

**UNIVERSITY COUNCIL
ACADEMIC PROGRAMS COMMITTEE
REQUEST FOR DECISION**

PRESENTED BY: Kevin Flynn, Academic Programs Committee

DATE OF MEETING: June 22, 2018

SUBJECT: Doctor of Philosophy (Ph.D.) in Applied Economics

DECISION REQUESTED:

*It is recommended:
That Council approve the Doctor of Philosophy
(Ph.D) program in Applied Economics, effective
September 1, 2018.*

PURPOSE:

The PhD in Applied Economics will build on expertise from across campus, bringing together faculty from the Department of Agricultural and Resource Economics in the College of Agriculture and Bioresources, the Department of Economics in the College of Arts and Science, the Department of Finance and Management Science in the Edwards School of Business, and the Johnson Shoyama Graduate School of Public Policy. This PhD program will build upon expertise from across campus, allowing the University of Saskatchewan to provide new opportunities for graduate education. Agriculture and Resource Economics has a longstanding and successful PhD program in Agricultural Economics, which it will continue to offer. Building on Agriculture and Resource Economics' experience will enable the participating units to jointly offer a program that will provide new educational opportunities for students and collaborative research opportunities for faculty.

CONTEXT AND BACKGROUND:

As the academic landscape continues to change, it is critical that the University of Saskatchewan position itself so that it can best take advantage of available resources and expertise in order to construct new academic programs. Through the cooperation of faculty members in a formal program, the PhD in Applied Economics allows the U of S to offer a broader range of research opportunities for students.

The PhD in Applied Economics will be administered by an admissions and program committee (the Applied Economics Graduate Committee) consisting of a representative from each of the four participating units.

The PhD in Applied Economics combines advanced courses in applied economics with a major research dissertation. The core of the program focuses on microeconomic theory and quantitative methods but includes one advanced course in macroeconomics. Each student and his/her advisory committee determine the remainder of the student's field

courses. While students will graduate with an in-depth knowledge of a particular field (e.g., environmental economics, health economics, labour economics, resource economics), they will also be required to obtain a broad knowledge of economics and its application.

There is an expectation that students will take 36 credit units (or two years' worth of courses) regardless of their prior coursework. Although it is possible for very well-trained students to take the minimum 27 CUs, this will normally occur only under exceptional circumstances.

The PhD in Applied Economics is complementary to the Masters programs in Economics, Agricultural Economics and Finance, and to the PhD program in Agricultural Economics, in that all of the programs make use of some of the same courses. It will also strengthen these programs by providing a larger cohort of economics students and by allowing a wider set of courses to be offered. It is expected that some of the students in the PhD program will come from the above Masters programs. Some students from other programs on campus (e.g., the Masters of Public Policy or the MA in Political Studies) may also apply to the PhD in Applied Economics.

CONSULTATION:

- Planning and Priorities Committee of Council – January 30, 2015
- Graduate Programs Committee in the College of Graduate and Postdoctoral Studies – November 10, 2016 and January 6, April 3, May 12, 2017
- CGPS Executive Committee – January 12 and May 19, 2017
- Academic Programs Committee - January 25 and May 24, 2017

SUMMARY:

The U of S has many faculty members who are applying economic concepts to real-life problems. These faculty members are spread across a number of academic units and have different skill sets and areas of expertise. Bringing them together through this PhD in Applied Economics will strengthen our research program in economics, will provide an expanded scope for engagement with faculty in other areas through interdisciplinary research, and will provide new and exciting opportunities for incoming students.

FURTHER ACTION REQUIRED:

Tuition for this program will require review and approval by the Board of Governors, and will be presented at its December 2017 meeting.

ATTACHMENTS:

1. Proposal – Ph.D. in Applied Economics

Proposal Document – PhD in Applied Economics

Revised: June 6, 2017

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Proposal Document – PhD in Applied Economics

Revised: June 6, 2017

1. Academic Justification

a. Describe why the program would be a useful addition to the university, from an academic programming perspective.

*"The ultimate aim of applied economics is to increase human welfare by the investigation and analysis of economic problems of the real world."*¹ Scholars capable of assembling and analyzing data, and making practical recommendations worthy of implementation, in plain language, are in short supply.

Economics is one of the cornerstones for understanding and managing the modern economy. Society continues to look to experts for advice on how to interpret economic events and to contribute to policy discussions. The University of Saskatchewan has a substantial number of faculty members who are applying economic concepts to challenging real-world problems. These faculty members, who are spread over a number of academic units, have different skill sets and different areas of expertise. These units include (in alphabetical order): Department of Agricultural and Resource Economics (ARE) in the College of Agriculture and Bioresources; the Department of Economics (Economics) in the College of Arts and Science, the Department of Finance and Management Science (Finance) in the Edwards School of Business, and the Johnson Shoyama Graduate School of Public Policy (JSGS). There are also a few economists in other departments, such as the Department of Accounting in the Edwards School of Business.

Creating a PhD in applied economics will increase the research intensity at the University of Saskatchewan. By working with a larger student base and by pooling their expertise, the economist faculty will be more competitive in Tri-Agency and other large funding competitions, enabling a greater scope of economic research to address real-world issues. In addition, the applied nature of the research will provide an expanded scope for engagement with faculty in other areas in interdisciplinary research projects.

The PhD in Applied Economics will build on expertise from across campus, thus allowing the University of Saskatchewan to provide new opportunities for graduate education. Agriculture and Resource Economics has a long-standing and successful PhD program in Agricultural Economics, which it will continue to offer. Building on Agriculture and Resource Economics' experience will enable the participating units to jointly offer a program that will provide new educational opportunities for students and collaborative research opportunities for faculty.

¹So began the proposal to build the now-famous Cambridge department of Applied Economics. See Pesaran, M.H. and G.C. Harcourt (2000), "The life and work of John Richard Nicholas Stone 1913-1991." *The Economic Journal* 110(461). Stone was awarded the Nobel Prize for applying economics to the development of national accounts.

The proposed PhD program in Applied Economics would initially draw upon faculty from four academic units on campus – the department of Agricultural and Resource Economics; the department of Economics; the department of Finance and Management Science; and the Johnson Shoyama Graduate School of Public Policy. The result will be a highly innovative program that truly involves cross-campus co-operation. The structure of the proposed program is sufficiently flexible that other economists/units would be able to participate in the future.

The proposed PhD in Applied Economics develops possibilities that can only be realized through formal co-operation among the participating academic units. While each of the units is focused on research and teaching in its particular area of expertise, there are aspects of their work where there is a high degree of complementarity. Co-operation in graduate teaching and supervision at the PhD level will lead to the sharing of teaching resources and create opportunities for collaboration on large-scale research projects and grant applications. To provide the proper incentives for collaboration and thus achieve the benefits of this complementarity, however, a formal structure is required. The PhD in Applied Economics is this structure.

The University of Saskatchewan currently offers a number of programs that will be highly complementary to the proposed PhD in Applied Economics. In addition to the PhD program in Agricultural Economics and the PhD in Public Policy, there are Masters programs in Agricultural Economics, Economics, Finance and Business, and Public Policy. All of these programs offer courses that will slot directly into the PhD in Applied Economics. As well, it is expected that with the establishment of the PhD in Applied Economics, the units will develop new course offerings as faculty come on stream and the field areas are systematically explored.

b. Giving consideration to strategic objectives, specify how the new program fits the university signature areas and/or integrated plan areas, and/or the college/school, and/or department plans.

The proposed PhD in Applied Economics fits very well with the priorities of the *Third Integrated Plan*. In particular, it addresses two of the key areas of focus outlined in the *Integrated Plan – Knowledge Creation: Innovation and Impact* and *Innovation in Academic Programs and Services*. With respect to *Knowledge Creation*, the PhD in Applied Economics can be expected to contribute directly to the campus-wide goal of increasing PhD program enrolment by 10 per cent and to support the goal of increasing the proportion of research-appointed faculty holding Tri-Agency funding and supervising graduate students.

The proposed PhD in Applied Economics is an example of one of the kinds of innovative academic programming that is envisioned and encouraged in the area of *Innovation in Academic Programs and Services*. As the academic landscape continues to change, it is critical that the University of Saskatchewan position itself so that it can best use the resources that are available and that it find new academic program niches that it can exploit. Through the co-operation of faculty members in a formal program, the PhD in

Applied Economics allows the University of Saskatchewan to offer a broader range of research opportunities for students.

