

Degree/Certificate Program Assessment Report
College of Arts and Sciences
The University of New Mexico

Part I: Cover Page

<u>Name of Degree or Certificate Program</u>	<u>Degree Level</u> <i>(Certificate, Associate, Bachelors, Master's, etc.)</i>
Economics	MA (terminal)

Name of Academic Department (if not a standalone program):

Name of College/School/Branch: **Arts and Sciences**

Academic Year/Assessment Period: **2015-16**

Submitted By (include email address): **Jennifer Thacher (jthacher@unm.edu)**

Date Submitted to College/School/Branch for Review: **12/07/16**

Date Reviewed by College Assessment and Review Committee (CARC) or the equivalent:

State whether ALL of the program's student learning outcomes (SLOs) are assessed over one year, two years, OR three years: **3 years**

If the program's SLO's are targeted/assessed/measured within two years or three years, please state whether this assessment record focuses on SLOs from the first year, second year, or third year of your assessment cycle: **First year (Note: We have submitted an updated assessment plan that breaks up our assessment over three years. Last year's assessment report was based on our previous assessment plan and included a variety of different SLOs.)**

Describe the program changes that were implemented during this reporting period in response to the previous period's assessment results. Please include evidence of implemented changes in an appendix:

One change that was implemented in this reporting period, based on assessment work, was elimination of the terminal MA theory exam. Faculty felt that terminal MA students were better served by completing an exam in econometrics or a field area, rather than in theory.

There has been significant ongoing work on creating a 3-2 BA/MA program in Economics, with the goal of increasing the number of students in the terminal MA program and enhancing the quality of the degree. This work is ongoing and we expect to finalize the program in Spring.

Describe any revisions to your assessment process that you made for this reporting cycle and/or plan to make for future reporting cycles:

The assessment plan was updated. As part of this process, the faculty reviewed SLOs and learning goals from other departments and identified departmental goals and criteria for success. SLOs were updated to better reflect the departmental goals and the assessment measures used were slightly revised.

Part II: Report Body

Program Goal	SLO	UNM Student Learning Goals
Students will graduate from the program with the necessary skills and knowledge to succeed as economists	Students can explain and manipulate economic models (A1)	<input type="checkbox"/> Knowledge <input checked="" type="checkbox"/> Skills <input type="checkbox"/> Responsibility

Assessment Measures (including whether they were direct or indirect):

Measure #1: MA Exam [DIRECT].

Consists of a seven-hour written exam. Exam questions cover core theory in economic theory or a field area. The design of the exam allows the examination committee to ascertain if the individual student has a MA-level knowledge in a specific concentration. The faculty committee blind-evaluates and scores the exams.

Measure #2: MA Thesis Defense [DIRECT].

Thesis committees evaluate student work according to professional standards. Each member of their committee scores their dissertation on substance, methodology, and an evaluation of the work as a whole. Each objective is scored out of five points, where a five is best (1=inferior, 2=fair, 3=good, 4=very good, 5=excellent). It would be expected that a thesis would have a component dealing with the economic model, so their scores on these objectives provide an indirect measure of this SLO.

Performance Benchmark:

Measure #1: 50% pass

Measure #2: Average score is “good” or better

Sampled Population:

Measure #1: MA Exam

10 exams by second year MA students from August 2010- August 2016

Measure #2: MA Thesis Defense

16 thesis defenses by MA students at end of program from August 2008- August 2016

Results:*Measure #1: MA Exam*

SLO A1 (By the end of the program, students can explain and manipulate economic models): Evaluation of exams								
	2010-11	2011-12	2012-13	2013-14	Aug '14	Jan '15	Aug '16	2010-16
Number Taking	2	0	3	3	1	1	0	10
MA Pass	2	0	3	2	0	1	0	8
	100%	-	100%	67%	0%	100%	-	80%

