A. Program Information

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Program assessment website *(includes all outcomes and a summary of your current report)*: www.ksu.edu/assessment

B. Outcome Reporting

Student Learning Outcome Report for the **M.A. in Economics**

Among the students learning outcomes adopted by the economics department, master's students in economics will acquire knowledge in the following three areas and demonstrate their knowledge and understanding of:

1. The marginalist approach and justification of the use of mathematical models to describe consumer and firm behavior.

2. Fundamental differences of the major schools of macroeconomic thought.

3. Impact of changing market conditions on consumer and product behavior.

This report covers the following academic years: 2008-2009, 2009-2010, 2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016

Student Learning Outcomes

1. Explain the marginalist approach and justify use of mathematical models to describe economic behavior

Assessment Method(s)

This learning outcome is directly measured by written examination in the ECON 720 class. Since all of our students in the master's program take the course, this represented the entire population of M.A. students. It also includes some of our Ph.D. students. These students often earn an M.A. on the way to earning a Ph.D. and thus are also included. This class is taught in the fall semester.

Data are collected annually on student performance for this learning outcome. The questions administered were:

Academic year 2008-2009: This question focuses on the MRS and the MRTS. I'd like you to do the following: a. Discuss the meaning of these two concepts. Define them. Show how they relate to one another and when you would use each of them. b. In a graphical sense, show how the MRS and the MRTS come into play. (provide a sketch to support your explanation). Explain how the elasticity of substitution relates to your sketch. c. Discuss these concepts in the context of cardinality/ordinality. Why is their use important in our course? Explain how the MRS in particular as an ordinal concept is important in relating to quasiconcavity and homotheticity (be specific in your explanation). d. Based on your answer to (c) and the relationship between quasiconcavity and the MRS, how would you say the MRS relates to the fundamental axioms of choice?

Academic year 2009-2010: Economists are sometimes criticized for their restrictive assumptions and their use of mathematical models to explain complex real world phenomena. How would an economist answer this criticism? What evidence would she bring and what economic-concepts would she employ to support her position?

Academic year 2010-2011: Economists are sometimes criticized for their restrictive assumptions and their use of mathematical models to explain complex real world phenomena. How would an economist answer this criticism? What evidence would she bring and what economic-concepts would she employ to support her position?

Academic year 2011-2012: In this class, we often used the technique of optimization. Explain (a) why optimization of the particular type and with the goal of interest made sense in each context used along with explaining what assumptions were being made, and (b) alternatives to the optimization principle which we were employing in that case.

Academic year 2012-2013: Economists are sometimes criticized for their restrictive assumptions and their use of mathematical models to explain complex real world phenomena. How would an economist answer this criticism? What evidence would she bring and what economic-concepts would she employ to support her position?

Academic year 2013-2014: Consider a firm that produces a single output Y using the production function f(x1,x2). In producing the good, the firm also produces a flow of pollution, which depends on the amount of the two inputs used in production, say e(x1,x2). Input x1 is the pollution producing input, so $\partial e/\partial x_1 > 0$, but input x2 is pollution abating, so $\partial e/\partial x_2 < 0$. The environmental protection agency regulates the production in this industry by requiring that firms emit no more than s units of pollution. The firm chooses inputs x1 and x2 to maximize profits, subject to producing emissions that do not exceed standard s. Thus the firm's problem is:

Max $\pi = pf(x_1,x_2) - w_1 x_1 - w_2 x_2$ s.t. $e(x_1,x_2) \leq s$

Denote the solutions to the problem as $x_i = x_i^*(p,w_1,w_2,s)$ for I = 1, 2. We will assume that the constraint holds (i.e. that $e(x_1,x_2) = s$). The Lagrangian is defined as:

$L = pf(x_1,x_2) - w_1 x_1 - w_2 x_2 + \lambda[s - e(x_1,x_2)]$

Briefly explain why s is a parameter in this problem.

Write down the first-order necessary conditions.

Write down the bordered Hessian of the second partials of L. Recall that the second-order sufficient condition requires that the determinant of the bordered Hessian to be positive.

Show $\partial x_1^*/\partial w_1 < 0$. Provide an economic interpretation.

Academic year 2014–2015:

1. (25 points) Suppose the solution to a consumer utility maximization problem is the following indirect utility function:

$$V(p_1, p_2, M) = \ln p_2 - \ln p_1 + \frac{M}{p_2} - 1.$$

a. Derive the Marshallian demands for x_1 and x_2.Explain your method.

c. Derive the expenditure function, becareful with your notation.

d. Derive the Hicksian demands for x_1 and x_2. Explain your method.

e. Suppose initially $p_1 = p_2 = 1, M = 10$.Now the price of x_2 is increased to $p_2 = 2$.What is the CV and EV for the consumer? Interpret.

Academic year 2015–2016:

3. (30 points) Suppose we have a pure exchange economy with two consumers (1 and 2) and two goods (x and y).

