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

Part I: Cover Page

Name of Degree or Certificate Program	Degree Level (Certificate, Associate, Bachelors, Master's, etc.)
Economics	PhD

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: 12/7/16

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:

In 2015-16, the department made a number of changes based on results and discussions from previous assessment cycles. The biggest changes were:

- Reducing the number of credits for MA Plan II from 32 to 30. This is important as most of our students earn an MA enroute and this effectively reduces the number of credits required for the PhD by 3 credits for these students.
- Specifying a recommended sequence of study such that students are finishing their coursework in year 3. This change was made so as to ensure students have more time to work on their dissertation, thus improving the quality of the dissertation and reducing the time to degree.

• Clarification of factors used in ranking students for funding, including stating that the research requirement should be completed by the third year. Having students complete this by the third year provides them with more research experience as they enter the dissertation stage and limits distractions from dissertation work.

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 develop a solid	By the end of the program,	Knowledge
understanding of economic	students can explain and	_X Skills
theories, methods, and	manipulate economic models	Responsibility
specialized knowledge in field	(A1)	
that will prepare them for		
professional careers.		

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

Measure #1: Comprehensive Exam in Micro and Macro Theory [DIRECT].

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.

Measure #2: Research Paper Departmental Seminar [DIRECT].

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).

Measure #3: Doctoral Dissertation Defense [DIRECT].

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). It would be expected that a dissertation 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 micro and macro components at PhD level Measure #2: Average score is "good" or better Measure #3: Average score is "good" or better

Sampled Population:

Measure #1: Comprehensive Exam in Micro and Macro Theory.

92 macroeconomics exams and 94 microeconomics exams by all second PhD students from August 2009- August 2016. These exams capture both first and potential second attempts on the exam. All PhD students must take the exam at the end of their first year; if they do not pass, they get a second attempt in January of their second year.

Measure #2: Research Paper Departmental Seminar

24 research requirement papers presented at departmental seminars by PhD students from August 2010- August 2016. This represents all students (with 2 cases of missing data) that had reached this step in the research requirement during this timeframe. In early years, there was no specific time by which they had to complete the exam. More recently, this is a 3rd year requirement.

Measure #3: Doctoral Dissertation Defense

30 dissertation defenses by PhD students at end of program from August 2008- August 2016. This represents all students who defended their dissertation in this time period.

Results:

Measure #1: Comprehensive Exam in Micro and Macro Theory.

passage rates of compr	ehensi	ve exa	ms		Ma	croeco	nomics co	mponent			
	2009	2010	2011	2012	2013	2014	Jan '15	Aug '15	Jan '16	Aug '16	2009-16
Number taking	15	15	6	6	6	13	2	7	0	13	92
Daggad at DhD	8	9	5	5	3	10	1	7	0	6	54
rassed at fill	53%	60%	56%	56%	33%	77%	50%	100%		46%	59%
Danced at MA laval	4	4	3	2	3	0	0	0	0	5	16
T ASSEU AL IVIA IEVEL	27%	27%	33%	22%	33%	0%	0%	0%		38%	17%
Encloy at both lours	3	2	1	2	3	3	1	0	0	2	17
Talled at DOMI TEVELS	20%	13%	11%	22%	33%	23%	50%	0%		15%	18%

					Mie	croecor	nomics cor	nponent			
	2009	2010	2011	2012	2013	2014	Jan '15	Aug '15	Jan '16	Aug '16	2009-16
Number taking	16	15	11	6	12	6	2	7	0	13	94
Decord of DAD	8	6	7	4	6	7	0	7	0	8	53
r asseu at r iid	50%	40%	64%	44%	50%	78%	0%	100%		62%	56%
Decord of MA loval	1	4	1	3	4	0	0	0	0	5	18
rasseu al IVIA IEVEI	6%	27%	9%	33%	33%	0%	0%	0%		38%	19%
Enilad at hath lavala	7	5	3	2	2	2	2	0	0	0	23
Tarred at DOM TEVETS	44%	33%	27%	22%	17%	22%	100%	0%		0%	24%

d of the pro	ogram, s	students	can exp "	lain and	manipul	ate econo	mic mode	els): Eval	uation
ment depa	rtmenta	ul semina	r						
2011-12	201	2-13	2013	3-14 ^a	2014	-15 ^a	2015	-16	2010- 16
2		4		4	4		6		24
g Std Dev	Avg	Std Dev	Avg	Std Dev	Avg	Std Dev	Avg	Std Dev	Avg
4 0.47	3.74	0.69	3.57	0.61	4.08	0.04	4.19	0.30	3.83
	ment depai 2011-12 2 2 Std Dev Dev	d of the program, ment departments 2011-12 201 2 2 Std Avg Dev Avg	d of the program, students ment departmental semina 2011-12 2012-13 2 2 4 2 3td Avg Std Dev Avg Dev	d of the program, students can exp ment departmental seminar 2011-12 2012-13 2013 2 4 4 2 4 4 3 Std Avg Std Dev Avg Dev Avg	d of the program, students can explain and ment departmental seminar 2011-12 2012-13 2013-14 a 2 4 4 2 4 4 B Std Avg Std Dev Avg Dev Avg Dev	d of the program, students can explain and manipul: ment departmental seminar 2011-12 2012-13 2013-14 a 2014 2 4 4 4 4 2 4 4 4 4 3 Std Avg Std Avg Avg Dev Avg Dev Avg Avg Avg	d of the program, students can explain and manipulate econo ment departmental seminar 2011-12 2012-13 2013-14 a 2014-15 a 2 4 4 4 4 2 4 4 4 4 3 Std Avg Std Avg Std Dev Avg Dev Avg Dev Avg Dev	d of the program, students can explain and manipulate economic mode ment departmental seminar 2011-12 2012-13 2013-14 a 2014-15 a 2015 2 4 4 4 4 6 2 4 4 4 6 3 Std Avg Std Avg Std Avg Avg 9 Std Avg Dev Avg Std Avg Avg Avg	d of the program, students can explain and manipulate economic models): Eval ment departmental seminar $2012-13$ $2013-14^{a}$ $2014-15^{a}$ $2015-16$ $211-12$ $2012-13$ $2013-14^{a}$ $2014-15^{a}$ $2015-16$ 2 4 4 4 4 6 2 4 4 4 6 2 4 4 4 6 2 4 4 4 6 2 4 4 4 6 2 4 4 4 6 2 4 4 4 6 2 4 4 4 6 2 4 4 4 4 6 2 4 4 4 4 6 6 2 4 4 4 4 6 6 6 2 4 4 4 4 6

Measure #2: Research Paper Departmental Seminar

^a 1 observations missing

Measure #3: Doctoral Dissertation Defense

SLO A1 (Stu	idents	explain	and m	anipula	ite com	plex ec	conomi	c mode	els): Ev	aluatio	on of di	ssertati	ons	
2008-09	200	9-10	201	0-11	201	1-12	2012	2-13	2013	3-14	2014	-2015		201
4		2		2	(5	7	4	7	+		0		(1)
Avg Std Dev	Avg	Std Dev	Avg	Std Dev	Avg	Std Dev	Avg	Std Dev	Avg	Std Dev	Avg	Std Dev	Avg	
Substance														
4.08 1.18	3.13	0.53	4.25	0.35	4.33	0.49	3.67	0.39	4.36	0.33	4.39	0.29	4.71	
Methodolog	y													
4.33 1.15	3.5	0.7	4.4	0.53	4.45	0.53	3.83	0.34	4.77	0.16	4.32	0.14	4.5	
Evaluation of)f Worl	k as a V	Vhole											
4.17 1.23	3.1	0.53	4.25	0.35	4.35	0.51	3.5	0.47	4.43	0.51	4.43	0.15	4.29	

Analysis/Faculty Discussion:

Measure #1: *Comprehensive Exam in Micro and Macro Theory.*

The August 2016 results show that 46% passed the Macroeconomics exam at the PhD level and 62% passed the Microeconomics exam at the PhD level. The Macroeconomics result is slightly below the departmentally defined criteria for success (50%) while the Microeconomics result achieves the criteria. From 2009-16 the averages were 59% and 56% respectively.

At our faculty meeting discussing the exam results, several observations were made.

- Because of the relatively high passage rates at the MA level and the fact that students are only required to pass one of the exams at the MA level to receive a Masters, all students in the cohort earned at least an MA. This leaves all students who did not pass at the PhD the opportunity to exit the program after 1.5 years in the program. Furthermore the students who do not pass the exams at the PhD level on the second attempt this next January will have received this information after just 1.5 years in the program. Both of these are significant positive results that reflect changes based on previous assessment cycles. In previous years, we were concerned both about students that left without an MA and students spending 2 years in the program without learning whether they would be able to move forward with a PhD. As a result, the faculty revised the Graduate Handbook to allow the core exam to be given twice a year, rather than once a year. This was initiated in January 2015 and we are seeing the benefits of these revisions this year.
- There was discussion of whether the passage rate reflected a particularly challenging exam or the incoming quality of the students. The comprehensive exam committee noted that the exam was comparable to previous year's exams. Faculty who had taught these students reflected on the overall strength of the cohort and noted that on average, this cohort was weaker than the cohorts from the past two years.
- There was discussion about the case of one student who passed the Microeconomics exam at the PhD level but had missed passing the Macroeconomics exam at the PhD level by one point. Faculty asked the examination committee whether this exam was clearly not a PhD Pass, as this one point made the difference on whether the student could advance in the program. The committee explained that it had gone back and evaluated this exam and that it clearly was not a PhD pass.

Measure #2: Research Paper Departmental Seminar

The evaluation from Committee on Study faculty show that on average, in 2015-16, faculty evaluated student's work on this criteria as very good, exceeding the criteria of "good". The average score in 2015-16 shows a continued trajectory of improvement. Over the entire time period of 2010-16, the average was 3.83.

A notable result is the number of students presenting in 2015-16 (n=6). As noted

in last year's report, there has been a significant push by the Graduate Committee to have PhD students complete their Research Requirement paper by the middle of the third year. This is the reflection of multiple assessment years where we observed that students were often completing the paper at the end of their dissertation, effectively meaning they were completing a fourth dissertation paper, rather than earlier in the program where they can benefit from: learning how to conduct and write-up research in collaboration with a faculty member, earn an early publication that can be on their CV when they enter the job-market, and encouraging early mentorship from a faculty member. The improvement in when students present their research requirement paper has been encouraged by annual communication with graduate students during their annual cohort meetings and better advisement of graduate students in year 2. These expectations were formalized last year when the Graduate Handbook was revised to identify timely completion of the Research Requirement paper as a criteria used in funding decisions.

Measure #3: Doctoral Dissertation Defense

The results show that on average, in 2045-16, dissertation committees evaluated the substance and methodology as "excellent" and overall work as "very good". Thus, the criteria for success was met. The 2015-16 results are slightly higher than the overall average. Overall, we conclude that students who complete the PhD are able to explain and manipulate economic models.

Recommendations for Improvement/Changes:

- Overall, students seem to be able to manipulate and explain economic models. There is strong evidence of this at the end of the first year and at the time of their research requirement departmental seminar. Faculty should consider whether we have an additional form that asks 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.
- In terms of continuing to improve the number of students completing their research requirement in the desired timeframe, additional work needs to be done on the faculty side. Specifically, faculty should understand the distinction between a Research Requirement paper and dissertation paper and be helping students identify a paper that can be completed (and submitted for publication) within 1.5 years. This will be done via faculty meetings during the Graduate Director update.

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 use appropriate econometrics to explore economic issues and test hypotheses. (A2)	Knowledge X_ Skills Responsibility

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

Measure #1: Field Exam in Econometrics [DIRECT].

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.

Measure #2: Research Paper Departmental Seminar [DIRECT].

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).

Performance Benchmark:

Measure #1: 80% pass exam Measure #2: Average score is "good" or better

Sampled Population:

Measure #1: *Field Exam in Econometrics*

40 exams by second or third-year PhD students from August 2009- January 2015. All PhD students must take this exam after successful completion of their comprehensive exam.

Measure #2: Research Paper Departmental Seminar

18 research requirement papers presented at departmental seminars by PhD students in 3^{rd} year and beyond from August 2010- August 2015. This represents all students (with 2 cases of missing data) that had reached this step in the research requirement during this timeframe. In early years, there was no specific time by which they had to complete the exam. More recently, this is a 3^{rd} year requirement.

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Measure #1: Field Exam in Econometrics

SLO B1 (Students use appropriate econometrics to explore economic issues and test hypotheses): Evidence from passage rate of econometrics exam

January H	Exam								
	2009	2010	2011	2012	2013	2014	2015	2016	2009-16: Jan
Number taking	3	10	6	6	4	6	7	7	42
PhD	1	6	б	4	3	6	6	7	35
pass	33%	90%	83%	67%	75%	100%	86%	100%	83%
MA	0	1	0	2	—	0	<u> </u>	0	4
pass	0%	10%	0%	33%	25%	0%	14%	0%	10%
Foil	2	0	1	0	0	0	0	0	3
1° a 11	67%	0%	17%	0%	0%	0%	0%	0%	7%
August E	xam								

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	2009	2010	2011	2012	2013	2014	2015
Number taking	1	1	1	2	0	0	1
PhD	1	1	0	2			1
pass	100%	100%	0%	100%			100%
MA	0	0	1	0			0
pass	0%	0%	100%	0%			0%
Foil	0	0	0	0			0
ган	0%	0%	0%	0%			0%

%0	0	17%	1	83%	5	6	2009-16: Aug
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Measure #2:
Research
Paper
Departmental Se
eminar

3.97	Avg	3	2010-11	SLO E Evalua	
0.66	Std Dev			0-11	81 (Stude ation of r
3.92	Avg		20	ents uso esearc	
0.59	Std Dev	11-12 2	1-12	e approp h require	
4.11	Avg		201	riate ec ement d	
0.70	Std Dev	4	2-13	onometr lepartmo	
4.42	Avg		201	ics to ex ental ser	
0.22	Std Dev	3	3-14 ^a	kplore ec ninar	
4.36	Avg			2014	onomic is
0.04	Std Dev	4	-15 ^a	sues and	
4.31	Avg	-	201	test hype	
0.48	Std Dev	5,	5-16	otheses):	
4.22	Avg	22	2010- 16		

^a 1 observation missing

Analysis/Faculty Discussion:

Measure #1: Field Exam in Econometrics

The 2015-16 results are very strong. January results typically are for first time test-takers while August results are typically for those re-taking the exam. In the last test period, 100% of first-time test takers passed the exam at the PhD level. On average, 83% of first time test-takers passed the exam. This result is not unexpected given that this was a particularly strong cohort that also had a 100% passage rate on the comprehensive exam.

Measure #2: Research Paper Departmental Seminar

The evaluation from faculty attending the seminar shows that on average, this past year, faculty evaluated student's work on this criteria as "very good".

Recommendations for Improvement/Changes:

- Overall, students seem to be able to use appropriate econometrics to explore economic issues and test hypotheses. There is strong evidence of this at the middle of the second year and at the time of the research requirement departmental seminar.
- Faculty should consider whether we want to evaluate econometric knowledge in dissertations, using an explicitly worded question.