Measure #2: MA Thesis Defense

SLO A1 (By the end of the program, students can explain and manipulate economic models): Evaluation of theses																	
	2008-09		2009-10		2010-11		2011-12		2012-13		2013-14		2014-15		2015-16		2008-15
n	3		3		2		3		2		1		2		0		16
	Avg	Std Dev	Avg	Std Dev	Avg	Std Dev	Avg	Std Dev	Avg	Std Dev	Avg	Std Dev	Avg	Std Dev	Avg	Std Dev	Avg
Substance	3.72	0.75	4.3	0.89	3.8	0.71	4.16	0.28	4.16	0.7	4	0	3.00	1.41			3.90
Methodology	3.83	0.76	4.4	0.98	3.7	0.49	4	0	3.83	0.23	4	0	3.17	0.71			3.88
Evaluation of Work as Whole	3.81	0.88	4.2	1.08	3.7	0.49	3.94	0.09	3.91	0.82	4	0	2.75	1.06			3.79

Analysis/Faculty Discussion:*Measure #1: MA Exam*

From 2010-16, there have been 10 attempts of the MA exam, with an 80% passing rate. The fails in August became passes the in January, after students re-took the exam. In 2015-16, there was only one attempt at the MA exam (a retake). The small number of students taking the exam is reflective of the existing small MA program. During discussion of January 2015 results, there was consensus that the retake exam was significantly stronger than the original exam in August. After this exam there was discussion about whether an MA theory exam should be completed within the structure of the PhD theory exam (where students must earn a certain set of points on the PhD exam), rather than creating a new exam. The issue was referred to the Graduate Committee for further consideration.

Measure #2: MA Thesis Defense

No MA theses were completed in 2015-16. This reflects a number of factors. First, our program is primarily a PhD program, with very few terminal MA students accepted. Those terminal MA students accepted must have almost the same mathematical background as the PhD students, as they all take the same coursework. Secondly, there has been a consensus among faculty that only the best MA students or those who want to showcase specific skillsets should be encouraged to do a thesis. Historically, it has taken students a long time to complete theses or they have not completed the program. Over the entire period, theses scores have averaged “very good”.

Recommendations for Improvement/Changes:

- Overall, students seem to be able to manipulate and explain economic models. There is evidence of this from both the MA exam and MA thesis. Because of the small numbers taking the MA exam and MA thesis, average results can fluctuate significantly based on the addition of one data point.
- Faculty should consider whether we have an additional form that asks MA committee members to directly evaluate progress on this objective at the dissertation defense, rather than relying on the OGS gray sheets to infer this for dissertation work.

Appendix 2 – Assessment instruments

Attached are the following assessment instruments:

- Example MA theory exam
- Evaluation sheet filled out after MA thesis defense

INSTRUCTIONS: The exam consists of four questions. You are required to answer *three* of the four questions. You must complete all parts of the questions of your choice. Your answers will be assessed on appropriateness of approach, completeness, correctness, and explanation. If you answer more than three questions, only the first three will be graded.

1. For the following three utility functions, derive the Marshallian (a.k.a. Walrasian, uncompensated, or ordinary) demand functions, the indirect utility functions, the expenditure functions, and draw graphs of the indifference curves associated with $u(\mathbf{x})$. Make sure to graph the utility functions listed, taking into account coefficients and so forth, not just general representations of these types of preferences.

a) $u(x, y) = 2x + y$

b) $u(x, y) = \min\{2x, y\}$

c) $u(x, y) = x^{0.5}y^{0.5}$

2. Consider an industry with an inverse demand curve equal to $P(Q) = \alpha - Q$. In this industry there are n firms, each firm's objective is to maximize profit, and each firm has a cost function equal to $C(q_i) = c_i q_i$ (where $c_i < \alpha$, for all i).
- First, assume that $n = 1$, $\alpha = 15,000$, and $c = 4,000$. What quantity will the firm produce and what will the market price be? What is the consumer surplus, and what is the deadweight loss compared to a perfectly competitive industry?
 - This time again assume that $n = 1$, and $c = 4,000$. However, in this problem assume that the firm has incomplete information about α . Specifically, in this problem assume that $\alpha = 5,000$ with probability .7 and $\alpha = 20,000$ with probability .3. If this firm is risk neutral, what is the profit maximizing quantity? What are the expected profits?
 - If the firm was risk averse in part b, how would that effect the expected profit?
 - In this part again assume that $\alpha = 5,000$ with probability .7 and $\alpha = 20,000$ with probability .3 (which is determined by nature). However, in this section assume that there are 2 firms (i.e. $n = 2$) and that the marginal cost for each firm is \$4,000 (i.e. $c_1 = 4,000$, and $c_2 = 4,000$). Also, in this section firms have different information sets. Specifically, in this part assume that firm 1 observes α before its quantity decision is made, but firm 2 does not (but does know the probability of both events happening). If firms move at the same time, describe the Nash equilibrium for this game.