Consumer 1 has utiltiy $U^1 = \frac{1}{3}\ln x^1 + \frac{2}{3}\ln y^1$

and Consumer 2 has utilty $U^2 = \frac{2}{3}\ln x^2 + \frac{1}{3}\ln y^2$

Consumer 1 is endowed with $x = 0.5$ and $y = 0.5$ and consumer 2 is endowed with $x = 0.5$ and $y = 0.5$.

a. What is the elasticity of substitution between good x and y for each consumer? Show your steps.

b. Setup and solve for each consumer's problem.

c. State the market clearing conditions.

d. Find out the relative price for a Walrasian equilbrium.

e. Solve for the set of all pareto optimal allocations (You can use the short-cut method). Verify the Walrasium equilibrium solved in part d) is in fact pareto optimal.

Results

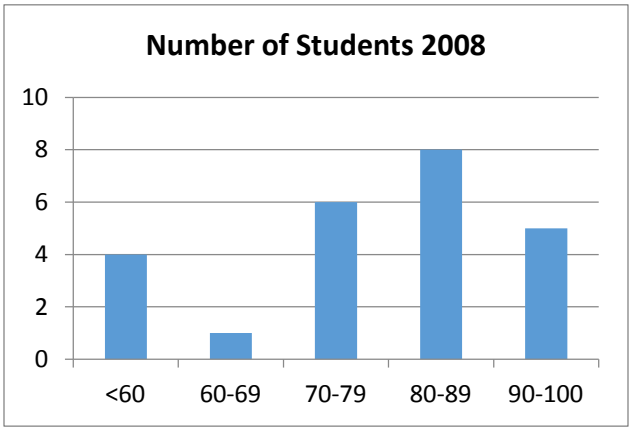
The ECON 720 class is taught in the fall semester. The results for the first SLO are generally positive as summarized in Table 1, Table 2 and Figure 1. Table 1 reports the number of students obtaining scores within various percentage categories over the 2008 – 2011 and 2012 – 2015 periods respectively. As such, Table 1 provides information on the distribution of scores over the relevant periods. Table 2 reports number of students enrolled, and the mean and median score for each year. Table 2 also reports these data for the combined 2008 – 2011 period, and for the combined 2012 – 2015 period. Figure 1 shows the number of students scoring in various percentage score categories. The first panel does this for the 2008 class, the second for the 2009 class, the third for the 2010 class, the fourth for the 2011 class, the fifth for the 2012 class, the sixth for the 2013 class, the seventh for the 2014 class, and the eighth for the 2015 class.

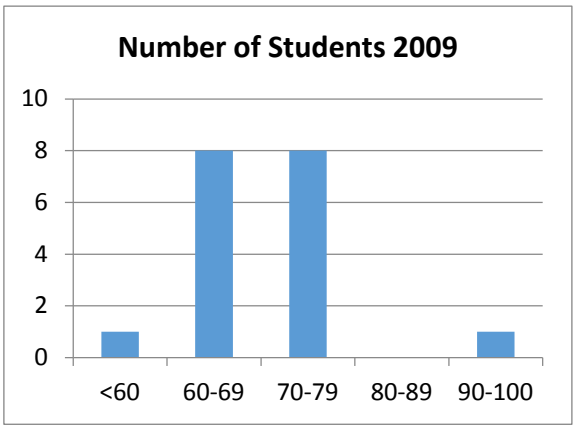
	Number of Students	
Percentage score Categories	Period 2008-2011	Period 2012-2015
90 - 100	9	43
80 - 89	30	12
70 - 79	26	6
60 - 69	15	2
< 60%	6	16
Total	**86**	**79**

Table 1: Distribution of SLO scores in Economics 720.

Fall	Enrollment	Average Score(%)	Median Score(%)
2008	24	77.0	80.0
2009	18	70.1	71.3
2010	23	79.0	80.0
2011	21	73.9	80.0
2008-2011	**86**	**75.61**	**76**
2012	21	91.90	90
2013	20	85	96.67
2014	15	80.27	88
2015	23	67.25	70
2012-2015	**79**	**80.77**	**90**

Table 2: Average SLO scores by year in Economics 720.