The proposed program is also aligned closely with the university's signature areas. The discussion of this alignment is presented in the Resources section below.

c. Is there a particular student demographic this program is targeted towards and, if so, what is that target? (e.g., Aboriginal, mature, international, returning)

The proposed PhD program addresses the demand for a top academic credential in applied economics. Students with a PhD in Applied Economics will be well trained in the research skills necessary to play integral roles in the civil service, research organizations and industry associations. Some students from the program will pursue academic careers in Canada and abroad and will be in a position to train the next generation of applied economics professionals to conduct research for governments, businesses, think tanks and other research organizations. As the designation emphasizes, the program is oriented toward students seeking the knowledge and research skills required to inform and examine the important concerns of the day.

The PhD in Applied Economics is designed to meet academic, government and industry demand for research-oriented graduate training in applied economics. A PhD in Applied Economics makes particular sense at the University of Saskatchewan given the applied nature of the participating units. A focus on the application of economics to real world problems will be attractive to students who want this focus and who wish to work with faculty with experience in applied research,

The demand for PhD graduates from this program can be expected to be strong. Evidence of this demand is in the recent draft report by the American Economic Association, which organizes an annual job market in conjunction with its annual meetings. Job listings for PhDs increased by 8.5% to 3,309, 25.6% of which were non-academic: the “number of open positions ... far exceeds the number of new PhDs awarded in economics” (<https://www.insidehighered.com/news/2015/12/29/report-finds-increase-job-openings-economics-phds>). Similarly, the academic job market alone for PhD in financial economics is tight. The placement services website at the 2016 Financial Management Association International lists 209 positions, while resume listings remain at 132 as of November 2016 (<http://www.fma.org/Placement/2016/OpeningPageSecure2016.htm>).

Evidence of strong demand also exists from the experience of the program in agricultural economics. Recent graduates of this program have taken positions in academia – in Canada, the US and Europe – as well as in government at both the federal and provincial level and in private industry. Employers like the applied nature of the training received by these graduates and the program attracts considerable funding to support the applied research undertaken by its students. The market in the agriculture area is not unique -- there is currently an underserved market in other areas where economics (e.g., resources, energy, health, labour) can be applied, and which the new program can supply. Indeed,

the Economics department and the Department of Finance routinely receive inquiries from students about the potential to do a PhD at the University of Saskatchewan.

There will be significant opportunities to stream Masters students directly into a PhD program (as is common in the United States and increasingly in Canada). Although some Masters graduates learn the particular advanced skills required for their job over several years of work experience, this learning is not equivalent to the coherent and integrated preparation developed in a well thought-out PhD program. Currently, Agricultural and Resource Economics, Economics and Finance receive many more applications for their Masters programs than they are able to accommodate with admissions (for example, Finance routinely receives well over 70 applications, while only 4 students are admitted).

We expect opportunities for well-trained applied economists to become available in both the public and private sectors. There are considerable demographic forces and shifts in the skill composition at work that indicate a need for applied economists in the future. In the case of the public sector, since the early 1990s there has been a substantial shift in the age profile of the public service in Canada, with a significant decline in the number of civil servants under the age of 35 and an increase in the number in the 35-54 year age group. In 2003–04, the average age of public service employees in Canada was 44, with just over 50 percent of employees over the age of 45. In the Executive category, the average employee age was 50 years, with 60 percent of employees over the age of 50 (Public Service Human Resources Management Agency of Canada, 2005). For Saskatchewan, these numbers are even higher (Public Service Commission, 2005) – for instance, the average age of senior executives is nearly 52. In addition, there has been a move to improved credentials within the public service, with more jobs in the Scientific and Professional, and Administrative and Foreign Service categories (Nehmé, 1998, Public Service Commission of Canada, 2002). Local governments, particularly those in cities, and First Nations, are becoming increasingly important policy players in Canada. Future demand for highly qualified analysts will be strong as employees retire and organizations – including federal, provincial, municipal and Aboriginal governments – strengthen their analytical and research capacities.

There is also a significant demand in the private sector. Applied economic skills are valuable to industry associations and large corporations as these organizations seek to understand the economic environment in which they are operating and to develop responses to this environment.

There is a strong international demand for PhD training in applied economics. Each of the participating units regularly receives enquiries from students seeking PhD training at the University of Saskatchewan (as well as from young scholars with PhDs seeking to strengthen their research programs as visiting scholars) and the University is working to establish itself as a locus of doctoral training opportunities for international students.

The combined reputation and expertise of the faculty in the four participating units will be a strong draw for students. Prominent research areas include agricultural economics,

environmental and natural resource economics, financial economics, health economics, international economics, labour economics, and public policy. As mentioned, each of these areas regularly attracts inquires from students seeking doctoral training. It is anticipated that the program would be able to support 5-9 new PhD students a year.

d. What are the most similar competing programs in Saskatchewan, and in Canada? How is this program different?

The Vancouver School of Economics (VSE) at UBC and the U of Toronto (U of T) are the largest Canadian PhD programs in Economics and are designed to produce internationally competitive graduates. These programs are summarized in Tables 1a and 1b below. Their structures parallel those of the top U.S. and European programs, as do the other Canadian Economics PhD programs (excluding French language programs) at the universities of Victoria, Simon Fraser, Calgary, Alberta, Manitoba, Western, McMaster, York, Carleton, Queen's, McGill, and Dalhousie. The University of Waterloo's PhD in Applied Economics is described in Table 1c.

Economics PhD programs have a relatively common structure. Year 1 teaches the core of microeconomic theory, macroeconomic theory, and econometrics and concludes with comprehensive examinations in economic theory. Year 2 courses in chosen fields of specialization are followed with field examinations and a research paper demonstrating an ability to undertake doctoral level research. The thesis topic is developed in Year 3. Thesis research occupies Years 3-5 or 3-6. An unsatisfactory research paper or thesis proposal by the end of Term 1 in Year 3 requires withdrawal.

The American Economics Association facilitates recruiting in conjunction with its annual meetings in early January of each year. Final year economics PhD students meet with prospective employers; invitations for site visits follow. In preparation, students develop their job market paper and seminar in the fall of their final year and most expect to complete all degree requirements by the end of the academic year.

Table 2 summarizes the University of Minnesota's PhD in Applied Economics, a multi-unit collaboration of the department of Applied Economics in the College of Food, Agricultural and Natural Resource Sciences, the department of Human Resources and Industrial Relations in the Carlson School of Management, the Division of Health Policy and Management in the School of Public Health, and the Hubert H. Humphrey Institute of Public Affairs. The department of Economics offers a PhD in Economics; students in the Applied Economics program take courses from the department of Economics as well as the co-operating units.

Table 1a: Vancouver School of Economics: PhD in Economics

| | Course requirements | Examinations | Research | Seminars & Workshops |
|---------|--|---|--|--|
| Year 1 | 2 Microeconomics 2 Macroeconomics 2 Econometrics | Comprehensives: Microeconomics Macroeconomics | | |
| Year 2 | 1 Econometrics 7 field courses | | Summer research paper | |
| Year 3+ | | | Thesis proposal Thesis research | PhD Seminar (3cu) PhD Workshops (6cu) |
| Year 5 | | | Prepare for job market Thesis defense | |

Notes (1) The VSE program has recently expanded significantly from an average of 6.25 placements per year in 2011-2014 to an expected 13 in 2015. (2) An MA is normally required for admission; the program requirements are beyond the MA. (3) The VSE program is normally completed in 5 years.

Table 1b: University of Toronto: PhD in Economics

| | Course requirements | Examinations | Research | Seminars and Workshops |
|----------|--|---|--|----------------------------|
| Year 1 | 2 Microeconomics 2 Macroeconomics 2 Econometrics | Comprehensives: Microeconomics Macroeconomics | | |
| Year 2 | 1 Econometrics 6 field courses | Comprehensive in major field | Research Paper | Research seminar (2 terms) |
| Year 3+ | | | Thesis proposal Thesis research | Workshops |
| Year 4-6 | | | Prepare for job market Thesis defense | |

Notes (1) The U of T program has placed an average of 6.5 students per year in 2011-2015. (2) An MA is normally required for admission; the program requirements are beyond the MA. (3) The U of T program is normally completed in 5 to 6 years.

