

Assessment Plan and Status Report (2019-2020)

College of Liberal Arts and Sciences

Department of Economics

B.A./B.S. in Economics

B.A./B.S.

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Submitted by

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Department of Economics

1. Introduction

Economics provides a rigorous framework for analyzing many different types of public policy issues, business decisions, and personal decisions. The Department of Economics offers a B.A. in Economics and a B.S. in Economics. The B.S. degree program is designed to have more emphasis on mathematical and statistical methods, but both programs have an emphasis on students learning and applying analytical methods. In the senior year, students in both majors are required to undertake research of an economic issue and write a capstone paper describing the methods and findings. Further details are provided below.

We have made recent changes to both degree programs:

- (a) We have introduced an Emphasis in Financial Economics to the B.S. major. This emphasis requires a challenging program of courses suitable for our most quantitatively skilled students which prepares them for positions in the financial sector.
- (b) Beginning in Fall 2019, we require that students in both programs complete an introductory course in using Excel for economic analysis. We believe this course will significantly improve the quantitative skills of our B.A. majors without requiring prior coursework. The introduction of this course was highly supported by graduating seniors in the exit survey.
- (c) We now require all B.S. majors to complete a computer science course. Formerly a B.S. major could choose an option without a computer science requirement.

We are currently developing the courses for an online minor in economics, which we hope to offer by next year. While all of these are ongoing changes in the degree programs, we do not anticipate that any of the above will impact our student learning outcomes or assessment methods. However, as described below, we have slightly revised our student learning outcomes to better fit the learning and skills imparted by the program. We have also revised the senior exit survey to elicit better student feedback on the program. These are described below.

2. Student Learning Outcomes (SLOs)

To help us teach our students to analyze issue within an economics framework, our Department has adopted three key learning outcomes for undergraduate students in our majors. We expect that program graduates will be able to:

- (1) *identify the main components* of societal problems of an economic nature;
- (2) *apply economic analysis* to explain an issue or policy of an economic nature;
- (3) *write a research paper* addressing an economic issue or policy.

The student learning outcomes above are a slight revision of those in our last program review:

- (1) Program graduates will have the knowledge and ability to identify the main components of contemporary societal problems of an economic nature;
- (2) Program graduates will demonstrate the ability to use models of the aggregate economy;
- (3) Program graduates will demonstrate the ability to use models of economic behavior;
- (4) Program graduates will have the ability to write a paper demonstrating their understanding of the underlying economic principles of an economic situation, issue, or policy.

The feedback on our 2017-18 Annual Assessment update suggested that we revise the wording so that it is “more focused on the action or observable behavior that students will exhibit”. We have accordingly changed the language to focus more on the verb indicating the students’ behavior. While the first and last SLOs are basically unchanged, we have combined SLOs (2) and (3) from our prior program review into a single SLO. These SLOs separately identified whether the student could use *macroeconomic analysis* and *microeconomic analysis*. Our current SLO #2 indicates that the student should be able to apply *economic analysis* without distinguishing between microeconomic and macroeconomic. This better fits current economic practice, which may use one or the other or both in a single analysis, and better fits our students’ use of economic analyses in their coursework and capstone paper. However, as explained below, we plan to continue assessing student performance in both areas.

3. Program-by-Baccalaureate Student Learning Outcomes

Table 1: Matrix of Program-by-Baccalaureate Student Learning Outcomes

Economics B.A./B.S. Student Learning Outcomes	Baccalaureate Student Learning Outcomes							
	A. Global inter-connections and inter-dependencies	B. Intercultural competencies	C. Analyze human life and natural world inter-connections	D. Critical, creative, and independent thought	E. Communicate clearly and effectively	F. Collaborate with others	G. Quantitative and qualitative reasoning	H. Apply knowledge/skills creatively
1. identify the main components of societal problems of an economic nature	S	M	S	S	M	M		
2. apply economic analysis to explain an issue or policy of an economic nature	S		M		M		S	S
3. write an economics research paper	M		M	S	S		S	S
Overall	S	M	S	S	M	M	S	S
<i>Note.</i> Gauge whether each program outcome strongly supports (S), moderately supports (M), or doesn't support (leave blank) each baccalaureate learning outcome								