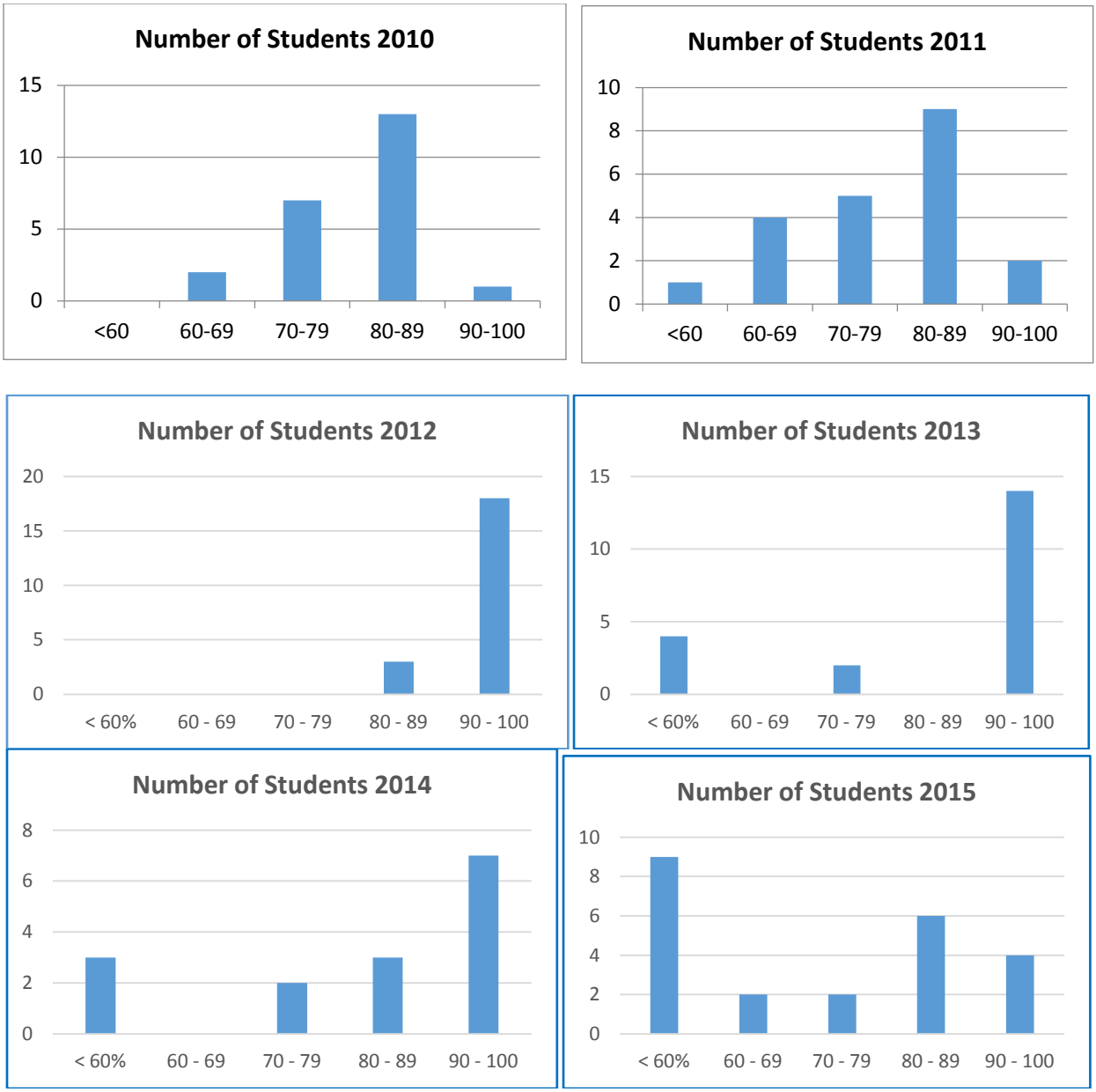


Figure 1: Distribution of SLO scores by year in Economics 720.

Table 1 shows that over the 2008 – 2011 time frame, 9 of 86 students receive scores of 90% or better and 39 of 86 receive scores of 80% or better. Furthermore, 80 of 86 receive scores of 60% or better, leaving 6 of 86 with scores less than 60%. However, over the 2012 – 2015 time frame, 43 of 79 students receive scores of 90% or better and 55 of 79 receive scores of 80% or better. Furthermore, 63 of 79 receive scores of 60% or better, leaving 16 of 79 with scores less than 60%.

Turning to Table 2, we see that for the 2008 – 2011 period the average score is 75.6% while the median score is 76%. However, for the 2012 – 2015 period the average score is 80.77% while the median score is 90%. Therefore, on average, students have performed better over the 2012 – 2015 period compared to the 2008 – 2011 period. It must be noted that more students received scores below 60% in the 2012 – 2015 period compared to the 2008 – 2011 period, which is somewhat concerning. However, much of this weak performance over the 2012 – 2015 period is concentrated in year 2015, which could just be an outlier year.

Overall we take these results as strong evidence of success. The SLO is sufficiently challenging such that hard work and talent on the part of the student are required. However, ample opportunity for success is provided as evidenced by the performance of most students. A large share of the students perform extremely well. The lower end of this distribution is of some concern. However, because of considerable variation in the academic preparation of the students and the very high standards of the SLO, it is expected that some students will experience difficulty.

2. Explain differences between the major schools of macroeconomic thought.

Assessment Method(s)
This learning outcome is assessed by written examination in the macroeconomic theory course, ECON 805, that is taken by all master's students in economics. Data are collected on student performance to provide data for this learning outcome. This course is taught in the spring semester. The questions administered were:

Academic year 2008-2009: Economists discuss several convergence concepts, including beta convergence, sigma convergence and conditional convergence. Carefully explain what each of these concepts mean and explain why there is so much attention focused on them.

Academic year 2009-2010: Over the last one hundred years macroeconomic thinking has gone through several phases, each with different foundations and thus implications for economic policy. Carefully explain the evolution of this thinking. Comment in particular on the evolution of the foundations and economic policy implications. Also comment on key turning points where macroeconomic thinking changed rapidly from one view point to another.

Academic year 2010-2011: The Ricardian Equivalence Theorem is one of the better known results of the New Classical Economic thinking. Without specifying a model or notation, carefully do the following: (1) Explain what the Ricardian Equivalence Theorem says; (2) the kinds of restrictions that are needed to prove it; and (3) the essence of how the proof works.