Table 1c: University of Waterloo: PhD in Applied Economics

| | Course requirements | Examinations | Research | Seminars & Workshops |
|---------|--|---|--|--|
| Year 1 | 2 Microeconomics 2 Macroeconomics 2 Econometrics | Comprehensives: Microeconomics Macroeconomics | | |
| Year 2 | 1 Econometrics 5 field courses | | Summer research paper | |
| Year 3+ | | | Thesis proposal Thesis research | PhD Seminar (3cu) PhD Workshops (6cu) |
| Year 5 | | | Prepare for job market Thesis defense | |

Notes (1) The Waterloo program is small, with 2 graduates per year in 2012 – 2014. (2) An MA is normally required for admission; the program requirements are beyond the MA.

Table 2: University of Minnesota: PhD in Applied Economics

| | Course requirements | Examinations | Research | Seminars & Workshops |
|--------|--|-----------------------------------|---|--------------------------|
| Year 1 | 2 Microeconomics 1 Macroeconomics 2 Econometrics | Comprehensives: Microeconomics | | First Year Seminar |
| Year 2 | 6+ field courses | Comprehensive in major field | Qualifying paper | Qualifying Paper Seminar |
| Year 3 | | | Thesis proposal and Oral examination Thesis research | |
| Year 4 | | | Prepare for job market Thesis defense | |

Notes (1) The Minnesota program will graduate 4 students this year. (2) This is a direct entry program requiring background in economics and quantitative methods. Of the 4 students graduating this year, 2 entered with MAs and 2 with BAs. (3) The Minnesota program is designed to be completed in 4 years.

Table 3 summarizes the proposed PhD in Applied Economics at the University of Saskatchewan; a detailed description is provided in the next section, Description of the Program. The proposal follows the Minnesota model in requiring one course in macroeconomic theory; a second course may be required if appropriate to the chosen field. The overall course structure is comparable to the Minnesota program and if a second macroeconomic theory course is taken, it is also comparable to the Canadian programs. The proposed program differs in requiring two research papers and an earlier engagement in research.

2. Admissions

a. What are the admissions requirements of this program?

- A master's degree, or equivalent, in a related field of study from a recognized college or university.
- A cumulative weighted average of at least 70% (U of S grade system equivalent) in the last two years of study (e.g. 60 credit units).
- International applicants must meet the English proficiency requirements set forth by the college.

We recognize that applicants meeting either of the first two requirements will normally meet the other.

3. Description of the Program

PhD in Applied Economics

The PhD in Applied Economics will be administered by an admissions and program committee (the Applied Economics Graduate Committee) consisting of a representative from each of the four participating units.

Draft Calendar Entry

The PhD in Applied Economics combines advanced courses in applied economics with a major research dissertation. The core of the program focuses on microeconomic theory and quantitative methods but includes one advanced course in macroeconomics. The student and their advisory committee determine the remainder of the students' courses.

Degree Requirements:

Course Requirements – minimum 27 CUs. Following the norm in all major economics PhD programs in Canada and the United States (see the above tables), there is an expectation that students will take 36 CUs (or two years worth of courses) regardless of the courses they have taken earlier. Although it is possible for very well trained students to take the minimum 27 CUs, this will normally occur only under exceptional circumstances.

Year 1

Students will take the following:

- 6 CUs in Microeconomics (from ECON 800, ECON 873, AREC 842; ECON 850, or course approved by graduate committee)
- 6 CUs in Econometrics (from ECON 808, ECON 809, or course approved by graduate committee)
- 3 CUs in Macroeconomics (from ECON 801, ECON 874, or course approved by graduate committee)
- 3 CUs approved by the admissions and program committee

The Microeconomics requirement will typically be met by taking ECON 800.3 (Microeconomic Theory) and ECON 873.3 (Advanced Microeconomic Theory), both of which are offered annually. Depending on their background (e.g., if they have obtained an MA in Economics from the University of Saskatchewan and have already taken one of the courses), students may be allowed to substitute AREC 842.3 (Agricultural Market Organizations), ECON 850.3 (Game Theory, Strategic and Co-operative Choices) or a

Table 3: University of Saskatchewan: Proposed PhD in Applied Economics

| | Course requirements | Examinations | Research | Seminars & Workshops |
|-----------|--|---------------------------|---|----------------------|
| Year 1 | 2 Microeconomics (ECON 800, ECON 873, AREC 842; ECON 850, or course approved by graduate committee) 1 Macroeconomics (ECON 801, ECON 874, or course approved by graduate committee) 2 Econometrics (ECON 808, ECON 809, or course approved by graduate committee) 1 Approved course | First Comprehensive Exam | Research paper (as part of comprehensive exam) | APEC 990 |
| Year 2 | 6 field courses | Second Comprehensive Exam | Research paper (as part of comprehensive exam) | APEC 990 |
| Years 3-4 | | | Thesis proposal Thesis research | APEC 990 |
| Year 5 | | | Thesis research Prepare for job market Thesis defense | APEC 990 |

course recommended by the student's advisory committee and approved by the graduate committee.

The Econometrics requirement will typically be met by taking ECON 808.3 (Econometrics I) and ECON 809.3 (Econometrics II), both of which are offered annually. Depending on their background (e.g., if they have obtained an MA in Economics from the University of Saskatchewan and have already taken one of the courses), students may be allowed to substitute a course recommended by the student's advisory committee and approved by the graduate committee.

The Macroeconomics requirement will typically be met by taking ECON 801.3 (Macroeconomic Theory), which is offered annually. Depending on their background (e.g., if they have obtained an MA in Economics from the University of Saskatchewan and have already taken this course), students may be allowed to substitute ECON 874.3 (Advanced Macroeconomic Theory) or a course recommended by the student's advisory committee and approved by the graduate committee.

As is common in most economics programs, both Masters and PhD students take the same introductory micro, macro and econometrics courses – the reason is that these courses provide the basic theoretical framework in the discipline. A similar practice will be followed in this program, with ECON 800.3 (Microeconomic Theory), ECON 801.3 (Macroeconomic Theory) and ECON 808.3 (Econometrics I) offered to students in both Masters and PhD programs. Given their advanced nature, ECON 873.3 (Advanced Microeconomic Theory), ECON 850.3 (Game Theory, Strategic and Co-operative Choices) and ECON 809.3 (Econometrics II) will focus on PhD students. However, since all graduate (800) level courses at the University of Saskatchewan are available to both Masters and PhD students, it will be possible for very good Masters students to take one or more of these courses. To accommodate students that have taken their Masters degree at the University of Saskatchewan, the program has included a number of other options that students can take to fulfill their microeconomic, macroeconomic, and econometric requirements.

Students successfully completing these courses will write the first of two comprehensive exams at the end of the first year (the second exam is a field exam – see below for details). This exam will have three components. The first is an exam requiring students to apply the microeconomic theory they have taken in their courses. The second component takes the form of a research paper that focuses on the use of the theory and empirical tools taught in the first year (students are expected to complete the paper with minimal input from faculty). Students will also be given an oral examination of the paper and the exam (the oral exam constitutes the third component). Students must receive a Pass on all three components in order to pass the first comprehensive exam. To receive a Pass, students must achieve a score of Very Good (80-85) or Excellent (85+). A detailed description of these scores is provided in the Comprehensive Exam Guideline document in appendix 1. This document also provides more detail on the comprehensive exam process.

By the end of the first year of study, the student will have an approved supervisor and advisory committee. In lieu of a cognate member, advisory committees must include members from at least two of the participating academic units.

Year 2

In consultation with their advisory committee, students will develop a program based on their applied field. Selection of the courses in the second year is driven by the student's applied topic area and must be recommended by the advisory committee and approved by the graduate committee. Students are expected to take courses from at least two of the participating academic units.

Students will be required to submit for approval a program of studies that presents the field courses they will take, as well as an explanation for how these courses will give them the background and skills to undertake their proposed dissertation research, while at the same time exposing them to at least two areas of applied economics. Specifically, the program of studies must include two courses that are core to their dissertation topic; in addition, the program of studies must include at least two courses that are outside this core area.