3. Ending Quantitative Easing

Now that the U.S. economy has fully recovered from the “Great Recession” of 2008-2009, the Fed (i.e., the U.S. central bank) has announced an end to its policy of quantitative easing (aka “QE”). Over the next year or so, the Fed plans to sell off most of the Treasury notes and other securities it bought under successive “QE” rounds. Your task is to analyze the effects of this open-market sale of government bonds and other securities under the following scenarios.

a. Domestic Effects on the U.S. Economy: Short vs. Long Run

Assume the U.S. economy is a closed economy with a fixed capital stock and given technology. Inflationary expectations are static. The aggregate demand side of the economy is described by:

$$(IS) \quad Y = E(Y-T, R, V, G) \quad \text{where } 0 < E_{Y-T} < 1, E_R < 0, 0 < E_V < 1, E_G = 1$$

$$(LM) \quad M/P = L(Y, R) \quad \text{where } L_Y > 0, L_R < 0$$

The variables are: Y = real output/income, E = aggregate expenditures, T = taxes, R = (nominal/real) interest rate, $V = (M+B)/P$ = real wealth, G = government purchases, M = nominal money supply, B = government bonds held by general public, P = price level, L = real money demand.

Using graphical and/or mathematical analysis, explain how/why the U.S. economy responds to the open market sale in the short run (when wages and prices are fixed) and in the long run (when wages and prices are flexible). Discuss how your answer changes if government bonds are not considered wealth.

b. Effects on U.S. Trading Partners: Fixed vs. Flexible Exchange Rates

The end of “QE” will affect world interest rates in the same direction as U.S. interest rates. Consider the case of a small open economy that trades with the U.S. The country’s economy is described by a standard Mundell-Fleming model with fixed wages/prices, static inflationary expectations, and static exchange rate expectations.

Assuming perfect capital mobility, use graphical and/or mathematical analysis to explain how/why the small open economy responds to the Fed-induced change in world interest rates under fixed versus flexible exchange rates.

4. Sales Taxes in an Optimal Growth Model

Consider the Ramsey model of an economy in competitive equilibrium. There is a representative household and a representative firm. The household's utility functional is

$$U \equiv \int_0^{\infty} u(c_t) e^{-\rho t} dt,$$

with

$$u(c_t) = \frac{c_t^{1-\theta} - 1}{1-\theta},$$

where there is no population growth, and $\rho > 0$. The representative firm has a constant returns to scale per worker production function $f(k_t) = Ak_t^\alpha$. For simplicity, assume capital does not depreciate after production ($\delta = 0$). At every point in time, assume that the government institutes a consumption tax (aka sales tax). That is, for every unit of consumption that it chooses, the household must pay an amount τ to the government. The government then deposits the taxes in an offshore bank. Find the competitive equilibrium of this economy, using the following steps.

- a) Write down the representative household's maximization problem, solve it, and derive the 4 equations that characterize the solution. Explain in words, intuitively, what the Hamiltonian function means, and what the 4 equations represent. Does τ show up here? Explain why or why not?
- b) Write down the firm's maximization problem and the first-order conditions for this problem. Translate these conditions into intensive form. Derive the 2 equations that characterize the solution. Does τ show up here? Explain why or why not?
- c) What are the equilibrium conditions for this economy? Does τ show up here? Explain why or why not? Derive the government budget constraint.
- d) Combine your answers to parts a) - c) and derive a pair of differential equations for the variables c and k .
- e) Draw the phase diagram, carefully identifying (and deriving mathematically) all the important points.
- f) Do the following comparative dynamics exercise: $\tau' > \tau = 0$. That is, compare the economy with and without a sales tax. As usual, the baseline economy starts in its steady state at time $t = 0$. The modified economy starts at time $t = 0$. Draw (i) the phase diagram for both cases, indicating what is different, and (ii) the time paths of c and k for both cases. Carefully discuss your results. In particular, how does the tax affect the consumption/savings decision? Why?