Academic year 2011-2012: Over the last one hundred years macroeconomic thinking has gone through several phases, each with different foundations and thus implications for economic policy. Carefully explain the evolution of this thinking. Comment in particular on the evolution of the foundations and economic policy implications. Also comment on key turning points where macroeconomic thinking changed rapidly from one view point to another.

Academic year 2012-2013: In class we described three convergence ideas: Beta convergence, Conditional convergence and Sigma convergence. Carefully explain what each of these means and how they relate to exogenous and endogenous growth models.

Academic year 2013-2014: Over the last one hundred years macroeconomic thinking has gone through several phases, each with different foundations and thus implications for economic policy. Carefully explain the evolution of this thinking. Comment in particular on the evolution of the foundations and economic policy implications. Also comment on key turning points where macroeconomic thinking changed rapidly from one view point to another.

Academic year 2014-2015: The Ricardian Equivalence Theorem is one of the better known results of the New Classical Economic thinking. Without specifying a model or notation, carefully do the following: (1) Explain what the Ricardian Equivalence Theorem says; (2) the kinds of restrictions that are needed to prove it; and (3) the essence of how the proof works.

Academic year 2015-2016: In the two period lifecycle model covered in class, we showed that under certain circumstances, the savings function can slope downward. Carefully explain what those circumstances are and explain using appropriate diagrams why this result arises.

Results

The ECON 805 course is taught in the spring semester. The results for the second SLO are generally positive as summarized in Table 3, Table 4 and Figure 2. Table 3 reports the number of students obtaining scores within various percentage categories over the 2009 – 2012 and 2013 – 2016 periods respectively. As such, Table 3 provides information on the distribution of scores over the relevant periods. Table 4 reports number of students enrolled, and the mean and median score for each year. Table 4 also reports these data for the combined 2009 – 2012 period, and for the combined 2013 – 2016 period. Figure 2 shows the number of students scoring in various percentage score categories. The first panel does this for the 2009 class, the second for the 2010 class, the third for the 2011 class, the fourth for the 2012 class, the fifth for the 2013 class, the sixth for the 2014 class, the seventh for the 2015 class, and the eighth for the 2016 class.

	Number of Students	
Percentage score Categories	Period 2009-2012	Period 2013-2016
90 - 100	49	41
80 - 89	19	6
70 - 79	9	9
60 - 69	0	2
< 60%	16	14
Total	**93**	**72**

Table 3: Distribution of SLO scores in Economics 805.

Spring	Enrollment	Average Score(%)	Median Score(%)
2009	26	58.1	75.0
2010	24	81.7	90.0
2011	26	81.9	85.0
2012	17	90.29	90
2009-2012	**93**	**76.72**	**90.0**
2013	19	69	75
2014	14	75.71	85
2015	19	79.74	90
2016	20	91.5	100
2013-2016	**72**	**79.31**	**90**

Table 4: Average SLO scores by year in Economics 805.