4. Student Learning Outcomes and the Economics Major Curriculum

Table 2: Curriculum Map

		Economics B.A./B.S. Student Learning Outcomes		
Economics Courses	Focus	1. Identify the main components of societal problems of an economic nature	2. Apply economic analysis	3. Write an economics research paper
ECON 160, 186	Gen Ed	B	B	
ECON 260	Micro	B	B	
ECON 261	Macro	B	B	
ECON 290	Quant		B	
ECON 300, 301, 302, 315, 320, 330, 341, 370, 371, 372, 373, 374, 375, 376, 385, 386, 470, 474	Micro	P	D	D
ECON 310	Macro	P	D	D
ECON 360, 403, 420, 423, 443, 450, 454, 484, 485, 489, 495	Micro	P	P	D
ECON 361, 452, 466, 489, 495	Macro	P	P	D
ECON 390, 390A, 393, 490, 491	Quant		D	D
ECON 397, 492, 494, 497, 498		P	P	P

In economics courses, students gain exposure to many different areas of economics, and learn how to apply the tools of economic analysis to a variety of important issues. Over the coming decades, the world will face many problems and challenges that are not knowable today. It is important, therefore, that students see how economic tools can be used to analyze current issues, so that they will learn how to apply the tools of economic analysis to analyze events when they occur. In addition, these courses teach students to analyze issues of public policy, which will help them make better decisions as voters. These courses are also designed to give students a greater knowledge of the world and to spark their interest in current events, so as to encourage them to continue to follow economics and world events throughout their lives. Furthermore, the critical thinking skills that students acquire in these courses will help them in their future careers, as they acquire the analytical basis to make sound decisions. Many of these courses also emphasize mathematical abilities, since it is important for their future employment that students be equipped with strong quantitative skills.

As indicated in the Curriculum Map, the Economics Department offers five courses that assume students have no prior knowledge of economic analysis and their skills in identifying economic issues and using models to analyze them are developed at the beginning (B) level.

- These courses are **ECON 160: Contemporary Economic Issues**, **ECON 186: Introduction to Environmental Economics**, **ECON 260: Principles of Microeconomics**, **ECON 261: Principles of Macroeconomics**, and **ECON 290: Economic Data Analysis with Excel**. The first four of these are offered for General Education credit in the Society and Culture knowledge domain.
- All economics majors are required to take **ECON 260: Principles of Microeconomics**, **ECON 261: Principles of Macroeconomics**, and **ECON 290: Economic Data Analysis with Excel**.
- **ECON 260** and/or **ECON 261** are required courses for several other majors in the Colleges of Liberal Arts and Sciences, Business, Engineering and Engineering Technology, Health and Human Sciences, and Education.

Beyond the three core courses, all economics majors are required to take at least 21 credit hours of 300- and 400-level economics courses. The 300-level courses generally require that the student have completed the two introductory micro- and macroeconomics courses. At this level, students' skills in identifying economic issues are enhanced to the proficient level (P), but their skills in using formal economic analysis are still at the developing (D) level.

- All economics majors are required to take **ECON 360: Intermediate Microeconomics** and **ECON 361: Intermediate Macroeconomics**. Microeconomics and macroeconomics are the two major branches of economics. Microeconomics analyzes decision-making at the individual level (consumers and firms), while macroeconomics analyzes economic aggregates pertaining to the entire economy and international flows. In **ECON 260** and **ECON 261**, students are introduced to microeconomic and macroeconomic concepts. In **ECON 360** and **ECON 361**, the analytical tools that were introduced in the principles courses are covered in a more mathematically rigorous manner.
- We offer a number of 300-level electives that require **ECON 260** and/or **ECON 261** as prerequisites. These courses may be taken at the same time as **ECON 360** and **ECON 361**. Some specific areas of economics that are covered in elective courses are environmental economics, labor economics, health economics, monetary economics,

government and business, international economics, sports economics, financial economics, and industrial organization. These electives are in fields that can be classified as macroeconomic or microeconomic, although there is some blurring of the distinction in some fields.

- Several of the elective courses include an intensive writing requirement in which students develop skill in conducting and writing research reports (D).

After students complete the intermediate level micro- and macroeconomic analysis courses (**ECON 360** and **ECON 361**), they possess sufficient skills to undertake more advanced economic analysis in 400-level courses. In these courses, their skills in identifying economic issues and their skills in using formal economic analysis are enhanced to the proficient level (P).