Appendix 1 – Evidence of changes in response to previous assessment results

Attached are tracked changes that show specific changes made to the graduate handbook, which resulted from assessment discussions and explanatory memo.

To: Economics Faculty

From: Graduate Committee (A. Bohara, S. McDermott, J. Thacher, D. van der Goes) Re: Proposed changes to handbook to reduce time to degree

Background:

The departmental 2014 PhD assessment report showed that for students admitted 2005-2009, the average time to completion was 6.1 years, with a minimum of 4 years and a maximum of nine years. The graduate committee is concerned that taking coursework beyond required 48 credit hours, unless the course is directly applicable to the dissertation, slows down dissertation progress, extending the time to degree and resulting in lower job placements.

At the same time, Arts and Sciences requires a minimum enrollment of six graduate students in order for a course to be offered. Irregular offerings of field courses clearly has a detrimental impact on time to degree. Thus, any desire to reduce the number of courses taken by PhD students must be balanced against the need for Economics courses to meet minimum enrollment requirements.

In 2015, after a comparison with peer universities, UNM reduced the number of credit hours required for a Plan II (Examination) MA from 32 to 30 credit hours. Each department can decide whether to reduce to 30 credit hours or maintain the current 32. Changing the hours required for an MA strong has implications for the PhD program and time to degree. The table below illustrates this.

Under the current 32 hour requirement, a student who wishes to earn an MA enroute must do the following:

- 1. Earn at least 32 course credit hours for the MA +
- 2. Earn an additional 18 credits post-MA
- 3. Earn at least 48 hours total

	Current system		Proposed system	
Semester	# of credits	Additional	# of credits	Additional
	counted	credits counted	counted	credits counted
	towards MA	towards PhD	towards MA	towards PhD
F1	12	1	12	1
S1	9		9	
F2	9		9	
S2	3	6		9
F3		6		6
S3		6		3
Total	33	19	30	19
Total credits	52		49	
taken				

As the table above illustrates, because of the credit hours associated with our courses, a PhD student earning an MA enroute will earn 33 credit hours for the MA and 19

additional hours for the PhD, thus accumulating a total of 52 credit hours. Thus, under the current system, a PhD student is effectively taking one more class (of 3 credit hours) than is really needed for the 48 hour requirement. Under the proposed 30 hour MA, requirement (1) will change to 30 hours and the other requirements will remain to the same. As the table below illustrates, because of the credit hours associated with our courses, a PhD student earning an MA enroute will earn 30 credit hours for the MA and 19 additional hours for the PhD, thus accumulating a total of 49 credit hours. Thus, reducing the required MA credits to 30 reduces required PhD coursework by one threecredit course.

After many discussions and simulation of a number of scenarios that considered various cohort sizes, distributions across fields, and various rules on coursework, the graduate committee makes the following recommendations.

Major Recommendations:

- 1. The department should reduce the number of credit hours required for MA Plan II (Examination) from 32 to 30.
- 2. The department should follow the general recommended sequence of study is shown below. The major changes are no coursework in years 4 and 5 and minimization of coursework in year 3.

Year	Fall	Spring	Other milestones during
			year
1	595, 501, 504, 506,	513, 514, 509	Core Exam (Aug)
	508		
2	510, Major, Minor	Major, Minor, Wildcard	Econometrics Exam
	-		(Jan)
3	Major, Wildcard	Wildcard, Dissertation Hours	Research requirement
4	Dissertation Hours	Dissertation Hours	Dissertation proposal
			(Fall)
			Job market paper
			(Summer)
5	Dissertation Hours	Dissertation Hours	Graduation

3. Coursework outside the department should not count towards satisfaction of the 48 hours.

Rationale:

Reducing the MA Plan II to 30 hours means that students will not have to take an additional course (beyond required PhD course credits) in order to earn an MA enroute.

By limiting coursework in year 3, students will be able to finalize their research requirement in year 3 and begin their dissertation. No coursework in years 4 and 5 mean that students can focus on their dissertation and later job search.

While the graduate committee sees the value of outside courses, the reality is that our own courses need to make. Limiting the amount of coursework while ensuring that our

own classes still make requires the restriction that any outside coursework must be above the 48 credit hours.

Proposal:

The attached handbook shows all the proposed edits, via track changes. In brief, the edits do the following:

- Implement recommendations 1-3
- Clarify the independent studies policy to make clear that IS can only be counted towards required credit hours if graduate courses in the student's field are not offered in a timely manner or there are extenuating circumstances. Clarify the petition process for approval of an independent study for course credit requirements.
- Clean up language in handbook regarding financial support to be consistent with recommendation 2
- Clarification of factors used in ranking students for funding
- Clarification on when students should begin taking dissertation hours and conduct dissertation proposal
- Clean-up of language to be consistent with catalog and department practices (e.g., office space, phones)
- Update ideal timeline for PhD students to be consistent with recommendations 1-2 and to provide more concrete guidance on when they should be doing activities beyond coursework (e.g., research requirement, dissertation proposal, job market materials)
- Clarification on taking topics courses multiple times

Although not a handbook change, the committee will also implement a process of requiring student enrollment in courses, before contracts are issued. Early enrollment will provide more accurate information about expected class enrollment.

Department of Economics Graduate Handbook 2015-2016

I. WELCOME TO THE DEPARTMENT'S GRADUATE PROGRAMS

Welcome to the graduate program of the Department of Economics at the University of New Mexico. The department's faculty and staff wish you the very best for your intellectual growth and development in our program and would like to welcome you into a program with a long tradition of excellence in applied economics.

The department, established in 1917, has a long and distinguished history. In the early days, most of the department's effort was devoted to undergraduate needs. The focus on a strong graduate program began in 1947 with the addition of the Master of Arts in Economics degree. The Doctor of Philosophy in Economics was added in 1966. In the decades since, our graduates have distinguished themselves in research, teaching, private enterprise, and public service.

The purpose of this handbook is to familiarize you with the general structure of the department's graduate program, general university guidelines and requirements, and to provide information on financial support, examinations, facilities, and other items. The handbook obviously cannot anticipate all questions and is considered a "living" document that is continually being revised as changes occur within the department. You should consult with the Academic Advisor, the Department Chair, the Graduate Director, or any faculty member when questions arise.

You should also download a copy of *The University of New Mexico Catalog*, which contains university wide graduate program regulations as well as a summary of our program and general descriptions of our courses. It can be found online on the University's main webpage under the Academics section or directly at: catalog.unm.edu.

The department offers two graduate degrees in economics, the Master of Arts (M.A.) and the Doctor of Philosophy (Ph.D.). The department also participates in a number of interdisciplinary graduate programs, such as Latin American Studies (M.A.) and Water Resources Program (M.W.R.). Details of these other programs are found in the <u>UNM</u> <u>Catalog</u>.

II. THE MASTER OF ARTS DEGREE

I

A. <u>Applicants to the Department of Economics M.A. program</u> must in addition to University requirements, submit current (within the last three years) GRE General Test scores, three letters of recommendation, a resume/curriculum vitae, and a letter of intent. Recommended undergraduate coursework consist of 12 upper division economics hours including one semester each of intermediate micro theory and macro theory. Students are required to have completed one semester of calculus (preferably the equivalent of at least UNM's Math 162 or Math 180). In addition, the Department offers a summer online math/statistics refresher and a one-week math/statistics bootcamp the week prior to the start of Fall semester. All MA students are required to attend. A course in Linear Algebra or Matrices is also strongly recommended.

B. <u>Departmental Requirements</u>. The Department of Economics offers the M.A. degree with specializations in **environmental/natural resource economics, public economics, international development and sustainability, and econometrics**. (PhD students who transfer into the MA program may have a specialization in economic theory.) There are two plans under which you can obtain a master's degree.

M.A.	Plan I (Thesis Option)	M.A. I	Plan II (Examination (No Thesis)
		Option	n
1.	A minimum of 24 hours of approved course work and 6 hours of thesis (599). Courses taken on a Credit/No Credit basis do not count towards the minimum required 24 hours of course work.	1.	A minimum of 302 hours of approved course work. Courses taken on a Credit/No Credit basis do not count towards the minimum required 320 hours of course work.
2.	A minimum of 12 hours of 500- level courses and no more than 6 hours of 300 or 400-level courses.	2.	A minimum of 12 hours of 500-level courses and no more than 6 hours of 300 or 400-level courses.
3.	At least 18 hours completed in residence at UNM.	3.	At least 26 hours completed in residence at UNM
4.	A limit of 6 hours of independent study courses.	4.	A limit of 6 hours of independent study courses.
5.	 Specific requirements: a) Econ 501 b) Econ 506 c) Econ 508 d) Major Field (9 hours) e) Oral masters examination on thesis material. 	5.	 Specific requirements: a) Econ 501 b) Econ 506 c) Econ 508 d) Major Field (9 hours) e) Masters examination in major field.
6.	Prior approval of all courses by the director.	6.	Prior approval of all courses by the director.

A field consists of three courses If a student completes the core theory sequence 501, 506, 513 and/or 514, then a field in theory can be declared for an M.A. degree. (Plan II

students, see also section III.D.) Completion of 508, 509, and 510 (or another allowable course) will comprise a field in econometrics.

C. <u>Independent study courses</u>. Econ 551 and 552 are not normally acceptable for meeting <u>course credit eore or field requirements unless (i) no other</u>_graduate offerings <u>courses</u> are <u>in the student's field are available or (ii) the coursework proposed is an integral part of eompleting the major field requirement. offered in a timely manner or there are <u>extenuating circumstances</u>. In order to insure that proper credit is received, any independent study course proposed to meet a field requirement should be accompanied by a written statement of work to be done, which must then be approved by (i) the faculty member with whom the course is scheduled, <u>(ii) the student's faculty advisor and (iii)</u> the graduate committee, and (iii) where appropriate, a faculty member from the relevant field (normally, the student's faculty advisor). Students taking independent study for elective credit need only obtain the approval of the professor with whom they will take the course. A maximum of six hours of independent study course credit are allowed towards the master's degree.</u>

<u>The petition to the graduate committee must include an explanation of why independent</u> study is being sought as well as the signed approval from the faculty member teaching the course and the faculty advisor.

Students taking independent study for elective credit, beyond the 30 course credits, need only obtain the approval of the professor with whom they will take the course.

D. <u>Program of Studies</u>. A Master's student must file a Program of Studies with the Office of Graduate Studies as soon as he/she has a planned program of studies in consultation with his/her major advisor, but not before the successful completion of 12 hours of course work. The Program of Studies must be filed no later than July 1 for the Fall semester, October 1 for the Spring semester and March 1 for the Summer semester.

E. Examination (No Thesis) Option. Master's students selecting Plan II must pass a written exam in their major field after completing their field courses. The master's student must have filed his or her Program of Studies with the Graduate School and had the Program of Studies approved by the Dean of the Graduate School before sitting for the exam. For more information, see the <u>UNM Catalog</u>.

Examinations will be given twice each year in January and August as follows:

January: M.A. exams; *notification of exam* prior to first Tuesday in November. August: M.A. exams; *notification of exam* prior to first Tuesday in April. Failure to appear for an exam is counted as a failure. Students who are eligible to take an exam and do not sit for the exam will not have the exam counted as one of their attempts. *If for any reason you do not wish to sit for an exam you must petition the graduate committee in writing prior to the deadline that you are requesting a postponement. Failure to show for an exam or not taking an exam when you've met the requirements is defined as not making normal progress.*

The January exams will be scheduled during the week before Spring semester classes

begin; the August exams will be scheduled during the week before Fall semester classes begin. The announcement of exam must be filed at least two weeks before the exam date. Unless specifically exempted by the graduate committee a student must have successfully completed (*no incompletes, a GPA of 3.00 or better for the relevant courses, and no grades below B- in any of the required courses*) all the relevant courses in order to take a particular exam.

The master's examination may be taken only twice. A second failure will result in the student's termination from the program.

F. <u>Thesis Option</u>. Students who choose the thesis option will select a thesis committee consisting of three members of the faculty. This committee will advise and guide the student in her/his efforts to develop and conduct thesis research. The student should consult the UNM Catalog for university rules and requirements for the M.A. thesis.

G. <u>Graduation</u>. Students must inform the department in writing of their intent to graduate by October 1 for Fall graduation, March 1 for Spring, or July 1 for Summer.

III. THE DOCTOR OF PHILOSOPHY DEGREE

The Doctor of Philosophy degree, the PhD, is described in the <u>UNM Catalog</u> as: The doctorate is a degree representing broad scholarly attainments, a deep grasp of a field of study, and expertise in conceiving, conducting, and reporting individual research. As such, its attainment is no mere matter of meeting requirements. Those requirements ... should be viewed only as a minimal formal context in which the student is expected to grow to the professional stature denoted by the doctoral degree 1

The student contemplating the pursuit of the doctorate should give serious consideration to the Graduate School's description of the substance of the doctorate. The student makes the commitment to seek knowledge; thus course work is only a small part of the student's growth to obtain "...the professional stature denoted by the doctoral degree." Work in the classroom guides the student through the paradigms that are fundamental to economic inquiry and prepares the student for her/his quest for knowledge that comes through reading and questioning. Intellectual inquisitiveness and motivation are indispensable traits of the doctoral student.

A. <u>Successful applicants to the Department of Economics doctoral program</u> must in addition to University requirements, submit current (within the last three years) GRE General Test scores, three letters of recommendation, a resume/curriculum vitae and a letter of intent. Recommended undergraduate coursework consist of 12 upper division economics hours including one semester each of intermediate micro theory and macro theory. Students are required to have completed one semester of calculus (preferably the equivalent of at least UNM's Math 162 or Math 180). In addition, the Department offers an online summer math/statistics refresher and a one-week math/statistics bootcamp the week prior to the start of Fall semester. All Ph.D. students are required to take this course. A course in Linear Algebra or Matrices, and additional math coursework, and a course in econometrics is are also strongly recommended (e.g., MATH 314 or MATH 321).

B. Application for Candidacy.

Admission to graduate school does not imply admission to candidacy for the Ph.D. An "Application for Doctoral Candidacy" must be filed with the Office of Graduate Studies during the semester in which the student has successfully passed his/her doctoral comprehensive examination, which is the core theory examination in economics, and no later than the semester before he/she wishes to graduate. Pursuant to the <u>UNM Catalog</u>, after determining that all requirements except for outstanding course work and the dissertation have been fulfilled, the Dean of Graduate Studies will advance the student to candidacy.

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University of New Mexico Catalog 20072014-201508, p. 82

C. Departmental Requirements.

A minimum of 48 credit hours of course work at the graduate level (with no more than 6 hours of approved 300 and 400-level courses) is required. Courses taken under a Credit/No Credit option do not count towards the required 48 hours of course work. Also, a minimum of 18 hours of dissertation credit (ECON 699) is required. A student may not count dissertation hours towards the 18 required hours until after the successful completion of the core examination. In addition to the core curriculum requirements, all doctoral students must successfully complete a major area of study consisting of at least nine (9) hours of approved economics courses. All doctoral students must pass the core theory exam, a written exam in econometrics, and a research requirement in their major area of study.