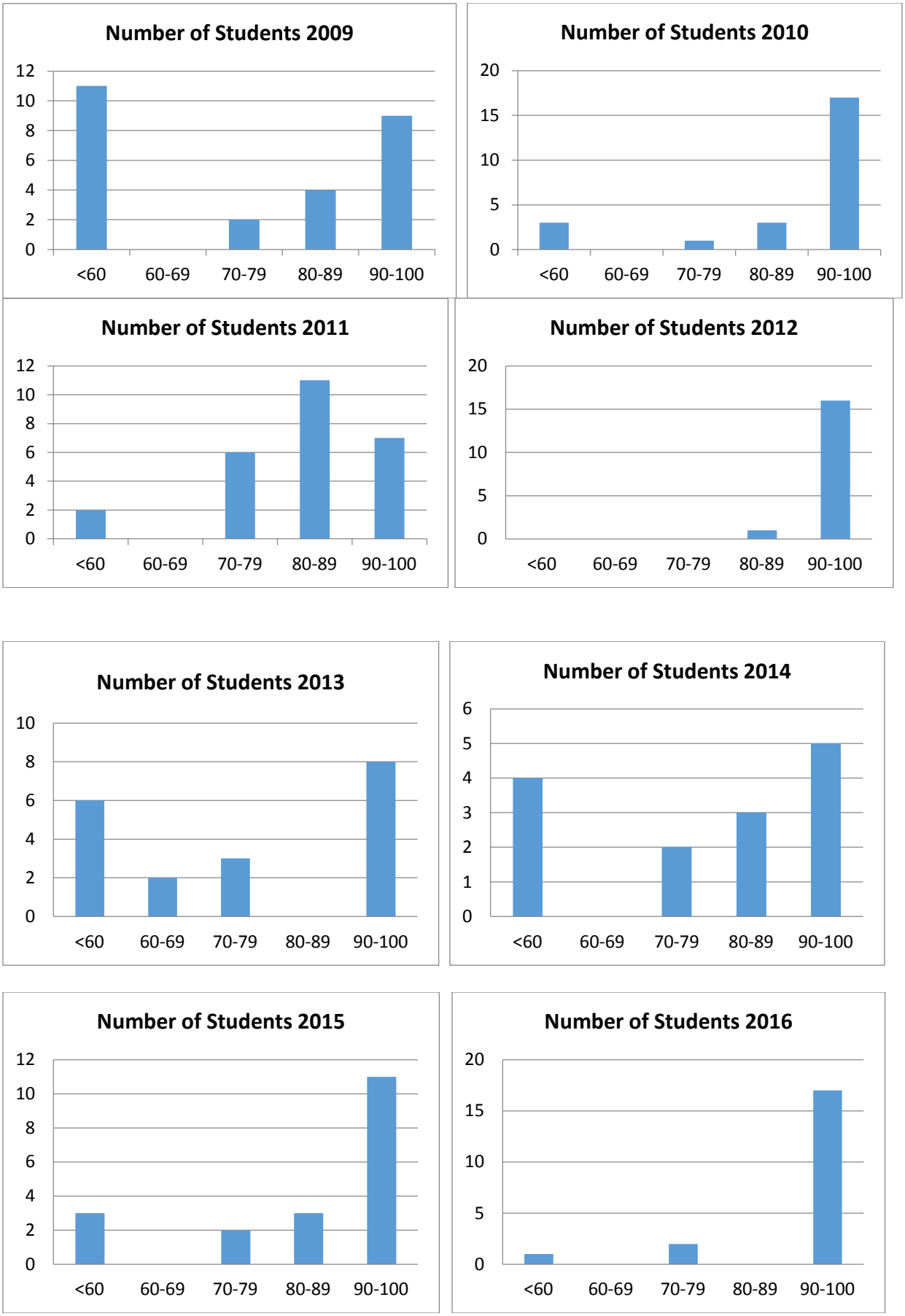


Figure 2: Distribution of SLO scores by year in Economics 805.

Table 3 shows that over the 2009 – 2012 time frame, 49 of 93 students receive scores of 90% or better and 68 of 93 receive scores of 80% or better. Furthermore, 77 of 93 receive scores of 60% or better, leaving 16 of 93 with scores less than 60%. However, over the 2013 – 2016 time frame, 41 of 72 students receive scores of 90% or better and 47 of 72 receive scores of 80% or better. Furthermore, 58 of 72 receive scores of 60% or better, leaving 14 of 72 with scores less than 60%.

Turning to Table 4, we see that for the 2009 – 2012 period the average score is 76.72% while the median score is 90%. However, for the 2013 – 2016 period the average score is 79.31% while the median score is 90%. Therefore, on average, students have performed better over the 2013 – 2016 period compared to the 2009 – 2012 period.

Overall we are satisfied that the SLO and its evaluation procedures are sufficiently challenging and that most of our students are meeting the challenge. With a great deal of variation in the academic preparation of the students, some students are expected to lag behind when we set a high standard.

3. Analyze the impact of changing market conditions on consumer and producer behavior.

This learning outcome is being constantly tested in almost every course in the department and was not separately assessed in the sample period.

C. Program Self Review

Faculty Review of Assessment Data and Process

We have had faculty meetings about the assessment at least once a year, sometimes more frequently, since the program assessment plan was approved. The exam data will continue to be collected. Thus far we have not seen the need for revisions given the success of the current method and the favorable results.

We plan to monitor these scores through time. In the event that we see worrisome downward trends, we will evaluate what steps need to be taken to maintain quality and consistency. However, we recognize that in any year, the scores could be considerably higher or lower due to different questions, graders, and student preparedness.

Program Improvements

Briefly describe any program improvements resulting from the assessment process. These can be direct instructional or curricular changes as a result of data, new insights or ways of thinking about assessment, and/or changes in the program's assessment process:

No actions have been taken at this time.

Future Plans

Briefly describe plans to improve the assessment process and/or student learning. Plans can be immediate or longer-term:

Our faculty will meet in fall 2017 to decide if we wish to have a separate assessment for the third SLO or if other changes are desired.

Summary Paragraph of this Report

A one or two paragraph summary that details student achievement of your program's learning outcomes and programmatic efforts to improve. During the Board of Regents Program Review, this will be the summary you include in your Program Review Report (PRR):

Overall our students did well in both SLO assessments during the academic years between fall 2008 and spring 2016. The average score for the first SLO was 80.77% while the median was 90%. The average score for the second SLO was 79.31% while the median was 90%. As a result, our graduates have been successful in job placements despite of the economic downturn in the past few years.

B. Outcome Reporting

Student Learning Outcome Report for the **PhD in Economics**

In the 2008-2009 through 2015-2016 academic years we collected data on the following SLOs:

	University-wide SLOs (Graduate Programs)		
Program SLOs	*Knowledge*	*Skills*	*Attitudes and Professional Conduct*
1. Ability to describe economic phenomena and generate predictions using mathematical models	*X*		
2. Understanding of relevant economic theory	*X*		
3. Communication skills by presenting their results to others and answering questions		*X*	
4. Ownership of learning by reading newly available academic material and conducting economic research			*X*

The above table shows each program SLO and its relationship with those of the university.

Student Learning Outcomes

To directly measure the four SLOs, we developed a questionnaire consisting of seven questions. Please see the questionnaire copied below. The questionnaire is completed by each faculty committee member at the time of a student's proposal defense and again at the dissertation defense. While the overall performance measured by the questionnaire provides a useful measurement of SLOs, we are also interested in the improvement between a student's proposal defense and her/his dissertation defense. This specific data design enables us to minimize the impact of student quality fluctuations due to the small sample problem. An improvement for the same student from the time of proposal defense to that of dissertation defense indicates a positive outcome as does a high level at both the proposal defense and the dissertation defense.