- We offer a number of 400-level electives that have **ECON 360** and/or **ECON 361** as prerequisites. Some specific areas of economics that are covered in 400-level elective courses are labor economics, the economics of labor markets, health economics, the economics of government taxation and spending, the economics of financial derivatives, and history of economic thought.
- These elective courses typically include a writing requirement in which students develop skill in conducting and writing research reports (D).

Economic analysis requires quantitative tools. To prepare students for the quantitative concepts and tools used in the economic analysis taught in upper division courses, we offer several courses.

- As of 2019-20, all majors are required to complete **ECON 290: Economic Data Analysis with Excel**. In this course, students learn to use Excel to manage and summarize data, analyze differences between groups, and conduct simple linear regression analysis.
- Because the B.S. in Economics program places a stronger emphasis on quantitative skills, B.S. students are required to take **ECON 390: Basic Econometrics and Economic Applications** and **ECON 390A: Basic Econometrics Laboratory**. Although applications are made to economic problems in these courses, the focus is on developing the students' quantitative skills for economic analysis.
- Beyond these required courses, we offer more advanced quantitative courses as electives: **ECON 393: Introduction to Mathematical Methods in Economics**, **ECON 490: Economic Statistics and Econometrics**, and **ECON 491: Mathematical Methods for Economics**. All of these quantitative courses teach students analytical skills that are highly valued by employers.

In the final year of study, all economics majors are required to conduct research on an economics topic and describe their research in a capstone research paper. This paper is typically written while enrolled in **ECON 492: Research Methods in Economics**, but may be written under the mentorship of a faculty member in any other 400-level economics course. In **ECON 492**, students are taught by economics faculty members how to choose a research topic, model the economic activity, collect data and conduct empirical analysis, and write an effective economics research paper. Students present their research to the class and obtain feedback about ways in which they can improve their work. In this course, as well as in independent study courses, students' skills in identifying economic issues and using formal economic analysis, as well as in conducting research and writing a paper to describe that research, are enhanced to the proficient level (P).

Outside the Department, B.A. students are required to take a course in statistics (**STAT 100**, **STAT 200**, or **UBUS 223**) and to fulfill the B.A. foreign language requirement. B.S. majors are required to take one of the following math/statistics sequences: (1) **MATH 229**, **MATH 230**, and **STAT 300**, or (2) **MATH 210**, **MATH 211**, and **STAT 200**. B.S. majors are also required to complete a computer science course (**CSCI 210** or **CSCI 240**).

5. Assessment Methods

The following two tables describe the assessment methods we currently use for the B.A. and B.S. in Economics programs.

The first assessment method is indirect: We survey graduating economics majors and ask them a series of questions regarding their perceptions of how their economics training has benefitted them. The survey used through Summer 2019 is provided in Appendix Table A-1a. To better elicit student feedback about well our student learning outcomes are met, we slightly revised three of the questions (Questions 5, 6, and 7) for the survey to be used starting in Fall 2019. The revised survey is provided in Table A-1b.

In the new versions of Questions 5 and 6, students are asked to judge their ability to use models *to analyze effects* rather than *to make predictions about effects*. These are minor revisions, but our intention is to better elicit students' perceptions of the ability to apply macroeconomic and microeconomic models to understand economic activity. In the earlier version of Question 7, students were asked if their economics studies have improved their *research and writing skills*. Because we ask about students' ability to apply economic analysis in prior questions, we have eliminated the reference to research skills and focus instead on students' *ability to write an economics research paper*. This also limits the question to writing skills as applied to economic activities rather than general writing skills, although the latter should also be affected. As we collect the survey responses over the next few semesters, we will examine whether the new questions are successful in collecting information relating to our SLOs.

The second assessment method we use is direct: As mentioned above, senior majors are required to conduct research on an economics topic and describe their research in a capstone research paper. Each semester faculty members use a rubric (Table A-2) to evaluate the completed papers and the evaluation scores determine whether the capstone paper requirement is completed. Six criteria are considered in the evaluation rubric. For assessment purposes, we have grouped these criteria into three groups that correlate to our three SLOs:

- (1) *Knowledge of economics*: To assess a student's knowledge of economics, we use the scores on "topic selection" and "thesis development". In the first of these, a student's paper is evaluated as demonstrating an expected knowledge of economics as shown by the student's choice of an economic research topic for the capstone project. An appropriate topic choice is important in the success of the student's research project because in just one semester the student will conduct background research, apply a theoretical model, collect data, and use econometric methods to

test hypotheses about the economic behavior she or he has chosen to research. Thus, the ability to select an appropriate topic indicates that she or he has adequate knowledge of several facets of economic research.

