of under twelve students.

VIII. Comments

Comments by Dean and/or Provost

IX. Actions Planned by the University

- | | |
|---|---|
| <input type="checkbox"/> Continue Program | <input type="checkbox"/> Continue Program and Revise as Indicated |
| <input type="checkbox"/> Place in Moratorium | <input type="checkbox"/> Interim Review |
| <input type="checkbox"/> Discontinue Program | <input type="checkbox"/> Reorganization |
| <input type="checkbox"/> Pursue Accreditation | <input type="checkbox"/> Other (Please explain below) |

_____	_____
Department Chair	Date
_____	_____
Program Coordinator	Date
_____	_____
Program Review Chair	Date
_____	_____
Provost or Vice President	Date