All doctoral students are required to pass the proposal and dissertation defenses, and thus are included in the sample when they take the proposal and dissertation defenses.

Ph.D. Student Learning Outcomes Assessment Questionnaire

Student Name_____

Date _____

☐ Proposal defense ☐ Dissertation defense

	5 Strongly Agree	4 Agree	3 Uncertain	2 Disagree	1 Strongly Disagree	Not Applicable
The student is able to describe economic phenomena using economic models.						
The student is able to generate predictions using economic models.						
The student has a good understanding of relevant economic theory.						
The student is able to present his/her ideas clearly.						
The student is able to answer questions effectively.						
The student has a good understanding of the recent advances in his/her field.						
The work is suitable for submission for publication upon revision.						

The relationship between the SLOs and the questions in the questionnaire is shown in the following table:

SLOs	Corresponding Questionnaire Questions	Measure
1. Ability to describe economic phenomena and generate predictions using mathematical models	1. The student is able to describe economic phenomena using economic models. 2. The student is able to generate predictions using economic models.	From 1 (Poor) to 5 (Excellent)
2. Understanding of relevant economic theory	3. The student has a good understanding of relevant economic theory.	
3. Communication skills by presenting their results to others and answering questions	4. The student is able to present his/her ideas clearly. 5. The student is able to answer questions effectively.	
4. Ownership of learning by reading newly available academic material and conducting economic research	6. The student has a good understanding of the recent advances in his/her field. 7. The work is suitable for submission for publication upon revision.	

During the 2008 - 2012 sample period there were 24 dissertation proposals. The questionnaire was not filled out at two of the proposals, which implies that we have score data for 22 proposal defenses during the 2008 - 2012 sample period. Of the 24 proposals in this sample period, 17 have also defended the dissertation. 15 of them have both the proposal defense and the dissertation defense.

During the 2013 - 2016 sample period there were 16 dissertation proposals. The questionnaire was not filled out at one of the proposals, which implies that we have score data for 15 proposal defenses during the 2013 - 2016 sample period. Of the 16 proposals in this sample period, 14 have also defended the dissertation. We have both the proposal defense and the dissertation defense score data for 13 students during this sample period.

Results

In the summary below, we refer to the question by number as indicated below:

Question #	Corresponding Questionnaire Questions
Q1	The student is able to describe economic phenomena using economic models.
Q2	The student is able to generate predictions using economic models.
Q3	The student has a good understanding of relevant economic theory.
Q4	The student is able to present his/her ideas clearly.
Q5	The student is able to answer questions effectively.
Q6	The student has a good understanding of the recent advances in his/her field.
Q7	The work is suitable for submission for publication upon revision.

The scores are associated with the following responses: 5 = Strongly Agree, 4 = Agree, 3 = Uncertain, 2 = Disagree, 1 = Strongly Disagree.

Table 5A and Table 5B below provide score information for the defense of the dissertation proposal during the 2008 - 2012 and 2013 - 2016 periods respectively. For each student, the number recorded is the average score across faculty who rated the student. In most cases, it is an average of four scores. The second to last row in each table gives the average of the above scores and the final line gives the standard deviation of these scores.

First focusing on Table 5A, which reports summary score statistics for 22 dissertation proposals observed during the 2008 - 2012 sample period. We see that at the time of the proposal defense, our doctoral students appear to do well in all measures. The lowest scores were recorded for the question related to the student's ability to answer questions effectively (Q5), and the suitability of the work for eventual publication (Q7). This is understandable since the proposal defense is usually at the beginning of the dissertation stage. The results indicate consistence in the quality of the proposals. Only two students scored less than 4.0 on the majority of questions. Furthermore, the standard deviations are relatively small.

Now turning to Table 5B, which reports summary score statistics for the 15 dissertation proposals observed during the 2013 - 2016 sample period. In this more recent sample period we see again that at the time of the proposal defense, our doctoral students appear to do well in all measures. Similar to what we observed in years past, the lowest scores were recorded for the question related to the student's ability to answer questions effectively (Q5), and the suitability of the work for eventual publication (Q7). This is understandable since the proposal defense is usually at the beginning of the dissertation stage. The results indicate consistence in the quality of the proposals. Only two students scored less than 4.0 on the majority of questions. Furthermore, the standard deviations are relatively small. Altogether, the evidence is clear in both sample periods that students are demonstrating significant competence at the time of the proposal.