For instance, a student wishing to write their dissertation in the area of health economics (a possible topic could be the impact of fee-for-service payments on the evolution of health care) might develop a program of studies that would include ECON 833.3 (Economic Evaluation Methods in Health Services Research) and ECON 834.3 (Health Economics) as core courses for their dissertation research. In addition, given the importance of how patients and health professionals make decisions, the student might include ECON 870.3 (Behavioural Economics) and JSGS 865 (Decision Making in Organizations) in their program. Finally, the student might complete their program of study with JSGS 862.3 (Political Economy) and ECON 830.3 (Public Finance) to understand how health policy is determined and financed.

To provide another example, a student wishing to write their dissertation on international trade (a possible topic could be the impact of renegotiating NAFTA) might develop a program of studies that would include AREC 855.3 (International Agricultural Trade Policy) and ECON 811.3 (International Trade Theory) as core courses for their research. In addition, the student might add ECON 850.3 (Game Theory, Strategic and Cooperative Choices) and AREC 842.3 (Agricultural Market Organization) to understand how trade negotiations might unfold and how firms behave in markets. Finally, the student might complete their program with FIN 801 (Advanced Corporate Finance) and FIN 802 (Advanced Investment Theory) to understand how capital markets work and how they will be affected by changes to trade deals. Alternatively they might decide that their interest lies in understanding the political and policy factors affecting trade, and thus decide to take JSGS 862.3 (Political Economy) and AREC 851 (Agricultural Policy) as their final two courses.

As can be seen from these examples, students will have the ability to specialize in a particular area, while at the same time being exposed to a wider set of theories, methodologies and approaches that are both relevant and of interest to them.

Students will take a second comprehensive exam after completion of the required CUs of coursework. This exam will have two components. The first component is a second research paper that is due by the end of the second academic year (students are expected to complete the paper with minimal input from faculty). The focus of the paper will be approved by the advisory committee and will be directed towards the material found in the student's two core field courses (the core field requires a minimum of two approved courses). The research paper is designed to demonstrate the student's ability to structure a research problem and apply techniques appropriate to their proposed field; in doing this, students will be expected to integrate material from across their field courses using the material in their theory economic theory and econometrics courses.

The second component is an oral exam on this paper.

To receive a Pass on the second comprehensive exam, students must achieve a score of Very Good (80-85) or Excellent (85+) on both the research paper and the oral exam (see appendix 1 for a detailed description of these scores).

Students must receive a Pass on both the first and the second comprehensive exam in order to receive a pass on the overall comprehensive exam and move onto their thesis research.

Years 3–5

The program expects students to use the manuscript-style model for the dissertation. A manuscript-style thesis is a document that includes one or more scholarly manuscripts written in a manner suitable for publication in economic journals (peer-reviewed journal articles are the expected means of disseminating research in the economics area). A manuscript-style thesis is not, however, merely a collection of published or publishable papers. It must meet the principles and objectives required of a thesis. Students will be required to meet the College of Graduate and Postdoctoral Studies (CGPS) guidelines for minimum requirements for the creation of a manuscript-style thesis.

As is the norm in economics PhD programs, students will be required to produce a minimum of three papers (manuscripts) of publishable quality for inclusion in the thesis. While it is not required that the papers be published before completion of the thesis, it is expected that students will have at least one or two papers under review at the time of completion. Students may use material and ideas from the two research papers they wrote for the first and second comprehensive exams in one or more of the final papers they include in the thesis.

Although this is not a formal program requirement, students will be encouraged to attend major national and international conferences at which peer-reviewed papers are

presented. Students will present research at conferences after attending workshop training in communication and presentation.

Students will participate in applied economic seminars (APEC 990) throughout their program, and will be required to make a presentation to APEC 990 at least once during their program. The APEC 990 seminars will be made up of a mix of student presentations (once the program has operated for a few years), faculty presentations, and presentations from invited guests. Some of the presentations will be specifically designed as applied economic seminars, while others will be appropriately chosen from seminars being given in the units that comprise the program (e.g., AREC 990, ECON 990, FIN 990 and JSJS 990) or other units on campus.

Masters Programs

No proposal is being made for a Masters program in Applied Economics. The existing MA in Economics, the MSc in Agricultural Economics, and the MSc in Finance are strong programs that closely align with and complement the PhD in Applied Economics. Students that require training at the Masters level prior to joining the PhD can receive it in one of these programs.

a. What are the curricular objectives, and how are these accomplished?

The curricular objectives of the program are to provide students with:

- A foundation in microeconomic theory and econometric methods, and the fundamentals of macroeconomic theory
- A comprehensive knowledge of a specialized area within economics.
- The ability to use economic theory and econometric methods to understand and address public policy issues and the organizational problems faced by businesses, co-ops, non-profits and governments.
- The skills necessary to undertake original research and make a significant contribution to the body of economic knowledge.
- The ability to read and critique the professional literature.
- Professional writing and presentation skills.

These objectives are accomplished through extensive course work, significant faculty-student and student-student interaction, and the in-depth analyses of problems in the context of term papers for courses, the major research papers written for the comprehensive exam, and the completion of a minimum of three manuscripts for the manuscript-style thesis.

b. Describe the modes of delivery, experiential learning opportunities, and general teaching philosophy relevant to the programming. Where appropriate, include information about whether this program is being delivered in a distributed format.

As is the case in all North American economics programs, the fundamentals of microeconomic theory, macroeconomic theory and econometric methods are provided through course work that features lectures and problem-solving exercises that require significant student-student interaction and learning. A key learning philosophy is that of reinforcement, with introductory courses in the above areas followed by a more advanced course. The applied nature of the program means students will be required to obtain a comprehensive knowledge of a specialized topic, including, but not limited to, the institutional setting, the organizations and individuals that are key players, the motivations of these players and the constraints they face, and the outcome of the decisions they make. The program is not being delivered in a distributed format.

c. Provide an overview of the curriculum mapping.

See table 4 on the next page.

d. Identify where the opportunities for synthesis, analysis, application, critical thinking, problem solving are, and other relevant identifiers.

Problem solving – Is a key element in the course work, with students completing four to six in-depth applied problems in each course per year. It is also an integral part of the minimum of three manuscripts that students will write as part of their manuscript-style thesis.

Analysis – Is found throughout the program, but particularly in the econometrics courses and in the preparation of manuscripts for publication where in-depth econometric analysis is undertaken.

Synthesis and Critical Thinking – The opportunity to develop these skills takes place mainly in the preparation of manuscripts. Both of these elements are also present in the research papers that are written for the comprehensive exam.

Application – The application of theory and concepts to real-world problems is at the heart of the program and is found in all aspects of the program (i.e., course work, research papers, manuscript preparation).

Table 4. Curriculum Map for the PhD in Applied Economics

| | Micro- economics | Macro- economics | Econometrics | Field Courses | 990 | 996 |
|--|---------------------|---------------------|--------------|---------------|-----|-----|
| Critical Thinking Skills | | | | | | |
| CT1: Understand everyday economics problems | X | X | | X | X | |
| CT2: Use economic theory to understand and evaluate policy proposals | X | X | | X | | X |
| CT3: Compare arguments | X | X | | X | | X |
| CT4: Role of assumptions | X | X | X | X | | X |
| Quantitative Skills | | | | | | |
| QT1: Role of empirical evidence in evaluating economic problems | | | X | X | X | |
| QT2: Interpret results | | | X | X | X | X |
| QT3: Conduct statistical analysis | | | X | | | X |
| QT4: Gather or obtain research data | | | X | | | X |
| Problem Solving Skills | | | | | | |
| PS1: Solve problems with clear solution | X | X | | X | | X |
| PS2: Solve problems without clear answer | X | X | | X | | X |
| Specialized knowledge in fields | | | | | | |
| SP1: Specialized knowledge in fields | | | | X | | X |
| Communication Skills | | | | | | |
| CS1: Communicate effectively about economic issues | X | X | | X | X | X |
| CS2: Formulate and support written argument | X | X | | X | | X |
| CS3: Oral presentation | X | X | | X | X | X |
| Lifelong Learning Skills | | | | | | |
| LL1: Information databases | | | X | | | X |
| LL2: Primary data sources | | | | | | X |
| LL3: Understand economic news | X | X | X | X | X | X |

- e. *Explain the comprehensive breadth of the program.*

Like all North American economics programs, the proposed program provides students with a comprehensive overview of economic and econometric theory, and on the application of this theory to real-world problems. While students will graduate with an in-depth knowledge of a particular field (e.g., environmental economics, health economics, labour economics, resource economics), they will also be required to obtain a broad knowledge of economics and its application.