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REPORT ON THESIS OR DISSERTATION

Author: _____ ID#: _____ Graduate Unit: _____

Dissertation or Thesis Director: _____ Reader: _____

Title of Thesis or Dissertation: _____

1. Please rate the thesis or dissertation on the following:

	<i>Excellent</i>	<i>Very Good</i>	<i>Good</i>	<i>Fair</i>	<i>Inferior</i>
a. Substance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Methodology	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Originality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Style	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. <i>Evaluation of the work as a whole</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Please summarize briefly your reaction to the thesis or dissertation.

3. Do you recommend the acceptance of this manuscript for the degree?

☐ Yes

☐ No

Reader: Please sign and pass this form to the committee chairperson.

Reader

Date

Chairperson of Committee

Date

Chairperson, Major Graduate Unit

Date

Graduate Unit Chairperson: Please collect all readers' forms and submit to the Graduate Office in sealed envelope.

Appendix 3 – Evidence of faculty discussion (e.g. meeting minutes)

Economics Graduate Assessment Planning Meeting: 4/12/16

Faculty in attendance: Robert Valdez, Brady Horn, Melissa Binder, Sarah Stith, Janie Chermak, Shana McDermott, Jennifer Thacher, Jingjing Wang, Xiaoxue Li, Richard Santos

Meeting Summary:

- Graduate Director Jennifer Thacher led the meeting and advised faculty of the need to update the assessment plan
- Faculty reviewed existing SLOs, departmental vision statement, UNM Student Learning Goals, goals from other graduate Economics programs, and other UNM departments
- Faculty drafted learning goals, revised wording on SLOs, and identified benchmarks

The attached show materials presented and discussed at the meeting.

What we need to do:

- Identify graduate program goals (PhD and MA) that align with UNM Student Learning Goals
- Identify benchmarks (cutoffs) for each of our SLOs for PhD and MA assessment measures
- Modify MA SLOs: can't have identical SLOs as for PhD
 - Should we dump job placements assessment measure?
- For research requirement, we have a cover sheet that directly asks about SLOs.
 - Should we add a similar sheet for thesis and dissertation defense (currently use GS gray sheets, which may be eliminated)?

PhD program: Relationship between UNM Learning Goals, Program Goals, and Student Learning Outcomes		
UNM Learning Goals (Knowledge, Skills, Responsibility)	Program Goal	SLO
		A1: Students can explain and manipulate economic models
		A2: Students use appropriate econometrics to explore economic issues and test hypotheses
		B1: Students undertake original economic analysis
		C1: Students effectively present their work to peers and PhD economists
		C2: Students effectively present their work and economics ideas to interdisciplinary and general audiences, including undergraduate students

PhD: SLO benchmarks			
Assessment Measure	SLO	Assessment measure description	Benchmark
Comprehensive Exam in Micro and Macro Theory [DIRECT]	A1	Consists of two seven-hour written exams. The design of the comprehensive exam allows the examination committee to ascertain if the individual student has a complete knowledge of both microeconomics and macroeconomics. The faculty committee blind-evaluates and scores the exams.	<i>% passing at PhD level</i>
Research Paper Departmental Seminar [DIRECT].	A1, B1, B2, C1	Committee on Studies mentors the student work. When the committee deems the research paper ready, the student schedules a departmental seminar. All faculty members attending the presentation complete an evaluation form that asks how well the student performs on this SLO. The objective is scored out of five points, where a five is best (1=inferior, 2=fair, 3=good, 4=very good, 5=excellent).	<i>% scoring very good or better</i>
Doctoral Dissertation Defense [DIRECT].	A1, B1, B2, C1	Dissertation committees evaluate student work according to professional standards. Each member of their committee scores their dissertation on substance, methodology, and an evaluation of the work as a whole. Each objective is scored out of five points, where a five is best (1=inferior, 2=fair, 3=good, 4=very good, 5=excellent)	<i>% scoring very good or better</i>
Field Exam in Econometrics [DIRECT].	B1	Written eight to eight and a half hour exam in econometrics. The design of the field exam in econometrics allows the examination committee to ascertain if the individual student has a complete knowledge of the material covered in the three-course sequence in econometrics.	<i>% passing at PhD level</i>
Job placements [INDIRECT]	C1	Sample: PhD graduates. Number of students on job market and count of placement type. Setting: Assessment by external job market	
Completion of degree and time to degree [INDIRECT]	C1	Sample: PhD students Setting: Outcomes (PhD, MA, drop) of those entering the program. Time to degree for all those completing.	<i>% completing program % completing in 5 years</i>
Student paper submissions and publications [INDIRECT]	B2, C1	Sample: Current and PhD graduates from past X years Setting: Assessment by external reviewers. # of papers submitted by current students. # of publications from current students and students graduating from past X years.	
Teaching evaluation scores [DIRECT]	C2	Sample: students teaching as independent instructors in undergraduate and graduate courses and students teaching labs.	<i>% scoring at “More true than false” or higher on Excellent Course & Excellent Instructor</i>

