

**ANNUAL ASSESSMENT REPORT FOR 2009-10
October 1, 2010**

Department/Program: Actuarial Science

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Authors: Amos Carpenter, Lacey Echols, John Gaisser, Karen Holmes, Mary Krohn, Duane Leatherman, Du Pham, Prem Sharma, Rebecca Wahl, Chris Wilson

Student Learning Outcome (SLO)	For each SLO, list two methodologies and the criteria for successful performance (such as a measurement, rubric or scale that indicates a baseline for competency).				Term Assessed (F07 or S08)
	<i>Methodology 1</i>	<i>Criteria for Success</i>	<i>Methodology 2</i>	<i>Criteria for Success</i>	
1. Demonstrate a working knowledge of the basic concepts and theory of actuarial science as defined by the first four exams given by the Society of Actuaries: Probability (P), Financial Mathematics (FM), Actuarial Models (MLC), and Construction and Evaluation of Actuarial Models (C).	Society of Actuaries examinations.	1. 90% of our majors pass Exam P by the time they graduate. 2. 70% of our majors pass Exam FM by the time they graduate. 3. Some of our majors pass Exam MLC by the time they graduate.	Portfolios Designated exam problems: P – 2 problems FM – 2 problems MLC 2 problems C – 2 problems	1. 80% of our majors reach Level 4 or 5 on selected P and FM problems. All reach Level 3 on the P and FM problems. 2. 60% of our majors reach level 4 or 5 on selected MLC and C problems. All reach level 3 on the MLC and C problems.	S2008

Student Learning Outcome (SLO)	For each SLO, list two methodologies and the criteria for successful performance (such as a measurement, rubric or scale that indicates a baseline for competency).				Term Assessed (F07 or S08)
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2. Solve insurance and financial problems related to risk assessment and perform related calculations by applying standard actuarial methods.	Internships and/or Society of Actuaries examinations.	Two-thirds of our interns should be rated 3 or better by their supervisor on a 0 (terrible) to 4 (excellent) scale.	Portfolios Designated exam problems: P – 2 problems FM – 2 problems MLC 2 problems C – 2 problems	1. 80% of our majors reach Level 4 or 5 on selected P and FM problems. All reach Level 3 on the P and FM problems. 2. 60% of our majors reach level 4 or 5 on selected MLC and C problems. All reach level 3 on the MLC and C problems.	F2010
3. Communicate quantitative analyses clearly to various audiences, both in writing and orally.	Performance Appraisals	At least two-thirds of our students should receive “yes” answers to questions 6 and 7 regarding their communication skills.	Behavioral Observations	1. All interns should present to student actuarial club work done during internships, answering all questions that might arise. 2. All upper class majors should attend at least three actuarial speaker events per year. 3. All upper class majors should attend the annual student meeting of the Indianapolis Actuarial Club.	F2009

1. **Findings**—Summarize the findings from the assessment activities for each SLO that was assessed. Identify the SLO # and append supporting documentation such as rubrics, scales, pass rates, test scores, or other measurements used to assess each SLO.

2007/2008:

SLO #1, Methodology 1 - Only one major graduated in May 2008. She passed P, FM, and MFE. Underclass majors – one has already passed P, FM, and MLC; and most others have passed at least P.

SLO #1, Methodology 2 - Approximately 80% of our majors are doing B-level or better “local exam” work on P and FM material. Four of five students did B-level or better work on MLC material.

2008/2009:

SLO#3, Methodology #1: Internship Performance

Two of our three graduating seniors, Sean Cox and Matt Hester, had internships during summer, 2008. The third, Marcus Such, had an internship prior to our developing the internship evaluation form. Of the first two, only Sean had his evaluation form filled out and returned to us. Matt's supervisor failed to fill out the form. Sean received a 4 (Excellent intern) for question 8 and "Yes" responses to all of questions 1-7 on his evaluation form.