The second criterion used to assess a student's knowledge of economics is the student's success in thesis development. Adequate thesis development indicates that the student has sufficient knowledge of how the various components of the paper fit together to explain an economic phenomenon. This is evaluated separately from economic analysis because a student may have adequate knowledge to develop his or her thesis without necessarily using appropriate methods of analysis (the next SLO).

- (2) *Economics research skills*: To assess a student's skill in conducting economics research, we use the scores on "use of resources" and "economic analysis". Meeting expectations for the first criterion demonstrates the student's ability to use research resources. This includes both use of the research literature and use of appropriate data in conducting economic research. Both are crucial to successful research. Meeting expectations for the second criterion, "economic analysis", involves the successful application of both economic theory and empirical methods in the capstone research project.
- (3) *Economics writing skills*: To assess a student's skill in writing an economics research paper, we use the evaluation scores on "organization" and "writing quality". An economics research paper includes several sections (introduction, literature review, theoretical model, empirical model, description of data, empirical results, and discussion), several of which might have sub-sections. While there is some leeway in how the material is organized, a clear organizational structure with transitions tying the sections together into an understandable flow is essential. We have found that a carefully structured paper can successfully describe the student's research even when the student's ability to write well is lacking. A student's ability to write well is important in communicating her or his research, of course, so our final assessment tool for *economics writing skills* is the evaluation score for writing quality.

Table 3 provides details describing each of the assessment methods and Table 4 relates each assessment method with the relevant student learning outcome for the programs. While the responses to the senior exit survey and the evaluations of the capstone research papers provide useful feedback on how successfully the program achieves student learning outcomes, it would be helpful to assess student performance before the senior year. For this reason, beginning in Fall 2019, we are planning to introduce one further assessment method that will fill a gap in our assessment plan by providing a direct evaluation of students' ability to apply economic models: The intermediate microeconomics (ECON 360) and intermediate macroeconomics (ECON 361) courses required for all majors teach students important analytical modeling skills needed for advanced upper division courses. For assessment purposes, the instructors teaching intermediate microeconomics (ECON 360) and intermediate macroeconomics (ECON 361) will include on their final exams a set of problems designed to indicate the students' ability to apply the analytical tools taught in the course. The instructors will evaluate students' performance on these problems and provide this information to the Director of Undergraduate Studies. We are currently developing the rubric for this assessment tool.

Table 3: Explanation of Assessment Methods

Assessment Method	Explanation					
	Description	Student-Level Achievement ^a	Program-Level Target ^b	When Data Will be Collected	Person Responsible	SLOs
A. Interview questions asked of graduating seniors						
(1) To what extent have your studies enabled you to understand economic and social phenomena? (2) As a result of your work in economics, do you feel you have the knowledge and ability to identify the major economics issues confronting our nation and the world?	<p>Respondents are asked the two questions in column 1 addressing whether they believe they have the knowledge and ability to understand economic phenomena and to identify the main components of societal problems of an economic nature.</p> <p>The DUGS enters the results in a spreadsheet to summarize the results and share with faculty members of the department. Table A-1 is a copy of the senior survey.</p>	A respondent who answers “a great deal” or “a moderate amount” in response to these questions is considered to be reporting adequate achievement.	At least 90% of seniors will answer “a great deal” or “a moderate amount”	During the final week of the fall and spring semesters	DUGS	1
(3) Would you be able to apply the tools you acquired in your economic courses to explain economic events?	<p>Respondents are asked the question in column 1 addressing whether they believe they are able to apply economic analysis to explain economic activity.</p> <p>The DUGS enters the results in a spreadsheet to summarize the results and share with faculty members of the department. Table A-1 is a copy of the senior survey.</p>	A respondent who answers “a great deal” or “a moderate amount” in response to this question is considered to be reporting adequate achievement.	At least 90% of seniors will answer “a great deal” or “a moderate amount”	During the final week of the fall and spring semesters	DUGS	2