D. Core curriculum.

All Ph.D. students are required to complete a theory sequence and three core courses in statistics and econometrics, which gives the student a second field of specialization (the requirements for a student's major field requirements are discussed in Section E, below). The basic sequencing of the core curriculum consists of the following courses:

Semester	Required Courses
Fall (Year 1)	595: Math Bootcamp (week prior to Fall semester) 501: Microeconomics I 504: Mathematical Tools and Economic Models 506: Macroeconomics I 508: Statistics and Introduction to Econometrics
Spring (Year 1)	513: Microeconomics II 514: Macroeconomics II 509: Econometrics I
Fall (Year 2)	510: Econometrics II

As part of their core curriculum all Ph.D. students are also required to take at least one 500-level economics course that is not within the micro or macro curriculum, the econometrics curriculum, and is outside his or her major or minor field areas. This course should be taken as a candidate's schedule permits.

E. Fields of Specialization.

Students are required to have a Major Field in which they have successfully completed three courses (9 credit hours of study) at the 500-level. As discussed above, the core requirements in econometrics will give the student a second Major Field in econometrics. In addition to completing the Major Field requirements, students must also take two additional courses (6 credit hours of study) at the 500-level in a *separate area* to complete a Minor Field. There are also 'wildcard' courses which students can augment their education. Full-time students are expected to take a major and minor course in Fall of year 2 and major, minor, and Economics wildcard course in Fall of year 3 and an Economics wildcard course in Spring of Year 3. Students are not required to take coursework in year 4 or beyond, unless it is considered advantageous for their research.

The department offers Ph.D. fields in three areas:

- Environmental/Natural Resource Economics
- Public Economics

•

• International Development and Sustainability

The courses available in each field are:

<u>Field</u>	Courses Offered
Environmental/Natural Resource Economics	 540: Natural Resource, Environmental, and Ecological Modeling I 542: Topics in Environmental, Resource, and Ecological Economics* 543: Natural Resource Environmental, and Ecological Modeling II 544: Environmental Economics
Public Economics	560: Public Economics <u>**</u> 564: Topics in Health Economics <u>*</u> 565: Topics in Public and Labor Economics <u>*</u> 533: Seminar In Industrial Organization <u>*</u>
International Development and Sustainability	585: Sustainable Development 581: International Development and Finance 582: Topics in International and Sustainable Development* 583: Development Economics 585: Sustainable Development

* These Ttopics courses may be repeated for credit toward the degree, but only three

credits of any given topics course may be counted toward the major. **ECON 560 is required for a Major or Minor Field in Public Economics.

F. Independent study courses

(Econ 551, 552) are not normally acceptable for meeting <u>core or field</u>course credit requirements unless <u>no graduate courses in the student's field are offered in a timely</u> <u>manner or there are extenuating circumstances</u>. Independent studies in support of the research requirement are not appropriate for meeting the 48 course credit requirement.(i) no other graduate offerings are available, or (ii) the course proposed is an integral part of completing the major field requirement.

In order to insure that proper credit is received, any independent study course proposed to meet a fieldcourse credit requirement should be accompanied by a written statement of work to be done, which must then be approved by (i) the faculty member with whom the course is scheduled, (ii) the graduate committee, and (iii) where appropriate, a faculty member from the relevant field (normally, the student's faculty advisor). The petition to the graduate committee must include an explanation of why independent study is being sought as well as the signed approval from the faculty member teaching the course and the faculty advisor.

Students taking independent study for elective credit, <u>beyond the 48 course credits</u>, need only obtain the approval of the professor with whom they will take the course. A maximum of six hours of independent study course credit is allowed towards the Ph. D. degree.

G. Courses outside the department

The department recognizes that taking coursework outside the department strongly benefit a student's research. However, given current cohort sizes and the need to make field course minimums, all 48 hours of course work must be taken inside the department. A student may take coursework for additional credit outside the department, if approved by his/her advisor.

HG. Examinations.

The Department requires that all Ph.D. students successfully complete two examinations. These exams are to be taken sequentially, in the order listed.

Core Theory Econometrics

In addition, all Ph.D. students must successfully complete a research requirement, discussed in Section H., below.

1) Core Examination. The department's core examination consists of micro and macro

components and is equivalent to the "Doctoral Comprehensive Examination" referred to in the UNM Catalog. As stated in the <u>UNM Catalog;</u>

"This examination, which may be written, oral, or both, is not limited to the areas of the student's course work, but tests the student's grasp of the field as a whole."

Thus, this examination is not limited to the student's course work, but tests her/his grasp of economics as a whole. Questions require the student to demonstrate a superior grasp of the theory and the tools in micro and macro economics. The student's performance on such questions is evaluated by the manner in which the student approaches the problem and the student's demonstration of her/his grasp of the economic concepts.

Unless specifically exempted by the graduate committee, a student must have successfully completed (*with no incompletes, a GPA of 3.00 or better for the relevant courses, and no grades below B- in any of the required courses.*) all the relevant courses in order to be eligible to sit the core examination.

2) <u>Econometrics Examination</u>. The econometrics examination tests the student's knowledge of econometrics, one of the key empirical methodologies in applied economics. The exam is not limited to the student's course work but tests her/his grasp of econometric concepts as a whole.

A student must have successfully completed (*with no incompletes, a GPA of 3.00 or better for the relevant courses, and no grades below B- in any of the required courses*) all the relevant courses in order to be eligible to sit the econometrics examination.

3) Examination Policy. The core examinations will be given twice per year, once in August and once in January. The exam will be scheduled during the week before classes begin. January exams are for those who are re-taking the exam.

A student will be given notification of the exam prior to the fourth Tuesday in May (for the August exam) or prior to the fourth Tuesday in December (for the January exam) that they are eligible and have been signed up to sit for the exam. Students must sit for both sections of the core exam at the first opportunity after they have successfully completed the required course work.

The econometrics examination is scheduled two times each year in August and in January. The exams will be given during the week prior to Fall or Spring semester classes beginning.

A student will be given notification of the exam prior to the fourth Tuesday in May (for the August exam) or prior to the fourth Tuesday in December (for the January exam) that they are eligible and have been signed up to sit for the econometrics exam.

Failure to sit for either the core theory or the econometrics examination (without documented, graduate committee approved reason) will be counted as a failure. Students

who are eligible, but do not wish to sit for the exam must successfully petition the graduate committee for a postponement. An excused absence (successful petition to the graduate committee) will not count as an attempt. However, failure to sit for an exam at first eligibility will not constitute normal progress and may jeopardize departmental funding.

4) <u>Examination Attempts</u>. A student will have one opportunity to pass the core theory exam, which is composed of two separate sections: Micro and Macro Theory. A student must sit for both sections and must successfully complete both sections of the exam. If a student does not pass one or both sections of the exam on their initial attempt they can petition for a second attempt at the section(s) they did not pass. If they do not successfully complete the exam either the PhD or the MA level on the petitioned attempt and within one year of their first attempt, they will be dis-enrolled from the graduate program.

The econometrics exam is limited to two tries with students having the right to petition for a third try after a second fail. If they do not successfully complete the exam on the petitioned attempt and within one year of their first attempt, they will be dis-enrolled from the program.

5) <u>Outcomes.</u> In order to pass the Ph.D. core exam the student must pass both the macro and micro sections at the Ph.D. level. There are three possible outcomes on a Ph.D. level exam: pass at the Ph.D. level, fail at the Ph.D. level but pass at the MA level, or fail at both the Ph.D. and MA level.

There are significant differences between the Ph.D. and M.A. exams and a student is required to pass her/his exam at the level of degree desired. For example, if a student takes the M.A. theory exam and continues on to the Ph.D., that student must also take and pass the Ph.D. core exam. This applies to the core theory and the econometrics exams. In addition, an M.A. level exam in any of the specialty field areas (natural resources/environmental, public finance, labor/human resource economics, or international/development economics) will not count as a completion of the research requirement discussed below.

Any student who passes either the macro section or micro section at the M.A. level or better will have satisfied the Plan II examination requirement for the MA degree and may apply for a master's degree at the appropriate time. This is relevant for those students who do not wish to complete a thesis (option I) nor take an M.A. field exam in environmental/natural resource economics, public finance, labor/human resources economics, international/development economics, or econometrics.

6) <u>Examination Format</u>. The Ph.D. core examination is designed to test a student's theoretical knowledge, analytical skill, and the ability to analyze policy issues. The exam will be administered over a one-week period; typically on Monday, Wednesday, and Friday. Exam rules and additional format information will be announced prior to and at the time of the exam.

H. Research Requirement.

Perhaps the most difficult transition for the Ph.D. student is from being a "student" to becoming a "researcher." To that end, the department has a research requirement. The product of the research requirement will be a paper that the student submits for publication to a peer-reviewed economics, or economics-related journal. The paper will be written under the mentorship of the student's Committee on Studies and may or may not be directly related to his/her major field of study. It will not be part of the student's dissertation. The research requirement is fulfilled when the paper is: (1) approved unanimously by the student's Committee on Studies and the Graduate Director or the Department Chair; (2) submitted for publication consideration to an appropriate peer-reviewed journal (approved by the Committee on Studies) and begins the review process (i.e., has been sent to reviewers); and (3) presented as a formal seminar in the Department. The paper does not have to be accepted for publication to fulfill the research requirement.

The student's Committee on Studies must approve the research topic prior to actually conducting the bulk of research (i.e., it may emanate from a class paper, but there must be significant "value added" if the paper is to meet this research requirement). While the research can begin as soon as the student has sufficient background and has the approval of his or her Committee on Studies of the topic, the research requirement cannot be formally fulfilled until all major field courses are successfully completed and both the core and econometrics exams are passed at the Ph.D. level.

The research requirement is not a dissertation paper and should be a compact, doable project. Ideally a student will be working on their research requirement in the summer of their second year. The research requirement should be completed by no later than the end of the third year₂.

I. Normal Progress

Students are expected to successfully complete core course work according to the schedule outlined in section III.D, take the core exam at the first offering following completion of core course work, complete specialty field course work, and complete the research requirement as soon as the opportunity is presented. Any deviation from this schedule does not constitute normal progress and may impact departmental funding.

J. The Ph.D. Dissertation

1) <u>Dissertation Hours</u>. Dissertation hours (Econ 699) may be taken for credit after the student is advanced to candidacy. Normally this occurs after successful completion of the core exam. A full-time student making normal progress should begin enrolling for dissertation hours in Spring of year 3. Once a student enrolls in dissertation hours and has passed the core exam, continuous enrollment is required in subsequent semesters (except for summer session, unless the student is graduating in the summer) until the Dean of

Graduate Students accepts the dissertation.

2) <u>Dissertation Committee</u>. Pursuant to the <u>UNM Catalog</u>, the dissertation committee is charged with the supervision of a doctoral candidate's dissertation activities. The doctoral candidate begins the process by arranging for a qualified faculty member to serve as his/her dissertation chair. This faculty member and the candidate then jointly select the remainder of the committee. An "Appointment of Dissertation Committee" form must be signed by the candidate, the dissertation chair, and the graduate advisor and approved by the Dean of Graduate Studies. The form should be filed no later than the first semester of Econ 699 enrollment.

The committee may or may not consist of the same individuals chosen earlier by the student for a Committee on Studies. Dissertation Committee members chosen by the student are typically those whose areas of interest and expertise parallel the research interests of the student. This committee also plays a major role in guiding the student's research efforts. The student can without prejudice, change the composition of her/his committee to reflect changes in her/his interests or circumstances. In order to change the committee, the student must submit a revised "Appointment of Dissertation Committee" form to the Office of Graduate Studies along with a written rationale for the change. OGS may request additional information as necessary.

As stated in the <u>UNM Catalog</u> the committee will consist of at least four members all of which must be approved by the Dean of Graduate Studies. The stipulations on the committee as stated in the <u>UNM Catalog</u> are as follows.

- A minimum of three committee members must hold tenure or tenure-track positions and must have regular graduate faculty approval.
- At least two of the members must hold tenure or tenure-track faculty appointments at the University of New Mexico and must have regular graduate faculty approval.
- At least one of the members must be from the student's graduate unit and must hold tenure or tenure-track faculty appointments at the University of New Mexico and must have regular graduate faculty approval.
- The dissertation chair must be a tenure or tenure-track faculty member of the University of New Mexico and must have regular graduate faculty approval.
- A required external member must hold a tenure or tenure-track appointment outside the student's unit/department. This member may be from the University of New Mexico (must have regular faculty approval) or from another accredited institution (must be approved by the Dean of Graduate Studies).

• One of the members may be a non-faculty expert in the student's major research area. The student can choose to supplement the minimum committee membership. The <u>UNM</u> <u>Catalog</u> provides further detail in this regard.

3) <u>Dissertation Options</u>. The student may follow the traditional dissertation format or choose to use the <u>three papernon-traditional (hybrid)</u> option. If using the latter option, the dissertation must still conform to Graduate School rules.

4) <u>Dissertation Proposal</u>. In the semester following the successful completion of his/her research requirement (i.e., in Fall of year 4), the student must present a dissertation prospectus to her/his dissertation committee. The dissertation director will specify the nature of this procedure.

5) <u>Dissertation Defense</u>. The doctoral final oral examination is the last formal step before the degree is awarded. The focus of the final examination is the dissertation and its relationship to the candidate's major field. The defense should be scheduled once the student and his or her dissertation chair have agreed that the manuscript is in its final form. The dissertation manuscript must be complete and available in the main office to any faculty 14 days prior to the defense date. The <u>UNM Catalog</u> defines the purposes of the oral examination as 1) a forum to provide the candidate the opportunity to communicate the results of their research to a wider group of scholars, 2) to afford an opportunity for the members of the examination committee, as well as others, to ask relevant questions, 3) to ensure the research reflects the independence of thought and accomplishment of the candidate, rather than excessive dependence on the guidance of a faculty member, and 4) to ensure the candidate is entirely familiar not only with the particular focus of the dissertation but also its setting and relevance to the discipline of which it is a part.

At least two weeks prior to the final oral examination the major graduate unit must notify OGS of its scheduled date by submitting the appropriate announcement form.

Doctoral students must submit their dissertations to the Dean of Graduate Studies within 90 days of their final oral examination. If they do not make this deadline the student must schedule and complete a second oral examination for the dissertation.

K. Graduation

Students must inform the department in writing of their intent to graduate by last day of the term prior to the term of intended graduation. Graduation is dependent not only on the receipt of this notification but also on completion of all degree requirements by November 15 for Fall graduation, April 15 for Spring or July 15 for summer. If the student does not complete all requirements by the deadlines, he/she must notify the department in writing of their intent to graduate in a subsequent semester.

IV. COUNSELING AND ADVISEMENT

All new graduate students must have their first semester course schedule approved by the director of graduate studies. This requirement also applies to all non degree students who plan to apply for admission to graduate school. Second semester course schedules must be similarly approved. After the second semester, the Ph.D. student chooses three faculty members, a chairperson and two additional members to serve on her/his Committee on Studies. This committee (usually the committee chair) assists the student in the preparation of her or his program of studies and the completion of the program of choice. Each graduate student must have her or his curriculum schedule for the upcoming semester signed by the chair of her or his Committee on Studies and the director of graduate studies. This is a precondition for eligibility for financial aid.