Student	Q1	Q2	Q3	Q4	Q5	Q6	Q7
1	4.00	3.75	4.25	4.00	3.75	4.00	4.00
2	4.00	4.00	4.25	4.00	4.25	4.25	3.67
3	4.50	4.25	4.50	4.50	4.50	4.25	4.50
4	5.00	5.00	5.00	5.00	5.00	4.50	5.00
5	4.00	4.00	4.00	4.00	4.00	5.00	4.00
6	4.33	4.00	4.33	4.67	4.33	4.33	4.00
7	3.50	3.50	4.00	3.00	2.75	4.00	3.25
8	4.25	4.25	4.25	4.00	4.00	4.50	4.25
9	3.50	3.50	3.50	3.50	3.00	4.00	2.50
10	4.75	4.25	4.25	4.75	4.25	4.25	4.50
11	3.75	4.00	3.75	3.75	3.33	4.00	3.50
12	4.67	4.67	4.00	4.33	4.00	4.33	3.67
13	4.67	4.33	4.67	4.00	4.33	4.33	4.33
14	3.67	4.00	3.67	3.33	3.67	3.67	4.00
15	4.75	4.50	4.75	5.00	4.50	4.75	5.00
16	4.00	4.25	4.00	4.75	4.25	4.25	3.75
17	4.75	4.00	4.25	4.00	4.00	3.50	4.50
18	4.25	4.00	4.25	4.25	3.75	4.00	4.00
19	4.25	4.25	4.25	4.75	4.50	4.75	3.50
20	4.80	4.60	4.60	4.60	4.60	4.60	4.60
21	4.25	3.75	4.25	4.00	3.50	3.75	3.00
22	4.25	4.25	4.75	4.00	4.00	4.25	3.75
Average	**4.27**	**4.14**	**4.25**	**4.19**	**4.01**	**4.24**	**3.97**
St. dev.	**0.44**	**0.36**	**0.37**	**0.53**	**0.53**	**0.36**	**0.61**

Table 5A: Average scores by student at the proposal defense for years 2008 - 2012.

Student	Q1	Q2	Q3	Q4	Q5	Q6	Q7
1	4.50	4.50	4.25	4.50	4.50	4.50	4.67
2	4.25	4.50	4.25	4.25	4.50	4.25	3.75
3	3.75	4.00	4.00	3.75	4.00	4.00	4.00
4	4.00	4.00	4.00	4.00	3.75	4.00	4.00
5	4.25	4.00	4.00	4.00	3.75	4.25	4.00
6	5.00	5.00	5.00	5.00	5.00	5.00	5.00
7	4.33	4.33	4.00	4.00	4.00	4.33	4.00
8	4.75	4.50	4.25	5.00	4.00	4.50	5.00
9	4.00	4.00	4.00	4.00	3.75	4.00	4.00
10	4.25	4.25	4.25	4.00	4.00	4.00	3.75
11	3.75	3.50	3.75	2.75	3.25	3.67	4.00
12	4.00	3.50	4.00	4.25	3.75	3.75	3.50
13	4.00	4.25	4.00	4.00	4.25	4.25	3.50
14	-	-	-	-	-	-	-
15	5.00	5.00	5.00	5.00	5.00	5.00	5.00
16	4.67	4.33	4.00	5.00	4.33	4.33	4.00
Average	**4.30**	**4.24**	**4.18**	**4.23**	**4.12**	**4.26**	**4.14**
St. dev	**0.41**	**0.44**	**0.36**	**0.61**	**0.48**	**0.39**	**0.52**

Table 5B: Average scores by student at the proposal defense for years 2013 - 2016.

Table 6A and Table 6B summarize the result for the defense of the dissertation and the changes from the defense of the proposal to the defense of the dissertation for the 2008 - 2012 and 2013 - 2016 sample periods respectively. Again the number recorded is the average score across faculty who rated the student. The fourth to last row in each table gives the average of the above scores. The second to last line measures the improvement (the difference between the proposal defense and the dissertation defense for students who have both defenses).

First focusing on the data in Table 6A. Two students (number 100 and 101 in Table 6A) in the 2008 - 2012 sample did not have the questionnaire filled out at their proposal defenses. At the time of the dissertation defense, our doctoral students again appear to do well in all measures. The scores are greater than 4.5 in all categories except for effectively answering question Q5, which is 4.46.

When we compare the change from the proposal defense to the dissertation defense, we can see sizeable improvement in all categories. The second to last row in Table 6A shows the changes for the 15 students who have both defenses. The greatest improvement occurs in the suitability of the work for eventual publication (Q7). Similar improvement occurs in the ability to generate predictions using economic models (Q2). These are areas where improvements from proposal to dissertation defense are most to be expected and also where they are most valuable. We take these improvements as evidence of substantial professional development subsequent to the proposal. Overall sizable improvement occurs in all areas.

Now turning to the data reported in Table 6B. One student (number 14 in Table 6B) in the 2013 - 2016 sample did not have the questionnaire filled out at their proposal defense. At the time of the dissertation defense, our doctoral students again appear to do well in all measures. The scores are greater than 4.5 in all categories except for effectively answering question Q5, which is 4.42.

Similar to our findings in years past, when we compare the change from the proposal defense to the dissertation defense, we can see sizeable improvement in all categories. The second to last row in Table 6B shows the changes for the 13 students who have both defenses. Consistent with findings in years past, we see that the suitability of the work for eventual publication (Q7) is among the categories that show the greatest improvement for a typical student. Similar improvement occurs in the ability to generate predictions using economic models (Q2). It is worth reiterating that these are areas where improvements from proposal to dissertation defense are most to be expected and also where they are most valuable. We take these improvements as evidence of substantial professional development subsequent to the proposal. Overall sizable improvement occurs in all areas.