SLO#3, Methodology #2: Behavioral Observation

Two of the three seniors attended at least three actuarial speaker events during the 2008-2009 school year. All three attended the annual student meeting of the Indianapolis Actuarial Club, December, 2008. Both Matt and Sean gave excellent presentations at the annual meeting of the Butler Board of Actuarial Visitors, as well as at BU Student Actuarial Club meetings. In addition, Matt served as President of the BU Student Actuarial Club for two years.

2009/2010:

SLO#2, Methodology #1, SOA Exams/Internships

Twelve students attempted SOA Exam P. Of those 12, 7 passed. Three students attempted SOA Exam FM. Of those one passed. Two students had summer 2010 internships. Both received scores of 3 or better on question 8 of the supervisor evaluation form.

SLO#2, Methodology #2, Portfolios

Combined P, FM, MLC, C portfolio ratings were six 5's (6/18 = 33%), six 4's (6/18 = 33%), and six 3's (6/18 = 33%). There were no overall scores below 3. Portfolio scores on the P/FM problems only were five 5's and two 4's (7/11 = 64%), three 3's (3/11 = 27%), and one 2 (1/11 = 9%). The 64% fell somewhat short of our 80% goal. Portfolio scores on the MLC/C problems were six 5's and three 4's (9/17 = 53%), six 3's 6/17 = 35%), two 2's (2/17 = 13%). The 53% was a little short of our 60% goal.

2. **Use of Results**—*What programmatic changes, if any, were made in response to the findings? Reference the SLO #.*

The requirement for internship was changed in order to make SLO#3 more streamlined. We now require the supervisors to do the Performance Appraisal of the interns (Methodology 1). For Methodology 2, we now require the student to present his or her internship work in a seminar to a group of students and faculty.

3. What **support services or resources** for faculty would help your department assess its SLOs better?
4. What **revisions**, if any, to current SLOs did you make or are under consideration?

SLO#1 and #2, Methodology 2 has been changed to Portfolios. The criteria for success in SLO#3, Methodology 2 has been revised and a third requirement has been added.

5. Map each of your program's SLOs to the University Learning Outcomes. Make annual updates only if your SLOs changed. For example:

Butler University students will:

1. Explore various ways of knowing in the humanities, social and natural sciences, quantitative and analytic reasoning, and creative arts. (*Know*)
2. Articulate and apply required content knowledge within their area(s) of study. (*Know*)
3. Find, understand, analyze, synthesize, evaluate and use information, employing technology as appropriate. (*Know*)
4. Explore a variety of cultures. (*Know*)
5. Recognize the relationship between the natural world and broader societal issues. (*Know*)
6. Communicate clearly and effectively. (*Do*)
7. Demonstrate collaborative behavior with others. (*Do*)
8. Practice ways and means of physical well-being. (*Do*)
9. Acquire the skills to make informed, rational and ethical choices. (*Do*)
10. Appreciate diverse cultures, ethnicities, religions and sexual orientations. (*Value*)
11. Share their talents with Butler and the greater community at large. (*Value*)
12. Be exposed to the value of lifelong learning. (*Value*)

Actuarial Science Student Learning Outcomes:	Butler University Learning Outcomes
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	1	2	3	4	5	6	7	8	9	10	11	12
1. Demonstrate a working knowledge of the basic concepts and theory of actuarial science as defined by the first four exams given by the Society of Actuaries: Probability (P), Financial Mathematics (FM), Actuarial Models (MLC), and Construction and Evaluation of Actuarial Models (C).	X	X	X		X	X			X			X
2. Solve insurance and financial problems related to risk assessment and perform related calculations by applying standard actuarial methods.	X	X	X			X	X		X			
3. Communicate quantitative analyses clearly to various audiences, both in writing and orally.		X				X	X				X	

- 6a. List all courses in the program and map each of your SLOs to the **curriculum** in which the learning occurs, indicating the extent to which the outcome is introduced (I) or refined (R). [Make annual updates only if your SLOs or curriculum changed.]