In addition to the Committee on Studies and/or the thesis/dissertation committees, the director of graduate studies and the department chair are available to advise and otherwise assist the student. The purpose of this advisement is to ensure the student's timely progress in the program, to assist the student in the development of her/his desired field, and to aid in the timely scheduling of course offerings. To aid in this last purpose, students are requested to submit their proposed course schedule for the next semester for approval as soon as possible. Students will be supplied with the required forms at the appropriate time.

V. DEPARTMENT SEMINARS

The Economics Department provides a seminar series. Seminar speakers may include scholars visiting UNM from other universities and faculty or students from this department who discuss aspects of their ongoing research. Seminars provide students with excellent opportunities to observe applications of theory to real problems. <u>Graduate</u> students are **strongly encouraged** to attend department seminars.

VI. GRIEVANCE PROCEDURES

In the event of any student grievance, the following procedures should be followed (consistent with the Office of Graduate Studies procedures):

The student should first arrange for a meeting with the faculty or administrator involved in the complaint to address the problem and to explore the possibility of a jointly achieved resolution.

If agreement cannot be reached, the student may seek the assistance of the departmental faculty graduate advisor and/or the chairperson in resolving the dispute. If the dispute is with a faculty member in a department different from Economics, the appropriate chairperson or advisor would be in the department in which the faculty member resides or in which the course in which the dispute rose was offered. It is expected that these administrators will play an active part in helping to resolve the disagreement. In the event that the graduate unit involved is non-departmentalized, the student may go directly to the dean or director of that unit for assistance.

If the matter cannot be resolved at the departmental level, the student may bring the problem to the attention of the school or college Dean. The school or college Dean will determine whether to adjudicate the dispute or to refer the student to the Dean of Graduate Studies for a resolution. If the dispute is with a faculty member in a school or college different from the student's, the appropriate dean would be the one in the unit in which the faculty member resides, or in which the dispute course was offered.

VII. FINANCIAL SUPPORT

There are a number of different fellowships and scholarships available on the UNM campus. Information about these sources is available at the Office of Graduate Studies.

The department has several sources of financial support for graduate students: a limited number of graduate assistantships (GA), individual faculty and/or university institutes with research funds to support research assistants (RA), graduate tuition fellowships (tuition waivers for New Mexico residents), and occasionally funds for teaching associates (Part Time Instructor). The department chair and the director of graduate studies can assist in referring students to faculty with research grants. Decisions concerning the appointment of a research assistant reside with the faculty member who is the Principal Investigator for the research grant. The GA stipend received by a graduate student depends on if the award is full-time (20 hours per week), or less, and is normally adjusted on an annual basis. The current stipend levels are available from the main office. Full-time awards also include up to 12 hours of tuition, while half-time awards include 6 hours of tuition. Tuition included in RA awards is determined by the Principal Investigator. Students receiving full time financial aid are required by the department to maintain at least a 9 hour approved course load. Students on half time aid are required to maintain a 6 hour load. Part Time Instructor funding does not normally include tuition.

Financial aid awards in the economics graduate program serve two purposes: (i) to fund the education of quality students who will ultimately become competent professionals in academia or the private or public sector, and (ii) to provide employment opportunities for graduate students to assist in meeting the educational and research goals of the department. These services also constitute an important part of the graduate education and background experience.

It is conceivable that these goals can conflict, and it is the student's responsibility to anticipate potential conflicts and avoid them through appropriate time budgeting. In the event of an unanticipated, unavoidable conflict, the student's first responsibility is to her/his academic responsibilities (e.g., a student should never cut a class to proctor an exam). These situations can usually be avoided with proper planning and discussions with involved faculty members.

New students applying for graduate assistantships are ranked on the basis of Graduate Record Examination (GRE) scores, undergraduate record (GPA) in economics, mathematics and statistics, the department's assessment of the overall record, and the program fit. These awards may be made for a 9 month period, but in most cases awards will be for only one semester with renewal consideration each subsequent semester. In

addition, stipulations may sometimes be added to the contract so that renewal is conditional on specified aspects of student performance. <u>In any case, renewal of the contract is not automatic</u>. At the end of the contract period, the graduate committee evaluates each student's progress and all students requesting funding are ranked. From these rankings, the graduate committee makes contract renewal decisions. The renewal decision is based on the relative ranking of students who have applied for aid. Rankings will be based on all possible evidence, which includes, but is not restricted to, the following:

Maintaining full time status in the program

- 1. Maintaining full time status in the program
- 2. Course work performance.
- 3. Performance on core exam and econometrics exam and adherence to expected timeline
- Progress on research requirement and adherence to expected timeline. Indicators include completion of committee on studies form, giving departmental seminar, sending paper out for review.
- 5. Progress on dissertation. Indicators include completion of dissertation committee paperwork, completion of dissertation proposal, and chair-signed progress reports
- 6. Attendance at seminars
- . GA/RA assessment by assigned faculty member.
- +.<u>8.Teaching performance as indicated by IDEAteaching evaluation scores and the</u> assigned faculty member's assessment of the student.
- a minimum of 9 approved credit hours per semester. This must include at least one graduate level economics course, not including an independent study or dissertation hours.

2. Course work performance typically, the committee looks for a GPA of approximately 3.67 where emphasis is placed on performance in core courses

3. Involvement in graduate activities attendance at seminars, etc.

- Teaching performance as indicated by IDEA scores and the assigned faculty member's assessment of the student.
- 5. Maintaining the appropriate timeline on the core theory and econometries exam attempts, the performance on those exams, and timely completion of the research requirement. Failure to sit for an exam at the first available time does not constitute normal progress and may result in immediate loss of departmental support through Graduate or Teaching Assistantships. Students who do not successfully complete the exam at the Ph.D. level may still be considered for departmental funding if they petition for a second attempt. Students who fail the exam on their (petitioned) second and final attempt will automatically lose their funding. The same requirements apply to students taking the econometries exam.

Progress on dissertation research.

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The above criteria are weighted differently, depending on the student's time in the program.

The above criteria constitute the determinants of what is referred to as <u>normal progress</u>. However, circumstances may differ from student to student, and the graduate committee will evaluate each student's situation independently. In addition, financial support is dependent on the availability of funds.

-Specific guidelines as to limitations on GA funding are as follows:

- Any baccalaureate student entering the M.A. program has a maximum of the equivalent of four semesters of full time financial aid (80 support hours).
- Any baccalaureate student entering the Ph.D. program has a maximum of the equivalent of eight semesters of full time financial aid (160 support hours).
- There is a maximum of eight semesters of financial aid available to any Ph.D. student. Students switching from the M.A. program to the Ph.D. program would benefit from making that decision early.
- Any transfer student entering the program will have maximum limits on financial aid determined by her/his status and merit as of the time of admission to the graduate program.

A student is not eligible for GA aid past the maximums stipulated in 1 and 2. In order to receive additional funding, a student must petition the department chair for a part time instructor position or a principal investigator for an RA position.

VIII. FACILITIES

A. Assigned Office Space

Desks and office space are provided for students with graduate or research assistantships for work and study only. We strive to provide office space for all students. Office space is assigned to students at the beginning of the fall semester. Assignments are made after consideration of a number of factors, including such things as the student's proximity to her/his assigned faculty member. Changes in specific office assignments require the approval of the department chair. Office assignments are for the period of the financial assistantship and do not automatically extend into the summer term, although a student may request such extension. Priority for assigned office space during the summer is given to students working as research assistants.

B. Exam Preparation

The department staff will type and duplicate tests, quizzes, and teaching materials for GAs and TAs. These materials should be given to the department administrator at least one week before they are needed. Services of department staff are not available to students for materials unrelated to teaching duties.

C. <u>Telephones</u>

Incoming calls may be received, and local calls may be made from telephones in assigned office spaces. Long distance calls (including FAX) may not be made without the departmental chair's approval. Abuse of telephone privileges may result in loss of assigned office space.

D. <u>Copying</u>

To copy teaching related materials, the student needs permission to use the account number of the faculty member for whom he/she is working. Copies are charged against the faculty member's monthly allotment of "free" copies. For photocopies of all other materials, the graduate student should use equipment in the library or elsewhere on or off campus.

E. Computers

In addition to mainframe computers, there are many personal computer pods on campus. The computer classroom in the economics building (where some econometrics classes meet) allows access to both mainframe and PC based statistical software.

In addition, the department has a computer lab that houses a network of personal computers. This lab, funded in part by a National Science Foundation Equipment grant, is used to conduct research in experimental economics.

IX. JOB PLACEMENT

Job placement boards are located near the main office. Students may also consult the publication <u>Job Openings for Economists</u> published by the American Economic Association. Students seeking employment should also inform the department chair and director of graduate studies of their job interests.

The UNM Career Counseling and Placement Office (CC&P) offers career/vocational counseling and testing, and placement services. This is available on a group or individual basis. CC&P also maintains a Career Resource Library with information about occupations, job search techniques, job announcements, and information about employers. While there are service fees charged, there is no counseling fee for full time students.

Prior to completion of dissertations, Ph.D. students may want to attend the annual meetings of the American Economic Association, held in January. Students should, in the spring semester prior to the academic year in which they intend to graduate, discuss with their faculty advisors any plans for entering the AEA job market. Students should begin preparing for the job market by the end of their first year. Initial decisions should include the type of job the student will seek and then determine the best plan of action to achieve the goal. In order to succeed, a student with academic aspirations must begin the process early.

X. READING AND INDEPENDENT INVESTIGATION

The amount of class time available to professors is limited. This time focuses on students' understanding of theoretical and analytical constructs underlying economic inquiry. These "tools" of your trade are the primary requisites for your ability to move beyond the classroom to independent reading and investigation.

To further enrich your knowledge, develop your own reading list of areas in which you feel you need further development. Some professors offer reading lists or make themselves available to students who request assistance in identifying major works with which the student might wish to become familiar.

When you were an undergraduate, your study may have been limited to topics assigned by your instructor. Reading beyond the text might also have been limited to specific assignments. A text will typically contain basic theory sections as well as other sections, which extend theories to applicable fields. For example, virtually any microeconomics text will have chapters on "Welfare Economics" and "Decision Making Under Uncertainty." It is the student's responsibility to make sure these topics are understood, whether or not they are discussed in class. Ultimately, it is the student's responsibility to acquire a firm grasp of economic theory and tools.

It is particularly important that the student be capable of <u>applying</u> the theoretical and analytical tools learned in the classroom. This capability is developed in a number of ways. To begin with, in the classroom you look beyond the mechanics of the analytical tool being discussed to the problems to which this tool is relevant. Second, you do more than simply "attend" seminars; you become critically aware of (i) the problem, (ii) the manner in which the speaker brings economics to bear on this problem, and (iii) discussions of the strengths and limitations of the speaker's approaches to his or her problem. Third, discussions and debate concerning economic issues are omnipresent on television, in newspapers and magazines. You should be aware of the economic world surrounding you. Fourth, there are many books that lay out contemporary economic problems and discuss their applications. Finally, there are few activities that can be more productive for your intellectual growth and development than exchange and debate with your fellow graduate students.

XI. ACADEMIC HONESTY

Academic dishonesty is a violation of UNM's Student Code of Conduct. Academic dishonesty, as defined by that Code, includes, but is not limited to:

Dishonesty in quizzes, tests or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or outside the University; and nondisclosure or misrepresentation in filling out applications or other University records.

Confusion has frequently arisen concerning the repeated use of research information for papers assigned in different courses. If you have any questions about multiple uses of research, you should consult the professor(s) involved to ensure the acceptability of your plans. Students must always follow established professional academic and literature standards with respect to citations and originality of research.2

2 "The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty..." from University of New Mexico Faculty Handbook at http://www.unm.edu/~handbook/D10.html.
XII: DEPARTMENTAL AWARDS

The Department is able to award multiple awards each year to outstanding graduate students. These include the Gerald Boyle, Julian S. Duncan, Alfred L. Parker and J. Raymond Stuart Awards.

The J. Raymond Stuart award was established in 1994 to provide deserving graduate students with funds for specific expenses related to their professional development. Examples of possible uses of the award would be to purchase otherwise unavailable data sets, subject fees for experiments, travel to professional meetings for the presentation of a paper, or other purposes necessary for professional development. This is a competitive award and students who wish to be considered must apply. Interested applicants should contact the Department's Academic Advisor for further details and application materials, which will be typically due to the Department by the end of March each year. Recipients of the award are determined by a vote of the entire faculty of the Department. The award is presented during the Department's annual convocation ceremony in May which the recipient is expected to attend.

The Gerald Boyle award, established in 2001, is given each year to an outstanding graduate student whose specialty areas include a field in Public Finance. The purpose of the award is to provide financial support for graduate students to offset such expenses as research activities, intern positions, or other scholarly activities related to their educational experience at UNM. Candidates for the award are nominated by individual faculty members. These nominations should typically occur by the end of March each year. Recipients are selected by a vote of the entire faculty of the Department. The award is presented during the Department's annual convocation ceremony in May which the recipient is expected to attend.

The Julian S. Duncan award in Latin American Economic Studies, established in 2007, was created to encourage promising students of Economics. For those students interested in Latin American development, the award should be used to carry on the Dr. Duncan's tradition of excellence in scholarship and humanity. Interested applicants should contact the Department's Academic Advisor for further details and application materials, which will be typically due to the Department by the end of March each year. Recipients are selected by a vote of the entire faculty of the Department. The award is presented during the Department's annual convocation ceremony in May which the recipient is expected to attend.

The Alfred L. Parker award is available to deserving graduate students who are successfully pursuing a course of study in Economics. Student recipients will be selected in the spring and given the award for the following academic year. Primary considerations for the award are scholastic ability, although financial need is equally evaluated during the selection process. Interested applicants should contact the Department's Academic Advisor for further details and application materials, which will be typically due to the Department by the end of March each year. Recipients are selected by a vote of the entire faculty of the Department. The award is presented during the

Department's annual convocation ceremony in May which the recipient is expected to attend.

The department also awards the following honors:

- Best departmental dissertation: This award is given every 3 years. The award is chosen from the subset of students who defended their dissertation with distinction. The winner of this award is nominated for the Tom L. Popejoy Dissertation Prize and recognized at the departmental graduation ceremony.
- Best dissertation proposal: The winner of this award is nominated for the Graduate Dean's Dissertation Fellowship and recognized at the departmental graduation ceremony.
- Best third year paper: This award is given to the student with the best research requirement paper. The winner of this award is recognized at the departmental graduation ceremony.
- Outstanding graduate instructor: This award is given to a PhD student who demonstrates
 outstanding teaching. The winner of this award is nominated for the Susan Deese-Roberts
 Outstanding Teaching Assistant and recognized at the departmental graduation ceremony.