- f. *Referring to the university “Learning Charter”, explain how the 5 learning goals are addressed, and what degree attributes and skills will be acquired by graduates of the program.*

The University of Saskatchewan’s Learning Charter sets out the following five learning goals. The manner in which these goals will be addressed, and the attributes and skills that will be acquired by graduates, are listed under each goal.

Discovery Goals

- Apply critical and creative thinking to problems, including analysis, synthesis, and evaluation.
- Be adept at learning in various ways, including independently, experientially, and in teams.
- Possess intellectual flexibility, ability to manage change, and a zest for life-long learning.

The discovery goals will be met through the problem solving exercises that students will be given in their courses and that are an integral part of their manuscript-style thesis. To successfully complete these different requirements, students will be required to work together at times and at other times independently. The discovery goals will also be met through the philosophy of an applied program – i.e., one where the goal is not just to understand and develop theories, but to apply them to real-life problems.

Knowledge Goals

- Have a comprehensive knowledge of their subject area, discipline, or profession.
- Understand how their subject area may intersect with related disciplines.
- Utilize and apply their knowledge with judgement and prudence.

The knowledge goals will be met through the course work and work on the manuscript-style thesis. In this work students will be held to a high standard – they will be expected to know their subject area and be able to move beyond it. The knowledge goals will also be met through the applied nature of the program. Applied economics requires an in-depth knowledge of the problem that is being

examined – the institutions that affect behaviour, the players that are involved and their different motivations, and the manner in which these players interact. To truly understand this context requires knowledge of not just economics, but of other areas as well.

Integrity Goals

- Exercise intellectual integrity and ethical behaviour.
- Recognize and think through moral and ethical issues in a variety of contexts.
- Recognize the limits to their knowledge and act accordingly.

The integrity goals will be met through a discussion of the larger context in which economic problems are situated, and how economic problems also have moral and ethical dimensions. Students will be encouraged to consider these dimensions in their research and in their writings.

Skills Goals

- Communicate clearly, substantively, and persuasively.
- Be able to locate and use information effectively, ethically, and legally.
- Be technologically literate, and able to apply appropriate skills of research and inquiry.

The skills goals will be met by requiring students to give presentations, not just at conferences, but also in class. Opportunities will be found for students to teach undergraduate or Master level courses, thus allowing them to further hone their skills. This goal will also be met through the strong empirical skills that economics students learn, and by the manner of debate in economics, which focuses on developing a healthy dose of skepticism and making clear arguments backed up with strong evidence.

Citizenship Goals

- Value diversity and the positive contributions this brings to society.
- Share their knowledge and exercise leadership.
- Contribute to society, locally, nationally, or globally.

Citizenship goals will be met by constantly showing students that the problems being dealt with in economics are critical to societal well being, and involve the pressing issues of the time – everything from climate change to social policy to health care to natural resource management to immigration. Citizenship goals will also be met by providing what will be a diverse student body from all parts of the world with a safe place to explore ideas and discuss issues.

- g. *Describe how students can enter this program from other programs (program transferability).*

Students who have completed a Masters program at the University of Saskatchewan or another university in an appropriate field and who wish to enter the PhD in Applied Economics would be required to apply to the program and be evaluated by the graduate committee. As per CGPS policies, the oral exam (defense) for the award of the Master's degree at this or other recognized universities may, at the discretion of the academic unit and the CGPS, be accepted in lieu of the qualifying examination.

If an applicant's Masters degree is not accepted in lieu of the qualifying exam, then, as per CGPS policy, the applicant will have to take a qualifying exam (this is the case regardless of whether the applicant has a Masters degree from the University of Saskatchewan or elsewhere). The qualifying exam would take the form of a written exam that would test the student's basic knowledge of microeconomic theory and econometrics. The questions asked on the exam would be those that students that have graduated from a well recognized Masters program in economics/agricultural economics/finance would be expected to know. To be eligible to transfer, students would have to obtain a Pass on the qualifying exam. A grade of Very Good or Excellent is required to obtain a Pass (see the Comprehensive Exam Guidelines for the descriptors for Very Good and Excellent).

Students who are enrolled in, but have not yet completed, a Masters program in Economics, Agricultural Economics, Finance or the Johnson Shoyama Graduate School of Public Policy (specifically the Masters of Public Policy) at the University of Saskatchewan would be eligible to transfer to the PhD in Applied Economics. To do so, they would follow the procedures for transfer outlined by CGPS, including submitting an application and writing a qualifying exam. The details on the qualifying exam are provided above.

- h. Specify the criteria that will be used to evaluate whether the program is a success within a timeframe clearly specified by the proponents in the proposal.*

Three key criteria will be used to evaluate the success of the program. The first is the number of students in the program and their success at completing the program. By the end of the fifth year it is expected that the program will be admitting eight students a year; it is also expected that two or three students will be in the process of completing their program. The second criterion is the quality of the students in the program. By the end of the fifth year it is expected that four or five students in the program will have published journal articles in high quality applied economics journals (either on their own, or in conjunction with other students or faculty) and/or received major scholarships. In the longer term, important measures of success will be the type of jobs our graduates obtain, as

well as the success they experience in these jobs. The third criteria will be the quality of the research and the impact that this research has on things such as public policy.

- i. If applicable, is accreditation or certification available, and if so how will the program meet professional standard criteria. Specify in the budget below any costs that may be associated.*

Not applicable.

4. Consultation

a. Describe how the program relates to existing programs in the department, in the college or school, and with other colleges. Establish where students from other programs may benefit from courses in this program. Does the proposed program lead into other programs offered at the university or elsewhere?

The PhD in Applied Economics is complementary to the Masters programs in Economics, Agricultural Economics and Finance, and to the PhD program in Agricultural Economics, in that all of the programs use some of the same courses. It will also strengthen these programs by providing a larger cohort of economics students and by allowing a wider set of courses to be offered. It is expected that some of the students in the PhD program will come from the above Masters programs. Some students from other programs on campus (e.g., the Masters of Public Policy or the MA in Political Studies) may also apply to the PhD in Applied Economics. The proposed program does not lead into other programs offered at the university or elsewhere.

b. List units that were consulted formally, and provide a summary of how consultation was conducted and how concerns that were raised in consultations have been addressed. Attach the relevant communication in an appendix.

The units involved in the preparation of this proposal have worked extensively to acquire internal approvals and to collect feedback on the content, design, and demand for the proposed program.

The initial idea for a joint PhD program in Applied Economics emerged four to five years ago as a result of conversations among members of the department of Agricultural and Resource Economics, the department of Economics, and the Johnson Shoyama Graduate School of Public Policy. The impetus for the conversations was the recognition that sufficient resources existed on campus for a very strong PhD program in applied economics and the knowledge that considerable co-operation among the three units was already taking place. The next step seemed logical – to formally combine the resources from the various units and create a strong PhD program.

The outcome of the conversations was a draft of the key elements of a joint program, including proposed course requirements. When this draft received preliminary approval from the faculty members in the three units, attention was turned to drafting a notice of intent. This notice was completed by the fall of 2012 and again received approval from the faculty in the three units. At the same time, conversation was initiated with the department of Finance and Management Science (Finance) in the Edwards School of Business. Given the discussions that were by then taking place on campus regarding program review, the notice of intent was never submitted.

In the summer of 2014 it was announced that the university would give priority to a number of different initiatives in the program area, and in particular to those that involved collaboration across colleges. A task force comprised of Mary Buhr (Dean of Agriculture and Bioresources), Peter Stoicheff (Dean of Arts and Science), Daphne Taras (Dean of the Edwards School of Business) and Michael Atkinson (Director of the Johnson Shoyama Graduate School of Public Policy) was created to look into the possibilities for collaboration in the economics and policy areas. Chaired by Daphne Taras, one of the first activities of the task force was to look for possible initiatives. At this time the previously written draft notice of intent was circulated. Since this proposal had support from the various units and was already well along in its development, the decision was made to focus attention on this program proposal.