MA program: Relationship between UNM Learning Goals, Program Goals, and Student Learning Outcomes		
UNM Learning Goals (Knowledge, Skills, Responsibility)	Program Goal	SLO
		A1: Students can explain and manipulate economic models
		B1: Students use appropriate econometrics to explore economic issues and test hypotheses.
		B2: Students undertake original economic analysis
		C1: Students effectively present their work to peers and PhD economists
		C2: Students effectively present their work and economics ideas to interdisciplinary and general audiences, including undergraduate students

MA: SLO benchmarks			
Assessment Measure	SLO	Assessment measure description	Benchmark
MA theory or field exam [DIRECT]	A1	Consists of a seven-hour written exam. Exam questions cover core theory in economic theory or a field area. The design of the exam allows the examination committee to ascertain if the individual student has a MA-level knowledge in a specific concentration. The faculty committee blind-evaluates and scores the exams.	<i>% passing</i>
MA thesis Defense [DIRECT].	A1, B1, B2, C1	Thesis committees evaluate student work according to professional standards. Each member of their committee scores their dissertation on substance, methodology, and an evaluation of the work as a whole. Each objective is scored out of five points, where a five is best (1=inferior, 2=fair, 3=good, 4=very good, 5=excellent).	<i>% scoring very good or better</i>
MA Field Exam in Econometrics [DIRECT].	B1	Consists of a seven-hour written exam. The design of the exam allows the examination committee to ascertain if the individual student has a MA-level knowledge of econometrics. The faculty committee blind-evaluates and scores the exams.	<i>% passing</i>
Job placements [INDIRECT]	C1	Sample: MA graduates. Number of students on job market and count of placement type. Setting: Assessment by external job market Note: Nothing previously done on this as data has been hard to collect.	<i>Replace with different indirect measure? Survey of graduates (could also do for PhD)?</i>

Background material

Departmental vision statement:

Our department (faculty, staff, and students) is an applied economics program. We value collegiality, intellectual diversity and excellence. We work to improve the well-being of communities. Collectively, we aspire to:

- Provide quality learning experiences that produce intellectually curious and highly capable graduates
- Conduct policy-relevant and high-quality research
- Serve the community, university, and discipline.

University of New Mexico Student Learning Goals

University of New Mexico students will develop the following aptitudes and habits of mind in the course of their general and major study at UNM:

- **KNOWLEDGE** of human cultures and the natural world, gained through study in the sciences and mathematics, social sciences, humanities, histories, languages and the arts.
- **SKILLS**, both intellectual and applied, demonstrated in written and oral communication, inquiry and analysis, critical and creative thinking, quantitative literacy, information literacy, performance, teamwork and problem solving.
- **RESPONSIBILITY**, both personal and social, that will be manifested in civic knowledge and engagement, multicultural knowledge and competence, ethical reasoning and action, and foundations and skills for lifelong learning.

Goals from other programs: PhD

Rutgers (Economics):

1. Attain marked ability, scholarship, research and leadership skills in economics, with specialization in selected sub-disciplines.
2. Engage in and conduct original research
3. Prepare to be professionals in careers that require training at the highest levels in economics and selected sub-disciplines.