XIII. TIMELINES

A: Ideal Time Line for Masters Students

M.A. Pla	n I (Thesis Option)		-		
Year 1	Time Period	Courses	Examinations	Paperwork or Other Actions	
	July/August			Fall course schedule approved	by
				Graduate Director	
	Week Prior to	595 Math "boot			
	Fall Semester	camp"			
	Fall Semester 1	501, 506 and			
	November	508		Spring course schedule approv	od
	ivovenibei			by Graduate Director	cu
	Spring Semester	Field and		Choose Major Advisor, Detern	nine
	1	Wildcard		your planned program of studie	es.
	-	Courses (9-		File your program of studies w	vith
		hours)		the Office of Graduate Studies	as
		,		soon as you have successfully	
				completed 12 hours of course	work
				towards your M.A. You must	file
				your Program of Studies no l	later
				than March 1 for Summer	
				graduation, July 1 for Fall	
				graduation, and October 1 fo	or
				Spring graduation.	
				Discuss thesis committee and	
				thesis topic with Major Adviso	or.
				Form Committee and finalize	
		~		thesis topic as soon as appropr	iate.
Year 2	Time Period	Courses	Examinations	Paperwork or Other Actions	
	April/May			Fall course schedule approved	d by
				Major Advisor	
	Fall Semester 2	Field,		Inform Department in writing	g no
		wildcard,		later than the last day of the I	Fall
		and/or thesis		semester of intent to graduate	e at
		hours		end of Spring semester.	
	Spring Semester	Courses, as		1. Complete Thesis	
	2 (forward)	necessary		2. Set Final Oral Examination	on
				(Thesis Defense). Notify	
				Department at least three we	eks
				prior to defense date.	
				3. Provide OGS with a comp	lete
				final thesis by Nov 15 for Fa	all
				graduation, April 15 for Spri	ng,
				and July 15 for Summer.	

M.A. Pla	n II [Exam (No Th	esis) Option]		
Year 1	Time Period	Courses	Examinations	Paperwork and other Actions
	July/August			Fall course schedule approved by
				Graduate Director
	Week Prior to	595 Math "boot		
	Fall Semester	camp"		
	Fall Semester 1	501, 506 and		
		508, plus one		
		additional		
		course. In order		
		to complete the		
		M.A. in two		
		years, timing		
		requires four		
		courses.		
	November	Course work		Spring course schedule approved
		needed to meet		by Graduate Director
		requirements		-
	Spring Semester	Field and		Choose Major Advisor. Determine
	1	wildcard		your planned program of studies.
		courses (12		File your program of studies with
		hours). In order		the Office of Graduate Studies as
		to complete the		soon as you have successfully
		M.S. in two		completed 12 hours of course work
		years, 12 hours		towards your M.A. You must file
		are required.		your Program of Studies no later
				than March 1 for Summer
				graduation, July 1 for Fall
				graduation, and October 1 for
				Spring graduation.
Year 2	Time Period	Courses	Examinations	Paperwork or Other Actions
	April/May			Fall course schedule approved by
				Major Advisor
	Fall Semester 2	Field and		Inform Department in writing no
		wildcard		later than March. 1 of intent to
		course.		graduate at end of Spring semester.
	November			Sign up for M.A. exam
	Spring Semester	Courses as		
	2	necessary or		
		desired.		
	January			Sit for M.A. Field Exam

B: Ideal Timeline for Ph.D. Students

1

Year 1	Time Period	Courses	Examinations	Paperwork or Other Actions	
	July/August			Fall course schedule approved by	
				Graduate Director	
	Week Prior to	595 Math "boot			
	Fall Semester	camp"			
	Fall Semester 1	501, 504, 506,			
		and 508			_
	December			Spring course schedule approved	
				by Graduate Director	
	Spring Semester 1	509 513, 514			
	April <u>May</u>			Notification of eligibility for Core	
	August		Core Exam	Exam	-
Year 2	Time Period	Courses	Examinations	Paperwork or Other Actions	
		Courses (Can begin to count 699 hours towards required 18, if core successfully passed and Application for Candidacy is approved)Majo r. Minor		Complete form for Committee on Studies <u>Complete Program on Studies</u> for MA enroute <u>Identification of research</u> requirement topic	Formatted: Indent: Left: 0", First line: 0", Outline numbered + Level: 3 + Aligned at: 0" + Tab after: 0" + Indent at: 0.5" Formatted: Body Text Formatted: Font: 10 pt, Bold, Font color: Auto
	November			Notification of eligibility for econometrics examination	
	November			Spring course schedule approved by Committee on Studies	
	December			Notification of eligibility for econometrics examinationSpring eourse schedule approved by Graduate Director	
	January		Econometrics Exam		

Sprii	ng Semester	Field and	File Application for Candidacy]
2		Wildcard	upon passing both the micro and	
		<u>CoursesMajor,</u>	macro core theory exams.	
		<u>Minor,</u>	(Formatted: Heading 3
		Economics		
		Wildcard		
Sprii Sprii	ng Semester		Discuss research requirements	
2 (or	r forward)		with Committee on Studies	
Apri	1		Sign-up for Econometrics Field]
			Exam	
Apri	il /May		Fall course schedule approved by	1
	-		Committee on Studies	
May	<u>/-</u> August		Work on research requirement]

Year 3	Time Period	Courses	Examinations	Paperwork or Other Actions
	Fall Semester 3	Field and		If signed up for first time for
		Wildcard		Econ 699 hours that count
		Courses.Major.		towards the 18 required, must file
		Economics		"Appointment of Dissertation
		Wildcard		Committee" form with OGS no
				later than the end of this
				semester. If student has signed u
				for 699 hours and passed the cor
				exam, the student must enroll in
				all subsequent semesters (except
				for summer) until the Dean of
				Graduate Studies has accepted
				the completed dissertation.
	Fall Semester 3			Complete research requirement
	(or forward)			at earliest possible timePresent
				research requirement seminar
	November			Have Spring course schedule
				approved by Committee of
				Studies

26 | Page

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-	Spring Semester 3 May	Economics Course work needed to meet requirementsWil dcard, Dissertation hours -	-	Complete "Appointment of Dissertation Committee" form Present dissertation prospectus
	E-11 Comparison A			no later than the end of Spring semester if field requirement passed.
Year 4	Time Period	Courses	Examinations	Paperwork or Other Actions
	Fall Semester 4	Dissertation hours		Complete dissertation proposal
V.com E	<u>Spring</u> <u>semester 4</u> -	DissertationDisse	Factoria di caso	I. Complete Dissertation Set Final Oral Examination (Dissertation Defense). Notify Department at least three weeks prior to defense date. J. Provide OGS with a complete final dissertation within 90 days of defense. Complete final dissertation due to OGS by Nov 15 for Fall graduation, April 15 for Spring, and July 15 for Summer.
<u>Year 5</u>	<u>Time Period</u>	<u>Courses</u>	Examinations	Paperwork or Other Actions
	Fall Semester 5	Dissertation hours		
	August			Job market paper complete
	<u>October</u>			Job market packet complete
	<u>Semester 5</u>	hours		Complete Dissertation Set Final Oral Examination (Dissertation Defense). Notify Department at least three weeks prior to defense date. S. Provide OGS with a complete final dissertation within 90 days of defense. Complete final dissertation due to OGS by Nov 15 for Fall graduation, April 15 for Spring and July 15 for

Graduation 1 Inform Departme		
oradation 1. month Departitie	nt in writir	.1g
of intent to graduate	no later th	an
the last day of the so	mester	
before the one in which the one is the one in which the one is	nich you	
intend to graduate.		
2. Complete all grad	uation	-(
requirements by No	vember 15	Ļ Č
for Fall graduation,	April 15 fc	ər
Spring or July 15 f	r Summer	÷

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XIV. GRADUATE FACULTY AREAS OF SPECIALIZATION

Berrens, Robert, Ph.D., Oregon State University Environmental Economics, Sustainable Development, Institutional Economics

- Binder, Melissa, Ph.D., Columbia University Labor Economics, Latin American Economics
- Bohara, Alok, Ph.D., University of Colorado Econometrics, Environmental, Development Economics, Micro-simulation)
- Chermak, Janie, Ph.D., Colorado School of Mines Natural Resource and Environmental Economics, Applied Microeconomics

Díaz Fuentes, Claudia, Ph.D., Pardee RAND Graduate School Health Economics, Family Economics, Development Economics

Fontenla, Matías, Ph.D., University of Texas at Austin International Finance, Financial Intermediation, Monetary Economics, Growth & Development

- Ganderton, Philip, Ph.D., University of California at Santa Barbara Public Finance, Labor Economics, Environmental Economics
- Horn, Brady, Ph.D., Washington State University Industrial Organization, Econometrics
- Krause, Catherine, Ph.D., University of Wisconsin Experimental Economics, Public Finance
- Li, Xiaoxue, PhD., Syracuse University Public Economics, Labor Economics, Health Economics
- McDermott, Shana, Ph.D., University of Wyoming Applied Microeconomics, Ecological Economics, Natural Resource Economics, Mathematical Economics
- Reiser, Cristina, Ph.D., University of Tennessee Industrial Organization, Environmental and Resource Economics, Mathematical Economics
- Santos, Richard, Ph.D., Michigan State University Labor Economics, Health Care Economics, Hispanic Employment
- Sauer, Christine, Ph.D., Brown University International Trade and Finance, Macroeconomics, Monetary Economics

Stith, Sarah, Ph.D., University of Michigan Applied Microeconomics, Health Economics and Law and Economics

Thacher, Jennifer, Ph.D., University of Colorado Environmental Economics, Applied Econometrics, Applied Microeconomics

Valdez, Robert Otto, Ph.D., Pardee RAND Graduate School of Public Policy Analysis, Health Economics

Van der Goes, David, Ph.D., Lehigh University Health Economics, Applied Microeconomics and Microeconometrics

Villa, Kira, Ph.D., Cornell University Development Economics, Health Economics, Nutrition Economics

Wang, Jingjing, Ph.D., University of California at Riverside Applied Microeconomics, Environmental & Natural Resource Economics, Agricultural Economics, Water Resource Economics, Computational Economics

XV. GRADUATE FACULTY TEACHING AREAS

A. Core Theory Chermak, Janie Fontenla, Matías Ganderton, Philip Horn, Brady Krause, Catherine McDermott, Shana Sauer, Christine Stith, Sarah Thacher, Jennifer Wang, Jingjing **B.** Econometrics Bohara, Alok <u>v</u>↓an der Goes, David Villa, Kira C. Environmental/Resource Economics Berrens, Robert Chermak, Janie McDermott, Shana Thacher, Jennifer Wang, Jingjing **D.** Public Economics Binder, Melissa Ganderton, Philip Horn, Brady Krause, Catherine Li, Xiaoxue Santos, Richard Stith, Sarah ¥van der Goes, David F. International Development and Sustainability Bohara, Alok Fontenla, Matias Sauer, Christine Villa, Kira

XVI: CONTACT INFORMATION

STAFF				
Name	Position	Telephone	E-mail	Office Room #
Chermak, Janie	Department Chair	(505) 277-2037	jchermak@unm.edu	1019B
Hardesty, Leah	Department Administrator	(505) 277-3144	lmayo@unm.edu	1019
Henri, Tami	Admin Assistant II	(505) 277-5304	henrit@unm.edu	1019
Wilken, Daniela	Coordinator of Graduate Programs	(505) 277-5560	<u>mdaniela@unm.edu</u> <u>econgrad@unm.edu</u>	1032

PROFESSORS

Name	Title	Telephone	E-mail	Office Boom #
Berrens, Robert	Professor		rberrens@unm.edu	2023a
Bohara, Alok	Professor	(505) 277-5903	bohara@unm.edu	2023C
Chermak, Janie	Professor	(505) 277-2037	jchermak@unm.edu	1019
Ganderton, Philip	Professor	(505) 277-3186	gandini@unm.edu	2010
Krause, Kate	Professor	(505) 277-0841	kkrause@unm.edu	UC Deans Office
Santos, Richard	Professor	(505) 277-2107	santos@unm.edu	2030
Sauer, Christine	Professor	(505)277-1963	sauer@unm.edu	2028
Valdez, Robert	Professor	(505) 277-0130	ROValdez@salud.unm.edu	Family Community Medicine

ASSOCIATE PROFESSORS

Binder, Melissa	Associate Professor	(505) 277-3548	mbinder@unm.edu	1006D
Fontenla, Matías	Associate Professor	(505) 277-6458	fontenla@unm.edu	2003
Thacher, Jennifer	Associate Professor	(505) 277-1965	jthacher@unm.edu	2006

ASSISTANT PROFESSORS

Horn, Brady	Assistant Professor	(505) 277-1960	bhorn@unm.edu	2023B
Li, Xiaoxue	Assistant Professor	(505) 277-6426		2004
McDermott, Shana	Assistant Professor	(505) 277-5352	mcdermott@unm.edu	1026
Stith, Sarah	Assistant Professor	(505) 277-3429	ssstith@unm.edu	1006B
van der Goes, David	Assistant Professor	(505) 277-3145	dvandergoes@unm.edu	2005
Villa, Kira	Assistant Professor	(505) 277-0747	kmvilla@unm.edu	1046
Wang, Jingjing	Assistant Professor	(505) 277-2035	wangj@unm.edu	1022

LECTURERS

Diaz Fuentes, Claudia Maria	Lecturer III	(505) 277-3424	claudiadf@unm.edu	2002
Reiser, Cristina	Lecturer III	(505) 277-3629	creiser@unm.edu	1024

VISITING LECTURER

Dixon, David	Visiting Lecture	(505) 277-1951	ddixon@unm.edu	2026

AFFILIATED FACULTY

Name	Title	Telephone	E-mail	Office
				Room #
Bernknopf,	Research		rbern@unm.edu	1013
Richard	Scholar			
Brookshire, David	Distinguished	(505) 277-1964	brookshi@unm.edu	1006C
	Professor			
	Emeriti			
Moffett, Maurice	Research	(505) 272-3758	MMoffett@salud.unm.edu	Family
	Assistant			Community
	Professor			Medicine
O'Donnell, Kelly	Research	(505) 277-0130	kodonnell@unm.edu	RWJF
	Scholar		_	
Reynis, Lee A.	Research		lreynis@unm.edu	Onate Suite
	scholar			116
Waldman, Larry	Temp Part-time	(505) 277-7077	lwaldman@unm.edu	1013
_	Faculty		_	

DISTINGUISHED PROFESSOR EMERITI

David S. Brookshire, Ph.D., University of New Mexico

PROFESSORS EMERITI

Shaul Ben-David, Ph.D., Cornell University F. Lee Brown, Ph.D., Purdue University H. Stuart Burness, Ph.D., University of Kansas Donald Coes, Ph.D., Princeton University Ronald Cummings, Ph.D., University of Kansas Micha Gisser, Ph.D., University of Chicago Peter Gregory, Ph.D., Harvard University David Hamilton, Ph.D., University of Texas Chung Pham, Ph.D., University of Pennsylvania Donald Tailby, Ph.D., Rutgers University Paul Therkildsen, Ph.D., University of Colorado

Appendix 2 – Assessment instruments

Attached are the following assessment instruments:

- Example comprehensive exam (micro and macro)
- Example econometrics field exam
- Evaluation sheet filled out after research requirement departmental seminar
- Evaluation sheet filled out after dissertation defense

This exam is designed to test your broad knowledge of microeconomics. There are three sections: one required and two choice sections. You must complete <u>both</u> problems in the required section and <u>one</u> choice problem in each of the two choice sections, giving you a total of <u>four</u> problems to complete during the allotted time. The required problems are in section A and the choice problems are in sections B and C. If you should answer more than one choice question in a section, only the first will be considered.