Assessment Method	Explanation					
	Description	Student-Level Achievement ^a	Program-Level Target ^b	When Data Will be Collected	Person Responsible	SLOs
<p>(4) To what degree have your research and writing skills improved as a result of your work in economics?</p> <p>Revised (F19): To what degree has your ability to write a research paper addressing an economic issue improved as a result of your work in economics?</p>	<p>Respondents are asked whether their research and writing skills have improved as a result of the economics major. [As of Fall 2019, this question has been revised to focus on the student's ability to write an economics research paper.]</p> <p>The DUGS enters the results in a spreadsheet to summarize the results and share with faculty members of the department. Table A-1 is a copy of the senior survey.</p>	<p>A respondent who answers "a great deal" or "a moderate amount" in response to the question is considered to be reporting adequate achievement.</p>	<p>At least 90% of seniors will answer "a great deal" or "a moderate amount"</p>	<p>During the final week of the fall and spring semesters</p>	<p>DUGS</p>	<p>3</p>
<p>B. Faculty evaluation of senior capstone research papers</p>						
<p>(1) Knowledge of economics</p> <ul style="list-style-type: none"> - topic selection - thesis development 	<p>Each economics major is required to write a capstone research paper during her or his senior year. The student's knowledge of economics as demonstrated in the paper is evaluated on the basis of topic selection and thesis development. These criteria indicate the student's general knowledge of economics and his or her ability to present a cogent argument using economic logic. Table A-2 is the rubric used by faculty members to evaluate capstone research papers.</p>	<p>For each of these criteria, a student's capstone paper must earn a score of 3 or higher (on a 5 point scale) to demonstrate that the learning outcome has been met.</p>	<p>At least 90% of students will receive a score of 3 or higher (on a 5-point scale) to demonstrate that the program is achieving student learning outcome goals.</p>	<p>Data is collected at the end of the fall and spring semesters</p>	<p>DUGS</p>	<p>1</p>

Assessment Method	Explanation					
	Description	Student-Level Achievement ^a	Program-Level Target ^b	When Data Will be Collected	Person Responsible	SLOs
(2) Economics research skills <ul style="list-style-type: none"> - use of resources - economic analysis 	Each economics major is required to write a capstone research paper during her or his senior year. The student's economics research skills as demonstrated in the paper are evaluated on the basis of the use of resources (literature and data) and economic analysis (theoretical and quantitative). This evaluation indicates how well the student applies analytical methods to an economic issue. Table A-2 is the rubric used by faculty members to evaluate capstone research papers.	For each of these criteria, a student's capstone paper must earn a score of 3 or higher (on a 5 point scale) to demonstrate that the learning outcome has been met.	At least 90% of students will receive a score of 3 or higher (on a 5-point scale) to demonstrate that the program is achieving student learning outcome goals.	Data is collected at the end of the fall and spring semesters	DUGS	2
(3) Economics Writing Skills <ul style="list-style-type: none"> - organization - writing quality 	The capstone research paper is evaluated on the basis of organization and writing quality. The evaluation indicates whether the student has the ability to effectively communicate their economics research. Table A-2 is a copy of the rubric used by faculty members to evaluate capstone research papers.	For each of the criteria, a capstone paper must earn a score of 3 or higher (on a 5 point scale) to demonstrate that the learning outcome has been met.	At least 90% of students will receive a score of 3 or higher (on a 5-point scale) to demonstrate that the program is achieving student learning outcome goals.	Data is collected at the end of the fall and spring semesters	DUGS	3

Table 4: Matrix of Assessment Methods by Student Learning Outcomes

Assessment Measures	Economics B.A./B.S. Student Learning Outcomes		
	1. Identify the main components of societal problems of an economic nature	2. Apply economic analysis	3. Write an economics research paper
A. Survey questions asked of graduating seniors			
(1) To what extent have your studies enabled you to understand economic and social phenomena?	S, I		
(2) As a result of your work in economics, do you feel you have the knowledge and ability to identify the major economics issues confronting our nation and the world?		S, I	
(3) Would you be able to apply the tools you acquired in your economic courses to explain recent economic events?			S, I
(4) To what degree has your research and writing skills improved as a result of your work in economics?			S, I
B. Faculty evaluation of senior capstone research papers			
(1) Knowledge of economics <ul style="list-style-type: none"> - choice of topic - thesis development 	S, D		
(2) Economics research skills <ul style="list-style-type: none"> - use of resources - economic analysis 		S, D	
(3) Economics writing skills <ul style="list-style-type: none"> - organization - writing quality 			S, D