University of Florida (Graduate School) will demonstrate or achieve:

- 1) Knowledge: by a thorough understanding and comprehension of subject matter relevant to the discipline
- 2) Skills: by applying, analyzing, and synthesizing content knowledge to solve problems by identifying component parts, relationships and ideas
- 3) Professional Behavior: by displaying ethical behaviors, cultural sensitivity, teamwork, professional conduct and communication

Michigan State University (Graduate School)

- 1) Acquire advanced knowledge and a deeper understanding of the skills and knowledge in their disciplines
- 2) Develop a sense of responsibility to as well as an understanding of the ethical dimensions of the discipline
- 3) Develop the competence, knowledge, and independence for the realization of leadership potential

Ohio State University: Economics

- 1) (Proficiency): to attain technical proficiency to work with advanced models in microeconomics, macroeconomics and econometrics; to innovate models or analysis in chosen field of specialization; and to communicate economics ideas and issues.

AZ (Economics):

- Have goals related to teaching and research

Rochester (Economics):

- 1) Core knowledge: The objective of the first year is that students master the central subjects: mathematical methods, two-course sequences in microeconomics, macroeconomics, and statistics/econometrics are the foundations for anyone doing research at the Ph.D level.
- 2) Research skills in specialized areas: The primary goal of the second year is to develop critical skills in approaching research in specialized areas. Students are trained to conceptualize, model, and treat problems at the boundary of the literature.
- 3) Creative synthesis: Students should develop a broader perspective for their specialized areas than represented by the individual courses. The Department provides students exposure beyond courses, such as time to prepare for qualifying exams that extend beyond coursework and opportunities/requirements to attend regular research seminars by faculty, often external, and fellow students.
- 4) Development of research agenda/scholarship: The primary objective of the third year and beyond is to develop a research agenda and produce scholarly contributions. The research program is valued for its originality and importance for the frontier of the researcher's field.
- 5) Oral communication: Ability to communicate is a critical component of training as an economist. Presentation at conferences, departmental seminars, and elsewhere is important for communicating

one's research. Good communication skills are also critical for job placement, teaching performance, and performance in non-academic positions.

- 6) Written communication: The results of economics research are disseminated through working papers, journal publications, and sometimes books. An important goal of the program is to teach students to present their contributions clearly in their writing.
- 7) Teaching skills: Most of our graduate will take jobs as assistant professors in a university. Thus, one of the goals of the program is that students be able to effectively prepare and delivery classroom presentations.
- 8) Professional Ethics: Accuracy, proper claims and attribution, and transparency are critical in research, teaching, and all professional work in economics. Contributing professionally, e.g., advising, reviewing, and contributing to the public good of one's institution are all h

Example goals of UNM UNM PhD programs receiving top scores on this objective

Poli Sci

- A. Knowledge sufficient to teach a basic course.
- B. Comprehensive knowledge and understanding of the literature and major theories in the field.
- C. An ability to think critically, in both methodological and theoretical terms.
- D. A firm understanding of research design and methods.
- E. The capacity to conduct an original research project.
- F. Strong written and oral communication skills

Biology

- A. A deep understanding of biological theories, questions and approaches
- B. Capacity to build upon existing knowledge to create new knowledge and insight into biology through original, ethical research

Goals from other Economics programs: MA

Rutgers:

- Same as PhD except removal of word "original" in 2

U of North Dakota

- 1) Students acquire knowledge and skills to enable professional research
- 2) Students develop expertise that serves North Dakota and the North Central Region
- 3) Students gain practical experience in real-world economic research

Cleveland State University

- 1) To provide students with the skills needed to apply macroeconomic theory to public policy questions.
- 2) To provide students with the skills needed to apply microeconomics to both policy questions and the resolution of applied problems in economics.
- 3) To provide students with the skills required to conduct applied economic research and to develop their ability to conduct and report on this research.