IMPORTANT. You are expected to adhere to the following guidelines in completing the exam for your answer to be considered complete. Incomplete answers will be evaluated accordingly.

- Write legibly. <u>Number all pages with the question number and the page</u> <u>number (e.g., A1-1, A1-2, etc.) and organize your answers to questions in the</u> <u>same order as they were given to you in the exam.</u> <u>Begin your answer to each</u> <u>question on a new page and identify the question number.</u>
- Provide clear, concise discussion to your answers.
- Explicitly state all assumptions you make in a problem. Graders will not take unstated assumptions for granted. Do not make so many assumptions as to trivialize or assume the problem away.
- Define any notation you use in a problem and label all graphs completely.
- Explain your steps in any mathematical derivations. Simplify your final answers completely.
- When you turn in your exam answers double check to make sure you have included all the pages to each question number, in order. The pages you submit as your answer are the only ones that will be considered.
- To simplify copying, please leave one-inch borders on top, bottom and sides.

PART A: Required Questions - Answer both of the following questions

QUESTION A1: "GAMES"

Consider a *t* period game, with *n* profit maximizing firms that each has an infinite production capacity. In this game, in each period, each firm chooses quantity at the same time (without observing the quantity the other firms choose). In this market there are no fixed costs and the inverse demand curve is equal to $P = \theta - Q$, where $Q = \sum_{i=1}^{n} q_i$. In this game firms are identical except for cost structures. There are dominant firms, which each have a marginal cost of production equal to c_l and non-dominant firms, which each have a per unit marginal cost of c_h . Assume that there are n_d dominant firms and n_n non-dominant firms.

- a) First, assume that t=1, $n_d=1$ and $n_n=1$. Provide the market equilibrium quantity, market price, and the profit that each firm will make and the consumer surplus in the industry.
- b) Assume that t=1, $n_d=0$ and $n_n=4$. First, provide the quantity that each firm will produce and the profit that each firm will make. After you have provided this quantity, next consider what would happen if a 5th non-dominant firm is thinking about entering the industry. How much would each firm (individually) be willing to pay to deter this firm from entering?
- c) Assume that $t=\infty$, $n_d=0$ and $n_n=4$. Also assume that each firm has a discount rate equal to .8. First, think about the potential equilibrium where firms work together to split the monopoly profit. What is the infinitely repeated value of the stream of profits for each firm if all firms work together? After you have provided these profit numbers, next consider what would happen if the firms are working together and a 5th non-dominant firm is thinking about entering the industry. How much would the firms would be willing to pay (collectively) to deter this firm from entering?
- d) Assume that t=∞, n_d=1 and n_n=1. Also, assume θ = 10,000, c_h = 4,000, c_l = 2,000 and each firm has a discount rate equal to .7. Consider the possibility that an upstream firm can create a contract mechanism in which the dominant firm and the non-dominant firm to work together. For this contract to take place both firms must agree to the contract, and if they agree they will split the monopoly profit (50/50 split). Note that because the dominant firm has a cost advantage, if the contract is executed the dominant firm will produce the full quantity and then the profits will be divided via a 50/50 split. In this game is there an equilibrium, where the firms choose to accept the upstream firm contract mechanism? If so, how much would the firms collectively and individually be willing to pay for this mechanism? If not, explain why not.

QUESTION A2: "SURPLUS"

Suppose $U(x_1, x_2) = x_1x_2$, where x_1 is wheat and x_2 is the numeraire good. Suppose income is \$100 and the price of the numeraire good is \$1. The price of wheat falls from \$1 to \$0.25 due to the success of an irrigation project funded by the World Bank.

- a) Derive the Marshallian demand functions and the expenditure function.
- b) Evaluate consumers' gains in terms of compensating variation (CV).
- c) Explain whether the change in Consumer Surplus (CS) will overestimate, underestimate, or exactly equal the CV measure. For your explanation use both a graph and an economic explanation of why this occurs.
- d) Calculate the change in CS.

PART B: Choice. Answer either B1 or B2. If you answer both, only B1 will be graded.

QUESTION B1: "DUALITY"

Solve the problems below:

- a) Suppose you observe the demand functions $x_1 = \frac{\alpha y}{p_1}$ and $x_1 = \frac{(1-\alpha)y}{p_1}$. Derive the utility function. Show all steps.
- b) After all that work, you remember that the corresponding utility function for the demand functions in (a) is $U(x_1, x_2) = x_1^{\alpha} x_2^{1-\alpha}$. Use duality to derive $x_1^h(p_1, p_2, U)$.
- c) Is the Hicksian demand for good 1 that you derived in (b) homogeneous in prices and if so, what degree? Explain your result intuitively.
- d) Suppose you have the utility function $U(x_1, x_2, x_3)=x_1+min\{x_2, x_3\}$. Derive the Marshallian demand functions.

QUESTION B2: "DECISIONS, DECISIONS"

Richard, a National Merit scholar, also has an aptitude for baseball. He is trying to decide whether to go to Harvard (his father's alma mater) in which case he will receive lifetime earnings of 30 million (with probability of 1) or accept an offer from the Los Angeles Dodgers (a major league baseball team) to join their farm-team. This however, is a risky proposition. Richard estimates that if he chooses this option, there is a 40% chance he makes it in the big leagues, in which case his lifetime earnings will be 150 Million, and is a 60% chance that he will not make it, in which case he will become insurance salesman, with a lifelong earnings of 10 million. Richard's utility function with respect to wealth is: $u(x) = x^8$.

- a) What is Richard's expected utility from each career path? What are the certainty equivalents for both career paths? Which career path will Richard take?
- b) In this section assume that Richard's father really wants Richard to work at the family law firm. First, provide the required subsidy to incentive this choice (this is zero if Richard already is choosing law). Second, instead of a subsidy, assume that Richard's father attempts to change Richard's behavior (using information) by changing Richard's prior about the probability he will make it in the big leagues. What probabilistic belief about the chances of successfully making it to pro baseball must Richard have to choose law instead of baseball.
- c) Now assume that in order to try to be a professional baseball, Richard must use performance-enhancing steroids, which have a possibility of causing kidney disease. Specifically, steroids have a 40% chance of causing kidney disease, and if acquired, kidney disease would have a utility cost of 1,700,000 (assume that getting into the big leagues and getting kidney disease are independent of each other). Given this additional piece of information calculate Richard's expected utility from both baseball and joining the family law firm. Which option will Richard choose?
- d) In this problem assume that Richard has the option of hiring an agent. With the added exposure, Richard's probability of making it to the big leagues (increased to .5 chance of making it in the big leagues and .5 chance of become insurance salesman). Also, the agent only charges Richard if he makes it to the pros. What percentage of Richard's professional income (of the 150 million) would Richard be willing to pay for these services (if successful in the pros)?

PART C: Choice. Answer either C1 or C2. If you answer both, only C1 will be graded.

QUESTION C1: "ODDS AND ENDS"

Please answer each of the following:

a) Consider a consumer who consumes two goods, x and y. The price of x is p_x and the price of y is p_y . Show (and explain) why the following statement is either TRUE/FALSE/ OR UNCERTAIN:

"The consumer will prefer a lump-sum subsidy to a per unit subsidy on *x* if the two subsidies provide the consumer with the same monetary amount."

If the statement is UNCERTAIN be sure to provide the conditions under which it is true or false.

b) Suppose a firm has a production function of

$$q = AK^{\alpha}L^{\beta},$$

where the price of *K* is *r* and the price of *L* is *w*. The firm is price-taking in both the input and output markets. Find the firm's indirect cost function [TC = f(w,r,q)] and provide a consistency check for econometric estimation of the indirect cost function.

c) The *Rail Runner* provides train service between Albuquerque and Santa Fe on a daily basis. The price, *p*, is \$2.75 per ride. However, there is an increasing concern because the service is losing money and is requesting an increase in the price of a ticket from the Public Utility Commission in order to increase total revenue (TR). A group of concerned citizens is arguing that the price should be lowered to attract more riders. Assume the demand function for the *Rail Runner* (where *R* is measured in rides per day) is given by:

$$R = 5000 - 1000 p$$

If the goal is to increase TR, which side is correct? Should the price be increased or decreased? Explain your logic and your estimations.

d) Consider the following statement and state if it is TRUE/FALSE/UNCERTAIN. Provide a justification for your answer.

"For a competitive firm using a decreasing-returns-to-scale technology, the conditional factor demand curve for input i, $x_i(\mathbf{w}, y)$ is always downward-sloping with respect to its own price. (Note that \mathbf{w} is a vector of input prices and y is a given level of output.)"

QUESTION C2: "EQUILIBRIUM"

Consider an economy that produces widgets in a competitive market. Each firm in this competitive industry has the same production technology, given by:

 $y = k^{\frac{1}{6}} l^{\frac{1}{3}}$.

Where y is the amount of widgets produced, k is the amount of capital used and l is the amount of labor required. Each firm also incurs a fixed cost of \$1/6. Labor is traded in a competitive market and the unit price is \$1 per unit (firms are price takers and so they can purchase as much labor at this price as they want). Firms are also price-takers in the capital market at a price of \$1/2 per unit. In the short-run the amount of capital cannot be changed and firms cannot enter or depart the industry. In the intermediate run, firms still cannot enter or leave the industry, but they can vary the amount of capital used. In the long-run, the amount of capital can be varied and firms are free to enter or depart the industry.

Demand for widgets is given by

D(p) = 400 - 100 p,

where p is the price of a widget and D(p) is the quantity demanded at p.

a) What is the long-run equilibrium for this market? Please provide the long-run equilibrium price, quantity and number of firms.

b) Suppose now, that there has been a shift in the demand for widgets. Demand is now described by:

D(p) = 750 - 150 p.

Utilizing your answers from a), what is the short-run equilibrium price and profit per firm?

c) What are the intermediate equilibrium price and the long-run equilibrium price?

d) Given your results in a) through c), draw a graph in Price/Quantity space that depicts the short, intermediate, and long-run supply curves, the two demand curves, and the equilibrium conditions. Are these results consistent with the expected elasticities of supply in the short, intermediate, and long run? Explain.

Part A: Answer question A1 (required), plus either question A2 or A3.

A1 (required): Macroeconomic Effects of "Brexit"

In the wake of the recent British decision to leave the European Union ("Brexit"), economists around the globe are debating the potential macroeconomic effects for Great Britain (aka the UK) and the EU. You are asked to contribute to this debate, using your knowledge of models of macroeconomic fluctuations.

1. First consider the case of the UK. For the short run, suppose the British economy can be described by a Mundell-Fleming (aka open-economy IS-LM) model with flexible exchange rates, perfect capital mobility, static inflationary expectations, and static exchange rate expectations.

a) Assume that Brexit generates negative random shocks in the UK goods and money markets. (i) Using graphical and verbal analysis, explain how/why the British economy responds to these shocks in the short run. (ii) Discuss what the British government can/should do to stabilize output in the short run.

b) Discuss at least two other economic channels/parameters/variables (apart from those mentioned in part a) through which Brexit is likely to affect the British economy in the short to medium run.

2. Next consider the case of the EU. Suppose the post-Brexit EU economy can be described by the following model of aggregate demand with autonomous net exports (*NX*), static inflationary expectations ($d\pi^e = \pi^e = 0$), fixed capital stock, and fixed technology.

(1)	Y = E(Y-T, R, G, NX)	where $0 < E_{Y-T} < 1, E_R < 0, E_G = 1, E_{NX} = 1$	(IS)
(2)	M/P = L(Y,R)	where $L_Y > 0$, $L_R < 0$	(LM)

The other variables are: Y = real output/income, E = aggregate expenditures, T = taxes, R = nominal/real interest rate, G = government purchases of goods and services, M = nominal money supply, P = price level, L = real money demand.

Assume that Brexit results in an exogenous drop in EU net exports. Analyze the effects of this (ceteris paribus) change on the EU economy for the following time horizons.

a) <u>Short run with fixed wages/prices</u>: Show graphically and explain in detail how/why the relevant endogenous variables respond in the short run.

b) <u>Long run with flexible wages/prices</u>: Determine how the relevant endogenous variables respond in the long run by calculating and signing the corresponding derivatives.

A2: European Economic Growth and Migration

Over the past two years, European countries have experienced an unprecedented influx of migrants from the Middle East and Northern Africa. Assuming that this influx creates a one-time increase in the European labor force (L) without raising the population growth rate (n), analyze the impact on the European economy in context of different growth models.

1. Consider a basic Solow growth model, where total output (Y) is a constant-returns-to-scale production function of physical capital (K) and effective labor (AL).

(1)	$Y = K^{\alpha} (AL)^{1-\alpha}$	where $0 < \alpha < 1$	(production function)
(2)	$\mathrm{d}K/\mathrm{d}t = sY$	where $0 < s < 1$	(capital accumulation)
(3)	dL/dt = nL	where $n > 0$	(labor accumulation)
(4)	$\mathrm{d}A/\mathrm{d}t = g_A A$	where $g_A > 0$	(technical progress)

The other variables are: A = labor-augmenting technology/knowledge, $\alpha =$ income share of physical capital, s = saving rate, $g_A =$ growth rate of technology.

a) Characterize the initial equilibrium for this economy by (i) showing the steady-state equilibrium in a Solow graph, (ii) calculating output per worker (y = Y/L) in steady-state, and (iii) deriving the growth rate of output per worker on the balanced growth path.

b) Illustrate graphically and explain how/why both the level and the growth rate of output per worker respond over time to the one-time (ceteris paribus) increase in the European labor force.

2. Now consider a simple R&D/endogenous growth model without physical capital, where a fraction a_L of the labor force is employed in the R&D sector.

(1)	$Y = A(1-a_L)L$	where $0 < a_L < 1$	(output production)
(2)	$\mathrm{d}A/\mathrm{d}t = (a_L L)^{\gamma} A^{\theta}$	where $\gamma > 0, \theta < 1$	(knowledge production)
(3)	dL/dt = nL	where $n > 0$	(labor accumulation)

a) Characterize the dynamics this economy by (i) calculating the growth rate of knowledge in steady-state and (ii) determining whether the economy is on a balanced growth path.

b) Explain how/why both the level and the growth rate of output per worker respond over time to the one-time (ceteris paribus) increase in the European labor force, comparing and contrasting the cases where (i) migrants include a fraction a_L of scientists/engineers employed in Europe's R&D sector and (ii) migrants include no scientists/engineers, only workers employed in Europe's output sector.

A3: Statements

Select <u>any three</u> of the following statements and explain carefully why each is true, false, or uncertain in all its parts. You must use graphical and/or mathematical analysis to support your arguments. Your score depends on the quality and completeness of your explanations.