For example:

	SLO 1	SLO 2	SLO 3
MA 106			
MA 107			
MA 208			
MA 215			
MA 360	I	I	
MA 361	R	R	I
MA 362	R	R	
MA 363	R	R	
MA 371	R	R	
MA 372	R	R	
MA 395	R	R	R
MA 397	R	R	
MA 398	R	R	
MA 399	R	R	R

- 6b. **Learning/developmental opportunities for students outside the classroom**—*If any SLO was addressed outside the classroom, explain where and how the learning/developmental opportunities were provided to students in your program? (i.e., internships, field experiences, visiting lectures, collaborative projects, and other creative ideas you may have employed.)*

1. Internships with insurance/consulting companies are available for most upper class majors. Students have completed internships at State Farm, Diversified Systems, Nyhart, Wellpoint, Consecos, Northwestern Mutual, The Hartford, and other companies. Outside speakers representing various companies often come to campus looking for both summer interns and graduating seniors.
2. SLO 3 concerning communication skills is also addressed via student actuarial club activities and presentations of internship projects.

Department/Program: Actuarial Science
The Rubrics

SLO #1. Demonstrate a working knowledge of the basic concepts and theory of Actuarial Science.
Methodology 1: Society of Actuaries Exams

Scores on these exams range from 0-10, with 6 being the lowest passing grade. Our ratings of an actuarial student's scores are

<u>EXAM</u>	<u>Excellent</u>	<u>Good</u>	<u>Satisfactory</u>	<u>Needs Work</u>	<u>Unacceptable</u>
P (probability)	8-10	6-7	4-5	2-3	0-1
FM (financial math)	8-10	6-7	4-5	2-3	0-1
MLC (math of life contingencies)	8-10	6-7	4-5	2-3	0-1
C (construction of models)	The student is usually not yet ready as an undergraduate to sit for this exam. Any pass prior to graduation would be excellent.				

SLO #1. Demonstrate a working knowledge of the basic concepts and theory of Actuarial Science.
Methodology 2: Portfolios. The student's portfolio will consist of problems assessed according to the 1-5 rubric below. Two problems concerning the material from each exam, P, FM, MLC and C, will be drawn from a short list of representative problems.

5	Gives correct assessment of risks involved, using appropriate actuarial notation and mathematical techniques.
4	Gives correct assessment of risks involved but makes some minor errors, either notational or computational.
3	Misses at least one major aspect of the risks involved.
2	Demonstrates some familiarity with actuarial notation, but applies it incorrectly in assessing the risks involved.
1	Shows little or no understanding of the risks involved or how to apply appropriate actuarial techniques.

SLO #2. Solve insurance and financial problems related to risk assessment.

Methodology 1: Internships

The following questions are to be answered by the internship supervisor. Y N

1. Did the intern report for work regularly and on time?
2. Did he or she stay for the entire day unless dismissed?
3. Did he or she possess adequate spreadsheet skills?
4. Did he or she adjust to directions quickly?
5. Did the intern show any creativity if the opportunity arose?
6. Did he or she interact well with other employees?
7. Did he or she speak and write clearly?
8. On a scale of 0-4 (0 being terrible and 4 excellent), how would you rate this intern?

SLO #2. Solve insurance and financial problems related to risk assessment.

Methodology 2: Portfolios. The student's portfolio will consist of problems assessed according to the 1-5 rubric below. Two problems concerning the material on each of exam P, FM, MLC and C will be drawn from a short list of representative problems.

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| 4 | Gives correct assessment of risks involved but makes some minor errors, either notational or computational. |
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SLO #3. Communicate quantitative analyses clearly to various audiences.

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6. Did he or she interact well with other employees?
7. Did he or she speak and write clearly?
8. On a scale of 0-4 (0 being terrible and 4 excellent), how would you rate this intern?

SLO #3. Communicate quantitative analyses clearly to various audiences.

Methodology 2: Behavioral Observations

1. Student presents his or her internship work to the rest of math/as students in a lunchtime speaker format. He or she answers any questions that might arise.
2. To what degree did the student participate in Butler's Student Actuarial Club? Did he or she attend presentations of outside speakers? Did he or she serve as an officer in the club?