October 5, 2016

To: Bob Berrens

From: Graduate Committee (J. Thacher, C. Sauer, D. Van der Goes, J. Wang (on leave))

Re: Proposal for creation of a BA-MA program

Background

In Fall 2015, the department created an ad-hoc committee (M. Binder, A. Bohara, R. Santos, S. Stith, J. Thacher, K. Villa, D. Wilken, M. Lippert) to examine the possibility of creating a BA-MA program. The committee met a number of times and discussed a number of ideas, potential coursework, and requirements for such a program. The general idea for such a program was presented to the faculty in Spring 2016. The faculty were supportive of the ideas presented, provided input on a number of issues, and asked that a full proposal be brought back in Fall 2016. The directors and advisors for the undergraduate and graduate programs (R. Santos, J. Thacher, M. Lippert, M. Garcia) met in September and discussed proposed curriculum and program requirements. At this meeting a number of issues vis a vis the graduate program were identified. The group asked the graduate committee to review these issues and revise the proposal accordingly for presentation to the faculty. The Graduate committee met in September to discuss these issues and updated the proposal.

Motivation for a 3-2 program

Creation of a 3-2 program has several possible benefits:

- A. Add value for our undergrads by allowing them to earn an MA with an data-analytic emphasis that will translate into better jobs
- B. Prepares interested undergraduate students for Economics PhD programs
- C. Increase enrollment in our graduate courses
- D. Provide an additional applied econometrics course for current PhD students

Description of proposed program

The program will only be open to existing undergraduate students. Students would apply in spring of their Junior year. The program would require 33 undergraduate credits (X required) and 31 graduate credits (30 required). There are 12 shared credits (a maximum of 18 is allowed).¹

Requirements for admission:

- Econ 105, 106, 300, 303, 309, 407 (B+), 408 (B+) and/or 409 (B+)
- Math 180/162 (Calculus I) and Math 181/163 (Calculus II)
- 3.0 GPA
- a programming class (Matlab, C, SQL, R, Python, GIS, etc)²

¹ The exact undergraduate credits are still in development.

² The graduate committee felt that adding this requirement would add significant value to the degree. There seems to be greater flexibility by making this an admission requirement rather than a requirement after entry.

The table below shows the proposed schedule for the 4th and 5th year of the program.

Senior year	
Fall	Spring
Econ 595 (Bootcamp in August)	Econ 509
Econ 508	Econ 3XX*/4XX electives*
Econ 3XX*/4XX electives*	
Full-time graduate year	
Fall	Spring
Econ 501	Econ 5XX
Econ 506	Econ 5XX
Econ 5XX or 3XX*/4XX* elective	Econ 538
* Course allowed for graduate credit to students enrolled in a graduate program. Normally, a graduate student enrolled in a starred course numbered below 500 is required to do extra work.	

Proposed/required changes to the graduate program

1. **Increase math requirements for entry to the PhD/MA program:** Currently, only Calc I is required, although additional math is encouraged. The graduate committee recommended consistent requirements for both programs, suggesting a reduction in the 3-2 math requirements and an increase in the PhD/MA requirements. The new math requirements would be Calc I, Calc II (with engineering calculus recommended) and a statistics/econometrics course. An additional math/logic (probability, linear algebra, logic, etc) class is highly recommended. The appendix lists current requirements from selected PhD Economics programs. Increasing the current PhD requirements would allow consistency between the two programs (it seems ridiculous to have stronger admission requirements for the BA-MA program than the PhD program), seems consistent with the trend at other programs, and would maintain flexibility to admit students with diverse educational backgrounds. In addition, it would eliminate one of the current headaches of being graduate director: explaining to a student with just Calc I, why he/she has not been accepted into the program.
2. **Creation of applied capstone course.** We see a strong need to add an applied econometrics capstone course, where students work with existing datasets and gain experience applying econometrics methods. This would be a topics course with a rotating instructor; the actual content and focus of the course would differ depending on the instructor, but any version of the class would be based on applied econometrics. Any version of the class would require that students have a poster session, showcasing their work. Offering such a course would also enhance our PhD program. (Course will first be offered as Econ 538 Topics course. Then new course number will be proposed.)