- 1. In the Solow growth model with human capital formation given by $H = L \cdot e^{\psi E}$, a ceteris paribus decrease in education (*E*) has no permanent effects on the steady-state level of output per worker and the economy's balanced growth path.
- 2. In the presence of wealth effects, money ceases to be neutral and superneutral.
- 3. Given rational expectations, neither expected nor unexpected monetary policy has real effects in the short run.
- 4. In a stochastic world, whether the optimal policy is a fixed rule or a feedback rule depends on the nature of the uncertainty, the number of policy instruments, and the expectation formation mechanism.

Part B: Answer Both Questions

B1: Fully Funded Social Security

Consider an economy consisting of an infinite sequence of two period lived, overlapping generations. N_t agents are born in period t, with $N_{t+1} = (1 + n)N_t$. In each period there is a single final good that is produced using a constant returns to scale technology with capital and labor as inputs. Let k_t denote the time t capital-labor ratio, and let $f(k_t)$ denote the intensive production function. Let f have the Cobb-Douglas form $f(k_t) = Ak_t^{\alpha}$, with $0 < \alpha < 1$. One unit of the final good that is not consumed at t converts into one unit of capital at t+1. Capital depreciates after production, with $\delta \in (0, 1)$. Agents have the utility function

$$u(c_{1,t}, c_{2,t+1}) = \frac{c_{1,t}^{1-\theta} - 1}{1-\theta} + (1+\rho)^{-1} \frac{c_{2,t+1}^{1-\theta} - 1}{1-\theta}$$

with $\theta > 0$.

Suppose that, besides saving in assets (a_t) , young agents born in period t are forced by the government to contribute some amount to social security (label this variable d_t). These funds are invested in capital, and agents receive the returns, given by $(1 + r_{t+1})d_t$, when they are old.

a) Write down the household's maximization problem and derive the equations that characterize the solution. Discuss.

b) Write down the firm's maximization problem and the first-order conditions for this problem. Translate these conditions into intensive form.

c) What are the equilibrium conditions for this economy? Pay particular attention to the savings—investments equilibrium condition.

d) Combine your answers to parts (a) - (c) and derive a Law of Motion (LoM) equation that defines a difference equation for the variable k. Looking at it, can we say anything about a steady-state solution? Can you graph the LoM?

e) Is the non-trivial steady-state in the Competitive Equilibrium (CE) Pareto Optimal (PO)? Carefully show and explain why, or why not. If not, how could you modify this government program to make it PO?

B2: Growth and Infrastructure

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 $1 > \rho > n = 0$, and $\theta > 0$.

The representative firm has a production function

$$F[K_t, G_t, L_t] = AK_t^{\alpha} (G_t L_t)^{1-\alpha},$$

where G is the total quantity of infrastructure provided by the government in this economy. Further assume infrastructure grows at a constant rate g. That is,

$$\dot{G}_t = gG_t$$

For simplicity, normalize L = 1, and assume capital does not depreciate after production ($\delta = 0$). 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.

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.

c) What are the equilibrium conditions for this economy?

d) Combine your answers to parts a) - c) and derive a pair of differential equations for the variables c and k. Can you draw a phase diagram? If so, carefully identify (and derive mathematically) all the important points. If you can't draw a phase diagram, can you transform the differential equations in order to be able to draw a phase diagram? Is there a balanced growth path? What is its slope? What is the growth rate of the economy?

e) Is the Competitive Equilibrium Pareto Optimal?

f) Do the following comparative dynamics exercise: g' > g. Draw (i) the phase diagram for both cases, indicating what is different, and (ii) the time paths of the logs of c and k for both cases. Discuss.

PhD/MA Econometrics Examination

January, 2016

Total Time: 8 hours

MA students are required to answer from A and B.

PhD students are required to answer from A, B, and C.

The answers should be presented in terms of equations, statistical details, and with necessary proofs and statistical deduction. Verbal and brief descriptive discussions will not be sufficient.

PART A

(Answer any TWO from Part A)

- **1.** Fundamentals of OLS
 - a. Write out the OLS equation in matrix form. Also, write out the matrices and state their dimensions.
 - b. State the OLS assumptions in mathematical statements and in sentences (words).
 - c. Show that the OLS estimator is BLUE and define BLUE. Show all parts: B, L, U, and E.
 - d. What are the properties (hint: there are six) of the OLS estimator? State them in mathematics and words. Also, state any requirements which are necessary for these properties to hold.
 - e. Given the properties in part d, what can you infer about the disturbances from the residuals?
 - f. Write out a simple OLS model. Define your variables and describe how your model might meet or not meet all of the assumptions you stated above.
- 2. Variance of OLS
 - a. What is the variance of the OLS estimator?
 - b. Derive the estimator for the standard errors of the OLS estimator.
 - c. Assuming σ^2 is unknown to the econometrician, what is the test statistic if the econometrician wants to test if a single element of the β vector is equal to zero or not?
 - d. How is the test statistic in part c distributed and what are its degrees of freedom?
 - e. Write out a simple OLS model. Define your variables and describe how you would use the test statistic in part d to interpret the output from your model.

- 3. Probability Theory and More
 - a. What distribution is below:

$$f(x;\lambda) = \begin{cases} \lambda e^{-\lambda x} & x \ge 0, \\ 0 & x < 0. \end{cases}$$

- b. Find the first and second moments of this distribution directly from the distribution itself.
- c. Find the first and second moments using the moment generating function. Also, discuss if these moments are the same or different from the moments you found in **part d** and why or why not.
- d. This distribution is one of two distributions with property called "memoryless." Prove that this distribution is memoryless.
- e. Name a practical application of this distribution, i.e., where does it naturally occur?
- f. Name the third and fourth central moments name them do not calculate them.
- g. The distribution above is a special case of another distribution. What distribution is it a special case of and exactly how is it a special case of that other distribution?

PART B

(Answer any TWO from Part B)

4. Maximum likelihood

- a. Let $X_1, ..., X_n$ be iid with pdf $f(x \mid \theta) = \frac{1}{\theta} e^{-x/\theta}, x \ge 0, \theta > 0$
 - i. What is the likelihood of observing your data (i.e., what is the likelihood function for your sample)?
 - ii. Derive the log likelihood and score functions for estimating the parameter $\, \theta \, . \,$
 - iii. Derive the Maximum Likelihood Estimate for $\, \theta \, . \,$
 - *iv.* Derive the asymptotic variance for $\hat{\theta}_{MLE}$ using the information matrix method. (*Hint: Remember that* $E[\theta] = \theta$ because it is a true parameter and thus just a number. And $E[x_i] = \overline{x}$. Use your answer in part iii to solve for \overline{x} in terms of θ .

5. Partitioned Regression

Consider the following model $Y = X_1\beta_1 + X_2\beta_2 + \varepsilon$, where X_1 is a matrix of k_1 variables and X_2 is a matrix of k_2 variables such that

	x_{11}^{1}	x_{11}^2		$x_{11}^{k_1}$		x_{21}^{1}	x_{21}^2		$x_{21}^{k_1}$	
$X_{1} =$	÷	÷	·.	÷	, X ₂ =	÷	÷	·.	÷	
	x_{1n}^{1}	x_{1n}^{2}		$x_{1n}^{k_1}$		x_{2n}^{1}	x_{2n}^{2}		$x_{2n}^{k_1}$	

Denote b_1 and b_2 as the Ordinary Least Squares estimates for eta_1 and eta_2 , respectively.

- a. Derive the expression for the ordinary least squares estimator b_1 as a function of Y, X_1 , X_2 , and b_2 using the partitioned regression model.
 - i. Suppose you only observe X_1 but not X_2 . Thus you run the OLS model $Y = X_1 \beta_1 + \varepsilon \, .$
 - ii. Derive the expression for OLS estimate of b_1 that you would estimate under these conditions (i.e., what is the usual OLS estimator for b_1 when you regress Y on X_1).
 - iii. If $Y = X_1\beta_1 + X_2\beta_2 + \varepsilon$ is the true model, give an expression for the amount b_1 (that you estimated in ii.1) is biased in this circumstance as a function of X_1 , X_2 , and b_2 .
- b. Now suppose you observe both X_1 and X_2 . Derive the ordinary least squares estimator for and b_2 as a function of Y, X_1 , X_2 , and M_1 using the partitioned regression model. Where M_1 is the residual-maker matrix and

 $M_1 = I - X_1 (X_1' X_1)^{-1} X_1'.$

- c. Define the Frisch-Waugh Theorem and describe its intuition.
- d. Under what conditions is the bias you solved for in part ii.2 equal to zero. What does this mean in the context of the Frisch-Waugh Theorem (i.e., what happens when you regress X_2 on X_1).

6. Suppose you want to estimate the effect of childbearing (motherhood status) on labor force earnings for a sample of women in the U.S. using the following model

(1)
$$Y_i = \alpha + \beta D_i + \varepsilon_i,$$

where Y_i is the labor market earnings of woman *i*, and D_i is a dummy variable equal to one if woman *i* has had at least one child. In this way you are hoping to estimate the average treatment effect of being a mother on female labor market earnings.

- a. Which of the Ordinary Least Squares assumption is likely to fail when estimating this model? Explain why? What does the mean for your estimate of the average effect of motherhood on earnings?
- b. What is the "Fundamental Problem of Causal Inference"?
- c. Define Y_{1i} as the earnings of woman *i* if she is a mother and Y_{0i} as the earnings of that same woman *i* if she is not a mother. If motherhood status was randomly assigned across women in the population then the treatment effect of motherhood on earnings would be equal to the following

(2)
$$E_i[Y_{1i} - Y_{0i}] = E[Y_i \mid D_i = 1] - E[Y_i \mid D_i = 0].$$

However, motherhood status is not randomly assigned. Using the Potential Outcomes framework, decompose the expectation in (2) into the *"average treatment effect on the treated"* and *"selection bias"*.

- d. You decide to instrument for motherhood using the instrumental variable Z. Which two assumptions are necessary for this instrument to be valid?
- e. Would the following variables be plausible instruments for motherhood. Explain why or why not.
 - i. The quality of each woman's health insurance coverage
 - ii. An indicator of whether or not the woman has experienced infertility
 - iii. Regional differences in abortion laws (e.g. the oldest gestational age a woman can legally obtain an abortion in her region).
 - iv. Availability of family planning in a local area.
 - v. Number of siblings the woman has
 - vi. The woman's marital status

PART C

(Answer any TWO from Part C)

- 7. A market survey is conducted to estimate consumers' preference for fresh food purchase behavior. They were presented with three options: A, B, and C, C being the status-quo. The data was collected on **income** and **age** of the consumers. The attributes considered were: 1) regular (Regular) versus organic (Organic) 2) the non-genetically altered (NGA) versus genetically altered (GA). In addition, the information about the **price (\$3.50, \$5.35,\$ 7.10)** was also presented (/lb grocery bag on average).
- Using individual characters (Income and age) as the only determinants of the purchasing choices, set up a Random Utility Model (RUM) outlining the three indirect utility functions.
 Present the corresponding data table. You may assume that the income have different impact on the choice functions.
- b. With the assumption of the extreme value distribution for the random error, present the three probability choices [P(A), P(B), and P(C)] and set up the log-likelihood function.
- c. Now add the price and the other two attribute variables and present the three utility functions. Present the corresponding data table. You may assume that the income has the different impact on the utility functions, whereas the effect of price and age are the same.
- Consider the following epidemiological model for the State of Texas, where the children's asthma rate (y proportional to the children's population from 1-6 years of age) was expressed as a function of PM2.5 airborne pollution count (x). The data were collected for 254 counties for the year of 2010.

$$y = \frac{\phi x}{\delta + x} + e$$

which can be generically expressed as: $y = f(x, \phi, \delta) + e$

For simplicity, the subscript "t" is suppressed.

- a. Using the generic expression 2, present the numerical estimation algorithm using the Newton Raphson optimization algorithm OR the maximum likelihood estimation method (*e* can be assumed to follow a normal distribution).
- b. Discuss the method of deriving the variance-covariance matrix of the estimators.
- c. The parameter Ø is also known as the maximum y, thus it cannot be more than 1 (i.e., 100% asthma rate). With that in mind, can you conjecture some sort of graphical relation between y and x for the model given above?
- d. Now, let's assume that you calculate the marginal impact of the pollution on the asthma rate. Explain the method of deriving the confidence level.

9. Consider the following VAR-model describing the relationship between the economic growth and the energy consumption, both expressed in terms of per capita for Canadian economy:

 $DInGPD(t) = C1 + \phi 11 * DInGDP(t-1) + \phi 12 * DInEnCon(t-1) + u1(t)$ $DInEnCon(t) = C2 + \phi 21 * DInEnCons(t-1) + \phi 22 * DInGDP(t-1) + u2(t)$

For simplicity, the model is expressed as a lag of order 1. The variables are logged, and are transformed as a first differencing (notice "D") to induce individual stationarity.

- a. Derive the var-cov matrix of the error vector. Present in details the derivation, showing all the steps.
- b. Why is it called a seemingly unrelated regression (SUR), and not a simultaneous model?
- c. How would you rewrite the above model, if the two variables were cointegrated? What is the economic meaning of the cointegration between GDP and EnCon?
- d. Present the GLS method and outline the estimation steps.

OR

Present the FIML likelihood procedure with the assumption of a multi-variate normal distribution.

e. Given the above VAR model, under what condition, would the GLS method be equal to the OLS? (Pick one of the two conditions and show the proof.)