A working committee, chaired by Daphne Taras, was created to work on a revised version of the notice of intent. The revision was completed in September 2014 and was submitted to each of the academic units for feedback and approval. Each of the units unanimously approved the notice of intent, signaling that they would like to see the proposal go forward to the next stage. With the completion of the notice of intent, Daphne Taras passed the chair of the working committee to Murray Fulton.

The notice of intent was submitted to the Planning and Priorities Committee in November 2014, and the proposal proponents met with PPC in December 2014. PPC members signaled their support in principle for the concept of the program, but indicated that the program was dependent on new and significant resources being available and committed to the program. Since December 2014 the proponents have been working to secure the resources required. This has now been accomplished and the proposal is once again being brought forward.

The letters of support for the program from the participating units are provided in appendix 2.

c. Proposals that involve courses or other resources from colleges outside the sponsoring unit should include evidence of consultation and approval. Please give special consideration to pre- and co-requisite requires when including courses from other colleges.

As outlined above, the proposed program involves a substantial sharing of resources (particularly courses) from across the four units involved. Letters of support from the four

units are provided in appendix 2. A list of the courses offered by the four units and that would be used in the program is provided in appendix 3. Beyond this, however, the proposed program does not draw on courses or resources from other colleges or units.

d. Provide evidence of consultation with the University Library to ensure that appropriate library resources are available.

We have not consulted with the University Library, although we could do so if that is necessary. The reason for not consulting is that the resources currently available on campus for the existing graduate programs in the department of Agricultural and Resource Economics, the department of Economics, the department of Finance and the Johnson Shoyama Graduate School of Public Policy are sufficient for the proposed program.

e. List other pertinent consultations and evidence of support, if applicable (e.g., professional associations, accreditation bodies, potential employers, etc.)

No other consultations were carried out. There is no professional association in economics that accredits economics programs.

5. Budget

Introduction

When this program proposal was first initiated, it was noted that although faculty, administrative and financial resources were currently devoted to economics teaching and research on campus, the launching of a PhD program could be done without the addition of new resources in these areas. The reason was simple — the resources available then were fully used in the teaching of existing undergraduate and Masters level programs. Thus, the PhD in Applied Economics would only be able to go ahead if additional resources are provided. Specifically, a focused recruitment of four new faculty with a microeconomics background was required to realize the full potential of this program and to support the other demands being placed on the participating academic units as they respond to the need for economic training and analysis.

Since then, and as a direct consequence of developing this proposal, a good portion of the additional resources have been provided through new commitments from three of the units involved and the Provost's Office. New faculty members have been hired in Economics (Arts and Science) and Finance (Edwards School of Business), while the Provost's Committee on Integrated Planning (PCIP) has indicated preliminary approval for funding of a tenure track faculty position to support the PhD in Applied Economics. The potential for a fourth faculty position exists from a central allocation from the Provost's Office for faculty with an Indigenous background; this allocation would take place when an economist with an Indigenous background is found.

The accompanying spreadsheet Estimated Incremental Revenue and Expenses.xlsx is reprinted in appendix 4. The spreadsheet outlines estimated tuition revenue and the

incremental expenses for the first eight years of the proposed program. The revenues and expenses of the program will increase over time as the program reaches its full student complement. The salary expenses for the faculty that will participate in the program are not reported in the spreadsheet; they are, however, described below.

Faculty Resources

No single academic unit has the faculty resources to offer a PhD program in Applied Economics. However, taken collectively, the faculty complement (both current and under recruitment) of economists on campus is sufficient to launch this program. The current faculty complement with sufficient experience to teach at the applied economics PhD level, to supervise PhD students and to serve on committees includes nine (eleven including current recruiting) faculty from Agriculture and Resource Economics, eleven (twelve including current recruiting) faculty from Economics, thirteen from Edwards School of Business (nine from Finance, two from Accounting, and two from Human Resources and Organizational Behaviour), and two from the Johnson Shoyama Graduate School of Public Policy for a total of thirty eight (including current recruiting). Some of these faculty are (or will be appointed as) junior members; however it is expected that they will play increasingly major roles and eventually participate fully in the PhD program.

As outlined above, new faculty members have been hired in Economics and Finance, while PCIP has indicated preliminary approval for funding of a tenure track faculty position to support the program. The potential for a fourth faculty position exists from a central allocation from the Provost's Office for faculty with an Indigenous background. These new hires, along with the existing faculty, are sufficient to offer a PhD program in Applied Economics.

Each of the four participating units outlined above will provide a faculty member to sit on the Applied Economics Graduate Committee. All the committee members will be senior faculty and will contribute sufficient time to get the program up and running and to ensure that it is operating effectively and efficiently. It is expected that the original members of the committee will be Richard Gray (Agricultural and Resource Economics), Murray Fulton (Johnson Shoyama Graduate School of Public Policy), Don Gilchrist (Economics) and Dev Mishra (Finance and Management Science). In time, the various committees will reflect an appropriate balance of genders, minorities, and junior and senior members.

Appendix 2 contains letters of support from the four colleges/schools units involved, as well as from PCIP and CGPS.

When hiring the final two faculty members, there are four areas for new appointments that are of particular interest: (1) health/labour economics; (2) non-renewable resource/energy economics; (3) regional economics; and (4) knowledge creation, infrastructure provision and governance.

These areas are a high priority for the University of Saskatchewan. Two of the areas – health/labour and non-renewable resource/energy – correspond directly to the university's signature areas (One Health and Energy & Mineral Resources), while a third – regional economics – has a strong link with the Aboriginal signature area.

These topic areas are also of key interest to local, federal and provincial governments, and to the business community (see discussion below). Taken together, these areas represent a set of activities that are core to the future of the Saskatchewan economy. Yet, they are not being as fully addressed as they could be within any of the current academic units on campus. The result is that at the current time the university is not undertaking research on these topics and the university does not have faculty that are in a position to provide educational opportunities and policy advice in these areas.

These four areas are ones in which the participating units have mutual research interests, making them ideal for a cross-cutting initiative such as this joint PhD proposal. The areas of interest are:

1. *Health/labour economics* – Labour and health issues are of significant public policy concern to the province and to Canada more generally. Participation in labour markets and healthy food/lifestyle choices have large impacts on public health care costs, and healthy food/lifestyle choices and public health care support good labour market experiences. Good applied economic research is critical to addressing these issues, whether it be in terms of finding ways to address income inequality or to reduce health care costs. A faculty member with expertise in health or labour economics would be expected to interact with faculty in health management and administration.
2. *Non-renewable resource/energy economics* – Non-renewable resources (agricultural land, potash, uranium, oil, gas, and other mining activities) are critical to the Saskatchewan economy. Yet, the University of Saskatchewan has very little economic expertise in this area. Given the increased attention being given to issues such as dependency on natural resource revenues, sovereign wealth funds, royalty structures, and resource sharing mechanisms with First Nations, an investment in this area would be highly relevant to governments and natural resource companies in western Canada. A faculty member in this area would be expected to develop strong policy skills over the his/her career.
3. *Regional economics* – Understanding how economies operate at the sub-national and local level is vitally important for economic development in Saskatchewan, particularly in rural agricultural communities and Aboriginal areas. While the University of Saskatchewan has historically had a strength in this area, recent retirements have created a void and left the university unable to contribute to the debates around this topic. Investment in a faculty member in this area would provide the expertise required to make a contribution to the continuing debates around regional development.
4. *Knowledge creation, infrastructure provision and governance* – Knowledge creation, transportation, and other forms of public infrastructure are essential drivers of economic

growth. This is especially important for innovation within Saskatchewan's knowledge economy, agricultural industry, and resource sectors. Given infrastructure's public and non-rival nature, these goods have historically been provided by governments. Constrained by budgets, governments are now increasingly developing policies to create a larger role for private sector investment in providing these goods. A strong program of applied economics research led with expertise in public finance and/or industrial organization is needed to build a knowledge base to contribute to the development of partnership agreements and regulatory policies that can effectively govern knowledge creation and infrastructure provision for the greatest public benefit.

All of the above research areas could be linked to cross-cutting methodologies such as "Big Data" that are gaining attention and that build on specialized facilities such as the Social Sciences Research Lab. Each of these foci will integrate faculty and research, and thus doctoral training, across the co-operating academic units.