3. **Create a MA Plan III (Coursework only).** UNM recently created a Plan III, which allows an MA based on coursework alone. All the committees that examined this proposal were of the opinion that because of faculty constraints, it was not reasonable to require an MA thesis. Furthermore, the committees were of the opinion that there was little value from having the students take an exam. Rather, the committees concluded that the capstone course provided the appropriate level of exposure to applied econometric research. The Graduate Committee debated whether it was equitable to offer a coursework option to only 3-2 students and concluded that it was most consistent with the goals of the 3-2 program and because our program is overwhelmingly a PhD program that offers an MA enroute, this was not inequitable: it is reasonable for different programs to have different requirements. The Plan III option would only be open to students in the 3-2 program.
4. **Review the 504 pre-requisite for all courses.** The appendix shows that 504 is currently required for a significant number of courses. The graduate committee requests that each field review their courses and see if this requirement is necessary. Having this requirement severely limits the courses that 3-2 students (and MA students in general) can take and runs counter to the goal of increasing enrollment in field courses. The graduate committee also requests that faculty teaching 513/514 provide input whether 504 is needed.
5. **Create a new concentration?**

Appendix

Pre-requisites for review

Courses requiring 504:

- 513 (Micro II)
- 514 (Macro II)
- 540: Natural Resource, Environmental, and Ecological Modeling I
- 543: Natural Resource Environmental, and Ecological Modeling II
- 544: Environmental Economics
- 533: Seminar In Industrial Organization
- 581: International Development and Finance
- 582: Topics in International and Sustainable Development*
- 583: Development Economics
- 585: Sustainable Development

564: Topics in Health Economics (requires 513)

Admission requirements at selected economics programs

CU Boulder

Intermediate microeconomic and macroeconomic theory coursework, 6 college-level hours of calculus and 3 college-level hours of statistics. Minimum requirements and averages for GPA, GRE and TOEFL are listed in the chart below. NOTE: Applicants demonstrating strength in mathematics are more likely to be admitted. Highly useful math coursework includes calculus (through calc III), linear algebra, intro to real analysis, differential equations, statistics with calculus (mathematical statistics), and probability theory.

CO State Economics

Satisfactory undergraduate course work in intermediate microeconomics, intermediate macroeconomics, econometrics, and calculus.

Oregon State Applied Economics

Prerequisites for the PhD degree consist of advanced undergraduate or graduate coursework in microeconomic theory, econometrics, statistics, differential calculus, and linear algebra.

University of Wyoming Economics

Calculus I & II, Statistics, Intermediate Microeconomic and Macroeconomic Theory; Linear Algebra

WA State

Applicants must have completed a minimum of one course each and be proficient in calculus, statistics, and intermediate-level microeconomic theory.

Iowa State Economics

High grades in math/statistics courses including calculus, linear algebra, probability theory, and statistics with a calculus emphasis. Preferred: One or more math courses emphasizing logic and proofs (e.g. real analysis, abstract algebra, topology, etc.)

High grades in economics courses including economic principles, intermediate microeconomics and macroeconomics, econometrics, and economics field courses (e.g. international economics, public finance, industrial organization, etc. Applicants are not automatically disqualified if they fall short in one or two areas. Likewise, applicants are not guaranteed admission even if they meet all of the criteria.

Rutgers

Some previous study of economics, including at least intermediate-level courses in microeconomics and macroeconomics is essential, but students need not have majored in economics. We are less concerned with the number of economics courses an applicant has taken than with his or her demonstrated ability to excel in demanding analytical courses and to become an innovative researcher. Training in mathematics and quantitative methods is necessary for graduate economics work. A semester of undergraduate statistics, a year of college-level calculus (differential and integral), and a semester of linear algebra are required. Additional background in math and econometrics is very helpful.

University of Texas

You should have at least twelve semester hours of upper-division courses in economics, including three semester hours each of microeconomic and macroeconomic theory at the intermediate or higher level. You'll need a firm grounding in differential and integral calculus (with an emphasis on proofs), matrix algebra, and probability theory. You should also have some exposure to advanced calculus, real analysis, and topology. Strong mathematical preparation is absolutely essential for success in our graduate program. Many of our admitted applicants have degrees in math and engineering, and many who have degrees in Economics have minored in math. Applicants with otherwise excellent academic records but whose math backgrounds are deficient will be at a distinct disadvantage.