DEPARTMENT of ECONOMICS MSC 05-3060 1 University of New Mexico Albuquerque, NM 87131-0001

Assessment of Research Requirement Presentation

Author:	Presentation Date:
Title of Paper:	
Submitted to (if applicable):	

1. Please rate the research requirement presentation on the following:

		Very				
	Excellent	Good	Good	Fair	Inferior	NA
	5	4	3	2	1	
a. Student explains and manipulates complex economic models						
b. Student uses appropriate econometrics to explore economic issues and test hypotheses						
c. Student undertakes original economic analysis.						
d. Student effectively presents his/her work to peers and PhD economists.						
e. Evaluation of the work as a whole						

2. Please briefly summarize your reaction to the research requirement presentation.

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REPORT ON THESIS OR DISSERTATION

Author:	ID#:	Gra	duate Unit:		
Dissertation or Thesis Director	:		Reader:		
Title of Thesis or Dissertation:					
					_
1. Please rate the thesis or diss	ertation on the	following:			
	Excellent	Very Good	Good	Fair	Inferior
a. Substance					
b. Methodology					
c. Originality					
d. Style					
e. Evaluation of the work as a whole					
2. Please summarize briefly yo	our reaction to	the thesis or disse	ertation.		
3 Do you recommend the acco	entance of this	manuscript for th	e degree?		
			No		
Pagdar: Plansa sign and pass t	his form to the	aommittaa ahairr	argon		
<i>Reduer</i> . Flease sign and pass t		commutee chang	person.		
Reader		·		Date	
Chairperson of Co	ommittee			Date	
Chairnerson Major G	raduate Unit	·		Date	
Champerson, Wajor C				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 Outcom	mes					
UNM Learning	Program Goal	SLO				
Goals						
(Knowledge,						
Skills,						
Responsibility)						
		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	SLO	Assessment measure description	Benchmark			
Measure						
Comprehensive	A1	Consists of two seven-hour written exams. The	% passing at PhD level			
Exam in Micro		design of the comprehensive exam allows the				
and Macro		examination committee to ascertain if the individual				
Theory		student has a complete knowledge of both				
[DIRECT]		microeconomics and macroeconomics. The faculty				
		committee blind-evaluates and scores the exams.				
Research Paper	A1,	Committee on Studies mentors the student work.	% scoring very good or			
Departmental	B1,	When the committee deems the research paper ready,	better			
Seminar	B2,	the student schedules a departmental seminar. All				
[DIRECT].	C1	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).				
Doctoral	A1,	Dissertation committees evaluate student work	% scoring very good or			
Dissertation	B1.	according to professional standards. Each member of	better			
Defense	B2.	their committee scores their dissertation on				
[DIRECT].	C1	substance, methodology, and an evaluation of the				
L - J		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				
Field Exam in	B1	Written eight to eight and a half hour exam in	% passing at PhD level			
Econometrics	21	econometrics. The design of the field exam in				
[DIRECT]		econometrics allows the examination committee to				
[biider]:		ascertain if the individual student has a complete				
		knowledge of the material covered in the three-course				
		sequence in econometrics.				
Job placements	C1	Sample: PhD graduates Number of students on job				
INDIDECTI	01	market and count of placement type				
		Setting: Assessment by external job market				
Completion of	C1	Sample: PhD students	% completing program			
Completion of	CI	Satting: Outcomes (PhD MA drop) of those entering	% completing in 5 years			
degree and		the program. Time to degree for all these completing	70 completing in 5 years			
time to degree		the program. Time to degree for an those completing.				
[INDIRECT]	Da					
Student paper	B2,	Sample: Current and PhD graduates from past X years				
submissions	CI	Setting: Assessment by external reviewers. # of				
and		papers submitted by current students. # of				
publications		publications from current students and students				
[INDIRECT]		graduating from past X years.				
	~					
Teaching	C2	Sample: students teaching as independent instructors	% scoring at "More true			
evaluation		in in undergraduate and graduate courses and students	than false" or higher on			
scores		teaching labs.	Excellent Course &			
[DIRECT]			Excellent Instructor			

MA program: Relationship between UNM Learning Goals, Program Goals, and Student Learning						
Outcomes						
UNM Learning	Program Goal	SLO				
Goals						
(Knowledge,						
Skills,						
Responsibility)						
		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	SLO	Assessment measure description	Benchmark			
Measure						
MA theory or	A1	Consists of a seven-hour written exam. Exam questions	% passing			
field exam		cover core theory in economic theory or a field area. The				
[DIRECT]		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.	~			
MA thesis	A1,	Thesis committees evaluate student work according to	% scoring very good or			
Defense	B1,	professional standards. Each member of their committee	better			
[DIRECT].	B2,	scores their dissertation on substance, methodology, and				
	C1	an evaluation of the work as a whole. Each objective is				
		scored out of five points, where a five is best (1=inferior,				
MA Field	R 1	Consists of a seven hour written exam. The design of the	% passing			
Exam in	DI	evant allows the evanination committee to ascertain if the	70 passing			
Exam III Econometries		individual student has a MA-level knowledge of				
		econometrics. The faculty committee blind-evaluates and				
[DIRECT].		scores the exams.				
Job placements	C1	Sample: MA graduates. Number of students on job	Replace with different			
[INDIRECT]		market and count of placement type.	indirect measure?			
[Setting: Assessment by external job market	Survey of graduates			
		Note: Nothing previously done on this as data has	(could also do for			
		been hard to collect.	PhD)?			

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

 (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.

Department of Economics

Faculty Meeting Minutes

October 7, 2015	
Present:	Robert Berrens, Melissa Binder, Alok Bohara, Janie M. Chermak, Brady
	Horn, Kate Krause, Xiaoxue Li, Shana McDermott, Cristina Reiser,
	Richard Santos, Christine Sauer, Sarah Stith, Jennifer Thacher, David
	van der Goes, Kira Villa, Jingjing Wang
Absent:	Matias Fontenla, Robert Valdez, Phil Ganderton,
Next meeting:	November 4, 2015 at 2:30 PM
Absent: Next meeting:	van der Goes, Kira Villa, Jingjing Wang Matias Fontenla, Robert Valdez, Phil Ganderton, November 4, 2015 at 2:30 PM

I. Todd Quinn (Library Sciences)

• See attached handout.

II. Good News

• UTEP Building Scholars grant and promoting the Economics Department to people who may want to be mentors next summer.

III. Approval of the May Minutes

- Approval of the May 6, 2015 minutes
 - Motion to approve A. Bohara and seconded by S. McDermott, all in favor
- Approval of August 26, 2015 minutes
 - Motion to approve A. Bohara and seconded by D. van der Goes, all in favor

II. Chair's Report – J. Chermak

- ECON 105 2H has enrollment at 80 and we are teaching ECON 105 and ECON 106 intercession.
- Discussion about University budget shortfalls and the potential impact on the College of Arts and Sciences.
- Hiring update.
 - The replacement for D. Brookshire is not a guarantee and it has been tabled until next year.
 - LAII may provide bridge funding for the first 3 years for a potential ERE hire.
- Derek Brumfield Principal and Director of Investment Platform, TKG Financial and potential Departmental donor will be visiting October 15, 2015.

III. Proposed Course Evaluation Questions for ECON – J. Thacher

- Discussion about the inclusion of departmental questions to the required seven questions already present in EvaluationKit.
 - \circ Discussion about the need to have separate questions for the graduate courses.
 - Different questions for undergraduate and graduate courses?
- Review and vote on questions at the November 4, 2015 meeting.

IV. Undergraduate Committee Report – R. Santos

- There will be advising and orientation sessions for new majors in October.
- The workshop for undergraduate assessment was held on October 2.
- Report about undergraduate assessment for the November 4, 2015 meeting.

V. Graduate Committee Report – J. Thacher

- Proposed changes to the graduate handbook.
 See attachment.
- Discussion about the 30 credit hours change for MA students and impact on PhD in route students.
- Catalog changes need to be the registrar due early January.
- Curriculum changes need to be done by November 4, 2015.
 - Evote requested to vote on the graduate handbook revisions.
 - R. Berrens moves to accept the recommendation and vote on all changes at once with an evote within the 48 hours rule.
 - M. Binder seconds the motion.
- Results of the evote:
 - 16 Yes 1 No 1 Abstain

IIX. New Business

Motion to adjourn R. Santos. Seconded by R. Berrens.

From:	Janie Chermak
То:	Robert Berrens; Brady Patrick Horn; Alok K. Bohara; Christine Sauer; Richard Santos; Matias Fontenla; David Van Der Goes; Xiaoxue Li; Jennifer Thacher; Janie Chermak; Sarah See Stith; Melissa Binder; Kira Villa; Shana McDermott; Jingjing Wang; Philip Ganderton; Kate Krause; ROValdez@aol.com
Cc:	Leah Hardesty
Subject:	Faculty Vote on Changes to the Graduate Student Handbook Motion Carries
Date:	Friday, October 16, 2015 6:55:24 PM

Hi All:

The e-vote on changes to the graduate handbook carried. There was one no vote; one non-vote; and the rest yes votes.

Thanks to everyone for voting and a very big thanks to the graduate committee and to Jenn Thacher, the Graduate Director, for their work on this.

Janie

Janie M Chermak Professor and Chair Department of Economics University of New Mexico Department of Economics Faculty Meeting Minutes

Robert Berrens, Melissa Binder (proxy for Stith), Alok Bohara, Janie M.
Chermak, Claudia Diaz Fuentes, Dave Dixon, Brady Horn, Xiaoxue Li,
Cristina Reiser, Richard Santos, Christine Sauer, Jennifer Thacher,
David van der Goes, Robert Valdez, Kira Villa
Matias Fontenla, Phil Ganderton, Kate Krause, Sarah Stith, Jingjing
Wang
October 5, 2016 at 2:30 PM

I. Guest – Todd Quinn

- Library update
 - ICPSR
 - Princeton University Library Data and Statistical Services
 - Kanopy database of films

II. Approval of the minutes

- May, 4 2016 motion to approve J. Chermak, seconded D. van der Goes, unanimously approved
- May 23, 2016 motion to approve C. Sauer, seconded K. Villa, unanimously approved
- July 13, 2016 motion to R. Valdez, seconded X. Li, unanimously approved with below addition:
 - o 6 present, 15 votes including 9 proxy votes

III. Good News

- Truman Health Market Scan data set has arrived on campus, please see D. van der Goes for more information.
- B. Horn's NIH grant was awarded.
- B. Jones has another publication.
- S. Stith's work in Science influenced a policy change about marijuana.

IV. Consideration of recommendations from PhD Exam Committees

- Macroeconomics Exam
 - See attached memorandum from the Macroeconomics committee.
 - 6 PhD pass and 5 MA level and 2 failed at all levels.
 - X. Li seconded the motion.
 - Call the question, all those in favor of the recommendation, 1 against, 12 in favor
- Microeconomics
 - See attached memorandum from the Microeconomics committee.
 - 8 PhD pass and 5 MA pass
 - R. Valdez seconded the motion
 - Call the question, all those in favor of the recommendation, 13 in favor and 0 against
- V. Graduate Seminars X. Li

• Discussion about having graduate students on the job market present as part of the graduate seminar series at the end of the semester if it is approved by the student's advisor.

VII. Chair's Report – R. Berrens

- Intersections module on Title IX in Learning Central is mandatory for all faculty and staff.
- College of Arts and Sciences suffers a 1.5 million deficit this year.
 - There will be limited part time faculty instruction support from Arts and Sciences
 - Operating budget may be reduced.
- 105/106 course fee exploration to support in house materials continues.
 - Course fees can be used for course/lab preppers to fund students over the summer.
 - Encouragement for bilingual materials.
- C. Sauer moved to adjourn, seconded J. Thacher, all in favor.

NOTES

Next meeting will be October 5, 2016.

Date: August 30, 2016

To: Bob Berrens, Chair

From: Macro Core Exam Committee (Janie Chermak, Christine Sauer) CS (e-signed)

Re: August 2016 Macro Core Exams

The PhD core exam in macroeconomics was administered on Monday, August 15, 2016 from 8:00 am to 3:00 pm. Thirteen students were signed up to take the exam, and 13 took it.

The macro committee evaluated and discussed the candidates' answers to four questions, including three required questions (A1, B1, B2) and one choice question (A2 or A3). Based on these discussions, we report the consensus results question-by-question and make the following unanimous recommendation to the faculty:

No.	A1	A2	A3	B1	B2	No. of	Total	Result
	required	choice	choice	required	required	Passes	Points	
2657	3	NA	3	3	3	4	12	PhD pass
2806	3	3	NA	0	3	3	9	PhD pass
3271	3	NA	2	3	3	3	11	PhD pass
4080	3	NA	3	3	3	4	12	PhD pass
4392	2	2	NA	0	0	0	4	Fail
4631	2	0	NA	0	3	1	5	Fail
5206	3	NA	3	2	3	3	11	PhD pass
6225	2	NA	2	3	2	1	9	MA pass
6974	2	NA	3	3	0	2	8	MA pass
7379	2	2	NA	2	2	0	8	MA pass
7921	3	2	NA	2	1	1	8	MA pass
8282	3	NA	3	3	3	4	12	PhD pass
9622	2	NA	3	2	1	1	8	MA pass

The following grading scale was used for the exam questions:

- 3 points = Pass,
- 2 points = Marginal Pass,
- 1 point = Marginal Fail, and
- 0 points = Fail.

The total number of possible points for the exam was 12. To pass the macro core exam at the PhD level, a student had to have at least 2 Passes and at least 9 out of the 12 possible points. To pass the macro core exam at the MA level, a student had to have at least 7 out of the 12 possible points. A total score of less than 7 points means that the student failed the exam at both levels.

CC: Jennifer Thacher, Graduate Director Leah Hardesty, Department Administrator Mary Garcia, Academic Advisor

Department of Economics Memorandum

To: Robert Berrens, Chair

From: Micro Exam Committee Janie Chermak, Jennifer Thacher, Brady Horn, Xiaoxue Li

Re: August 2016 Micro Portion of Core Exams



Date: August 30, 2016

The microeconomics component of the Ph.D. core exam was administered on Wed, August 17th. Thirteen students sat for the exam. A copy of the exam is included as an attachment.

The exam consisted of three sections. Section A included two required questions (A1 and A2). Sections B and C were choice sections where students were required to choose one of the two questions in each section (B1 or B2 and then C1 or C2). Each question consisted of four sub-parts.

All committee members individually graded all questions. The committee then met on August 29^{th} to discuss each exam individually and provide a committee grade for each question. The committee unanimously agreed on the results for each question. The results are provided in the table at the end of this memo. Please note P = Pass; MP = Marginal Pass; MF = Marginal Fail; and F= Fail. Numeric scores are included in parentheses (P=3; MP=2; MF=1; F=0)

In order to successfully pass the micro portion of the core exam at the PhD level, a student must earn at least nine (9) of the 12 points possible and pass two questions. Of the thirteen students sitting for the exam, eight (2657, 2806, 3271, 4080, 5206, 6225, 8282, 9622) met these criteria. The committee unanimously recommends these students pass this portion of the core, qualifying exam at the PhD level. In addition, Student ID 5206 earned 12 points and received passes on all four questions. The committee recommends this student earn a "Pass with Distinction" for his/her efforts as the demonstrated an excellent effort and strong applied microeconomic theory skills and intuition.

In order to pass the core micro portion of the exam at the Masters level, a student must earn at least seven of the 12 points possible. Five students met this requirement. The committee unanimously recommends these students pass at the Masters level (4392, 4631, 6974, 7379, 7921).

The committee is happy to answer any questions.

Churd and ID	A1	A2	В		С		Daaa	Delate	0.1
Student ID			1	2	1	2	Pass	Points	Outcome
2657	P (3)	P (3)	MP (2)			MP (2)	2	10	PhD
2806	MP (2)	P (3)	P (3)			MF (1)	2	9	PhD
3271	P (3)	P (3)	P (3)		MF (1)		3	10	PhD
4080	P (3)	P (3)		P (3)		MP (2)	3	11	PhD
4392	MP (2)	P (3)	MP (2)			F (0)	1	7	MA
4631	MP (2)	MP (3)	P (3)			F (0)	1	7	MA
5206	P (3)	P (3)		P (3)		P (3)	4	12	PhD*
6225	P (3)	P (3)		MP (2)		MF (1)	2	9	PhD
6974	MP (2)	MP (2)	MP (2)			MF (1)	0	7	MA
7379	MP (2)	MP (2)	MP (2)		MF (1)		0	7	MA
7921	MF (1)	MP (2)	P (3)		MF (1)		1	7	MA
8282	P (3)	P (3)		MP (2)		MP (2)	2	10	PhD
9622	P (3)	P (3)		P (3)	MP (1)		3	11	PhD

* pass with distinction

CC: Jennifer Thacher, Graduate Director Mary E. Garcia, Graduate Coordinator Leah Hardesty, Departmental Administrator

Attachment