Administrative Resources

The delivery of the proposed program would require staff support. No single unit has sufficient resources to administer a program that spans the entire campus. Thus, financial support for a half-time graduate secretary position will be required to operate the program. The College of Agriculture and Bioresources has agreed to provide in-kind support for the half-time graduate secretary position that will provide the administrative support required for the program.

To operate effectively, the program also requires a physical location — a fixed address — through which new applicants will apply to the program, current students can access university resources, program faculty can reach students, and through which the university interacts with the program. The administrative home of the PhD in Applied Economics will be the Agricultural and Resource Economics department, a unit that currently operates a PhD program. The in-kind resources for this physical location will be provided by the College of Agriculture and Bioresources.

The management of the program will be the responsibility of the co-operating units. The Applied Economics Graduate Committee will be responsible for managing the program. This committee will be made up of a designated member from each of the participating units and will be chaired by one of the members on a rotational basis; the chair will assume the role of the graduate chair for the program. This rotation will ensure a balance of responsibilities and support the active involvement of each of the co-operating units. Committee decisions will be by a majority vote of the members (though in practice, we expect that decisions will be consensual). The committee will interact on behalf of the program with the College of Graduate and Postdoctoral Studies and the university. The graduate committee members will report to the department head or executive director of their home units. As discussed above, all the committee members will be senior faculty.

Teaching Resources

As discussed above, the four participating units offer courses that will slot directly into the PhD in Applied Economics. Appendix 3 contains a list of the graduate level courses currently being offered within the participating units that are appropriate for the PhD in Applied Economics; all of these courses will be available to the students in the proposed program. Appendix 2 contains support letters from the participating units indicating that these courses are offered on a regular basis. Although there are no new courses being developed specifically for the PhD in Applied Economics at this time, students in the program will take, as part of their core programs, a microeconomics and econometrics course (Econ 873.3 (Advanced Microeconomic Theory) and Econ 809 (Econometrics II), respectively) that are currently only offered to the top students (typically planning to enter PhD programs in other universities) and to students in the PhD program in Agricultural Economics. The focus of these courses will be shifted even further to tailor them first and foremost to PhD students. However, since all graduate (800) level courses at the University of Saskatchewan are available to both Masters and PhD students, it will be possible for very good Masters students to take one or more of these courses. In addition, students in the program will have access to JSGS 865.3 (Decision Making in Organizations), a course specifically designed for JSGS PhD students. In combination with the requirement to take field courses from at least two different areas, students will clearly be exposed to the rigour and breadth of a PhD program. It should be noted that, with the establishment of the PhD in Applied Economics, the participating units are expected to develop new course offerings as faculty come on stream and the field areas are systematically explored.

Student Financial Support

Ongoing student funding is essential to the success of this program. The goal is to be able ultimately to admit eight new students a year – this would make the program comparable to other PhD programs in Canada (the number of entrants each year will start initially at two and rise to eight in the fourth year). As is common in economic PhD programs in Canada and the United States, funding will be required to attract students to the program.

The allocation and administration of the student funding will be governed by the Applied Economics Scholarship Plan that will be approved by CGPS. This plan will outline how the student funding package overall will be managed. For instance, incoming graduate students may be funded more from internal university funds, while students in the upper years (e.g., third, fourth and fifth) may be funded more from project funding and with funding from other sources (e.g., external scholarships).

Of the students admitted, it is estimated that, on average, half will be funded internally (those not funded by the university will have scholarships (e.g., SSHRC; all SSHRC-eligible students that are admitted to the program will be required to apply for a SSHRC doctoral scholarship) or come with funds (e.g., international students). Of the funding provided internally by the university, it is expected that 70 percent will be provided by faculty research projects and 30 percent will come from teaching assistantships and various internal scholarships such as the CGPS devolved scholarships. Appendix 4

provides the breakdown of the student support that will be required, as well as the tuition that will be collected. In making the projections, two scenarios are examined – one in which students are in the program for four years and one in which the students are in the program for five years.

Initial funding to kickstart the program will be provided by PCIP and by CGPS. PCIP has made a commitment to provide \$50,000 a year for each of the first two years (i.e., \$100,000 in total) to cover the funding of students, as well as to cover initial administrative expenses such as program advertising. CGPS has made a commitment to provide a PhD scholarship worth \$25,000 a year for each of the first three years (i.e., \$75,000 in total). Once the program reaches a total enrolment of 12 students, devolved funding from CGPS will be available. Discussions with the deans and directors of the participating units, and with central university leadership to secure long-term funding after the start-up phase are ongoing.

Student Space

The students will be housed together as a cohort during their first year in the program. Agricultural and Resource Economics and the College of Agriculture and Bioresources have agreed to provide this space within the common area for Agricultural Economics first year grad students. The PhD students would then move to their supervisor's units for the remainder of their program.

IT and Library Resources

In terms of library resources, the current holdings are sufficient for the proposed program. IT support is also sufficient.

Budget of Required Resources

As shown in appendix 1, both incremental tuition revenues and incremental non-salary expenses will grow over the first eight years of the program (tuition revenues are based on standard graduate tuition rates). In addition to the 1.5% annual budgeted inflation increase, student numbers will grow over time until the program reaches a full cohort. Between 2017-18 and 2024-25, tuition revenue increases from \$9,848 to between \$175,000 and \$219,000 per year. Over this period, the largest non-salary expense for the university is student funding, which will increase from \$7,500 to between \$133,000 and \$166,000 per year. The total accumulated surplus over the first eight program years is between \$108,000 and \$134,000.

Summary

Table 4 summarizes the resources that have been secured for the program. As outlined in the previous sections, these resources include: (1) four new faculty positions over and above the current complement in the participating units; (2) support from PCIP for start-up costs and initial student funding (\$100,000); (3) support from CGPS for PhD scholarships (\$75,000); (4) a 0.5 FTE administrative position (in-kind); and (5) space for

the first year student cohort (in-kind). The attached letters of support provide the assurance that the positions and funds are available.

As outlined above, new faculty members have been hired in Economics and Finance, while PCIP has indicated preliminary approval for funding of a tenure track faculty position to support the program. The potential for a fourth faculty position exists from a central allocation from the Provost's Office for faculty with an Indigenous background. These new hires, along with the existing faculty, are sufficient to offer a PhD program in Applied Economics.

The PhD in Applied Economics will bring significant benefits to the university beyond the training of graduate students. Given the applied nature of the program, it has the potential to address key policy issues at both the provincial and national level. This is particularly the case in areas such as food security and water security, where the program will augment large-scale science projects with increased capacity to do applied social science research.

Table 4: Resources Secured for the PhD Program in Applied Economics

| Resource | Resource Source | Value (\$) |
|-----------------------------------|--|-------------------|
| Startup Funding | PCIP | 100,000 |
| PhD Scholarships | CGPS | 75,000 |
| Faculty Positions (3) | Arts and Science, Agriculture and Bioresources, Edwards School of Business | In-Kind |
| Indigenous Faculty Position | PCIP | In-Kind |
| Administrative Position (0.5 FTE) | Agriculture and Bioresources | In Kind |
| Student space | Agriculture and Bioresources | In-Kind |

Appendix 1

Comprehensive Exam Guidelines

PhD in Applied Economics Comprehensive Exam Guidelines

Structure of the Exam

The comprehensive exam is composed of two parts: one written at the end of the first year, and one written at the end of the second year.

1. First year exam. This exam will have three components.
 - (a) The first is a written exam that examines the students' ability to apply the microeconomic theory they have taken in their courses. For instance, students might be asked to analyze a current public policy or business decision using microeconomic concepts.
 - (b) The second component takes the form of a research paper on a topic approved by the advisory committee that focuses on the use of the theory and empirical tools taught in the first year (students are expected to complete the paper with minimal input from faculty). In this paper students are expected to show their independent ability to apply economic theory and methods to an examination of a problem they have chosen.
 - (c) The third component is an oral examination of the paper and the exam.
2. Second year exam. This exam will have two components.
 - (a) The first component is a second research paper that is due by the end of the second academic year (students are expected to complete the paper with minimal input from faculty). The focus of the paper will be approved by the advisory committee and will be directed towards the material found in the student's two core field courses (the core field requires a minimum of two approved courses). The research paper is designed to demonstrate the student's ability to structure a research problem and apply techniques appropriate to their proposed field; in doing this, students will be expected to integrate material from across their field courses using the material in their theory economic theory and econometrics courses.
 - (b) The second component is an oral exam on this paper.