Student	Q1	Q2	Q3	Q4	Q5	Q6	Q7
1	4.50	4.50	4.00	5.00	4.00	4.50	4.50
2	4.00	4.33	4.50	3.67	3.67	4.33	3.67
3	5.00	4.75	5.00	4.75	4.75	5.00	5.00
4	5.00	5.00	4.75	4.75	4.75	5.00	5.00
5	4.60	4.75	4.80	4.40	4.20	4.60	4.80
100	5.00	5.00	4.67	5.00	4.67	4.67	4.67
6	5.00	5.00	5.00	5.00	4.00	5.00	4.00
101	4.67	4.67	4.33	4.67	4.33	4.67	4.00
7	4.40	4.40	4.80	3.80	4.20	4.40	4.00
8	4.75	4.75	4.75	4.50	4.50	5.00	5.00
9	4.33	4.33	4.67	4.33	4.67	4.33	4.67
10	5.00	5.00	4.80	5.00	5.00	5.00	5.00
11	4.33	4.67	4.67	5.00	5.00	4.67	4.67
12	4.80	4.60	4.80	4.80	4.50	4.40	4.40
13	5.00	5.00	5.00	5.00	5.00	4.50	5.00
14	4.25	4.75	4.25	3.75	4.00	4.75	4.75
15	5.00	4.67	4.67	5.00	4.67	5.00	4.67
Average	**4.68**	**4.72**	**4.67**	**4.61**	**4.46**	**4.70**	**4.58**
St. Dev.	**0.32**	**0.23**	**0.27**	**0.47**	**0.40**	**0.26**	**0.42**
Mean Change	**0.44**	**0.57**	**0.49**	**0.46**	**0.48**	**0.42**	**0.60**
St. Dev. of Change	**0.28**	**0.32**	**0.42**	**0.46**	**0.68**	**0.36**	**0.59**

Table 6A: Average scores by student at the dissertation defense for years 2008 - 2012.

Student	Q1	Q2	Q3	Q4	Q5	Q6	Q7
1	4.00	4.50	4.50	4.50	4.50	4.00	3.50
2	5.00	5.00	4.75	4.75	4.50	5.00	4.75
3	5.00	5.00	4.67	5.00	5.00	5.00	4.67
4	5.00	5.00	4.75	4.50	4.25	5.00	5.00
5	5.00	5.00	4.75	5.00	4.25	4.50	5.00
6	4.75	4.75	4.50	4.25	4.00	4.50	4.50
7	4.25	4.50	4.50	4.25	4.25	4.50	4.25
8	4.50	5.00	4.50	4.75	4.75	4.75	5.00
9	4.75	4.75	4.50	4.50	4.50	5.00	5.00
10	5.00	5.00	4.75	4.50	4.50	4.50	4.67
11	4.50	4.50	4.50	4.25	4.50	4.50	4.67
12	4.67	4.33	4.00	4.00	4.33	4.67	4.33
13	5.00	5.00	4.50	5.00	4.60	4.80	5.00
14	4.00	4.00	4.20	3.40	4.00	4.25	4.40
Average	**4.67**	**4.74**	**4.53**	**4.48**	**4.42**	**4.64**	**4.62**
St. dev	**0.37**	**0.32**	**0.22**	**0.44**	**0.27**	**0.31**	**0.42**
Mean Change	**0.51**	**0.62**	**0.42**	**0.44**	**0.42**	**0.48**	**0.55**
St. dev. of Change	**0.57**	**0.41**	**0.35**	**0.65**	**0.55**	**0.53**	**0.73**

Table 6B: Average scores by student at the dissertation defense for years 2013 - 2016.

C. Program Self Review

Faculty Review of Assessment Data and Process

We have had faculty meetings about the assessment at least once a year, sometimes more frequently, since the program assessment plan was approved. Faculty will meet and review the results again in Fall 2017. The data will continue to be collected. Thus far we have not seen the need for revisions given the success of the current method and the favorable results.

We plan to monitor these scores through time. In the event that we see worrisome downward trends, we will evaluate what steps need to be taken to maintain quality and consistency. However, we recognize that in any year, the scores could be considerably higher or lower due to different evaluators and students.

Program Improvements

Briefly describe any program improvements resulting from the assessment process. These can be direct instructional or curricular changes as a result of data, new insights or ways of thinking about assessment, and/or changes in the program's assessment process:

No actions have been taken at this time.

Future Plans

Briefly describe plans to improve the assessment process and/or student learning. Plans can be immediate or longer-term:

Thus far the assessment is progressing according to plan. We do not currently have any plan changes to the process. The key concern will be to establish consistency as responsibility for these assessments passes from one individual to the next.

Summary Paragraph of this Report

A one or two paragraph summary that details student achievement of your program's learning outcomes and programmatic efforts to improve. During the Board of Regents Program Review, this will be the summary you include in your Program Review Report (PRR):

Overall our students did well in all SLO assessments during the academic years spanning 2008-2016. Based on a 1 to 5 scoring scale, where 5 is the best score, the average score for all SLOs at the proposal defense are either above or very close to 4.0. The average score for all SLOs at the dissertation defense are either above or very close to 4.5. There is sizable improvement (approximately 0.5) in all categories of SLOs. As a result, our graduates have been successful in job placements.