Candidates must receive a Pass on both the first year exam and the second year exam in order to receive a Pass on the comprehensive exam (the assessment criteria are elaborated below). If the candidate does not receive a Pass on one or both of these two exams, they are given a second and final chance (subject to the approval by the Dean of CGPS) at the exam(s) they did not Pass. The second attempt should take place roughly four to six months from the time of the first attempt and will follow the structure of the first attempt. This second attempt may focus on just one aspect (e.g., the written component or the research paper) if one part of the candidate's performance was weaker than the other.

Examining Committee Structure

The examining committee for a candidate's comprehensive exam is his or her advisory committee. The advisory committee consists of at least five members:

1. A chair (this person shall be a faculty member in one of the participating units);
2. The supervisor (or co-supervisors, which together count as one person);
3. A cognate committee member from a department on campus other than that of the supervisor (note that this means that the cognate member will normally, but not necessarily, be from one of the other participating units);
4. Two or more additional committee members (they may be from the participating units, from other units on campus, or from other universities).

The written exam in the first year is prepared by the graduate committee and is marked by a committee of three members chosen from the participating units.

The advisory committee approves the topics for the first and second year research papers, reads and grades the first and second year research papers, and is the examining committee for the two oral exams.

Marking System

The comprehensive exam is marked on a Pass/Fail basis (the assessment criteria are elaborated below). To obtain a Pass for the overall comprehensive exam, candidates have to obtain a Pass on both the first year exam and the second year exam. For each of these two exams, a Pass is required on all the components. Thus, for instance, in year one a very strong performance on the written exam is not sufficient to offset a weak performance on the research paper or on the oral exam. If the candidate is judged to Fail any portion of the first year or second year exams, the examining committee must provide a written explanation for its decision. If a candidate obtains a Pass on one area but not on another, the examining committee may decide to focus attention on the weaker area during a second attempt.

Role of the Chair

The purpose of the chair is to ensure that the oral examination is conducted according to the comprehensive guidelines and thus to provide students and faculty with the confidence that students are being treated fairly and equitably. The Chair is not an examiner and, as a consequence neither votes nor asks substantive questions of the candidate. If a member of the committee is unable to attend the oral, that member may submit written questions, along with expected responses, that will be put to the candidate by the chair.

Timing:

The comprehensive exam is scheduled for two periods during the year: (1) August-

September, and (2) December-January. PhD students beginning their program in September will typically make their first attempt at the comprehensive exam in the August-September time period. Ordinarily, the December-January time period is reserved for retakes (although there may be circumstances when the first attempt at the comprehensive would be carried out in this period). The precise dates chosen will be selected on the basis of what best suits the timetables of the candidates and the committee. The dates for the written components of the exam should be communicated to faculty and students five to six months before the exams are set to take place.

Assessment Criteria

The PhD in Applied Economics program has adopted the following descriptors to provide faculty and students with a guide to how the written exam, research papers and oral exam will be evaluated.

A grade of Very Good (80-85) or Excellent (85+) is required to obtain a Pass on exams and papers that make up the comprehensive exam.

85+ Excellent

An excellent superior performance with consistent strong evidence of:

- a comprehensive, incisive grasp of the subject matter;
- an ability to make insightful critical evaluation of the material given;
- an exceptional capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently; and
- an excellent ability to apply theories to real-world problems and intersect with related disciplines.

80-85 Very Good

A superior performance with strong evidence of:

- a comprehensive grasp of the subject matter;
- an ability to make sound critical evaluation of the material given;
- a very good capacity for original, creative and/or logical thinking;
- an excellent ability to organize, to analyze, to synthesize, to integrate ideas, and to express thoughts fluently; and
- a strong ability to apply theories to real-world problems and intersect with related disciplines.

75-80 Good

A good performance with evidence of:

- a substantial knowledge of the subject matter;

- a good understanding of the relevant issues and a good familiarity with the relevant literature and techniques;
- some capacity for original, creative and/or logical thinking;
- a good ability to organize, to analyze, and to examine the subject material in a critical and constructive manner; and
- some ability to apply theories to real-world problems and intersect with related disciplines.

70-75 Satisfactory

A generally satisfactory and intellectually adequate performance with evidence of:

- an acceptable basic grasp of the subject material;
 - a fair understanding of the relevant issues;
 - a general familiarity with the relevant literature and techniques;
 - an ability to develop solutions to moderately difficult problems related to the subject material; and
 - a moderate ability to examine the material in a critical and analytical manner.
-

Appendix 2
Letters of Support



January 28, 2016

On behalf of the Edwards School of Business, I am pleased to support – with enthusiasm – the development of a PhD in Applied Economics. Sharing resources among a number of faculties will allow us to run a strong, well-resourced PhD program, with tremendous opportunities to do applied research and develop cross-college collaborations in teaching and research.

The Edwards School of Business will participate with the following in-kind and monetary contributions:

- Our Department of Finance and Operations Management is keenly interested in participating through teaching courses, seminars, providing supervisors, committee members, and other forms of assistance that would support the program. PhD students would be welcome to supplement their coursework with our
- Currently, we are hiring a new faculty member in Information Systems Management, and we are prioritizing data analytics. We anticipate this person being involved in the PhD program.
- In the next year or two, we will be hiring for a faculty person explicitly in data analytics. This position also would support the PhD program.
- From our Dean's Circle funding, we will make significant multi-year scholarships available to students with an interest in applications pertinent to the Edwards School, whose supervisors are in the Edwards School.
- We have good data sets (e.g. Compustat) and the Wharton Platform, which we pay for at great expense. It would be a pleasure to have PhD students and colleagues collaborating with our faculty members using these data sets and the Wharton platform.
- Once students pass their candidacies, we are interested in hiring them to teach courses so they can demonstrate their teaching skills and increase their employability in academic settings. Professors at Edwards have very strong teaching dossiers, and four have become Master Teachers for the University. Many others have won significant teaching awards. This would be a good environment within which future academics are mentored.

I estimate there are 13 full-time tenured faculty members within the Edwards School who would be qualified to participate in the PhD program as supervisors, committee members, mentors, course directors, and research collaborators.

It is with no hesitation that I urge the governance bodies to give their assent to the launch of the PhD in Applied Economics. It has been many years in the making, and it is time for us to build the program. The Edwards School of Business is committed to participate in the new program.

Yours very truly,

Daphne Taras, PhD
Dean and Professor
Edwards School of Business

February 2, 2016

Murray Fulton, Chair
Program Development Committee
PhD in Applied Economics Program

Dear Murray:

On behalf of the Johnson Shoyama Graduate School of Public Policy, we are pleased to indicate our support for the PhD in Applied Economics. The proposed program is an excellent example of the opportunities that emerge – in this case, a strong and well-resourced PhD in economics – when academic units and faculty collaborate. We anticipate that the establishment of this program will lead to other benefits, such as new teaching and research opportunities.

The Johnson Shoyama Graduate School of Public Policy would be pleased to provide the following resources to the program:

- We currently have two economists on faculty, Murray Fulton and Haizhen Mou, that could be involved in graduate student supervision and mentoring.
- We understand that a JSGS faculty member will serve on the Applied Economics Graduate Committee. Murray Fulton will serve in this role at startup and for the next several years.
- We are currently negotiating a scholarship donation to the school. If this negotiation is successful (and indications are very good that it will be), the Johnson Shoyama Graduate School would direct the scholarship funding to a student doing behavioural economics in the PhD in Applied Economics program.
- We currently have two courses, JSGS 862 Decision Making in Organizations and JSGS 865 Political Economy, which could be of interest to students in the proposed program. We would be pleased to accommodate any students who would like to enroll in these courses.
- We are often looking for teaching assistants and sessional lecturers for our economics and quantitative methods courses, and would be delighted to be able to choose from a pool of PhD students in the Applied Economics program

In summary, we are strongly committed to this program and support it fully. We look forward to its introduction.

Yours truly,



Kathleen McNutt, PhD
Executive Director and Professor,
Johnson Shoyama Graduate School of Public Policy



Jeremy Rayner
Director and Professor,
Johnson Shoyama Graduate School of Public Policy,
University of Saskatchewan campus



February 5, 2016

To Whom It May Concern

Re: Proposed joint PhD in Applied Economics

As Dean of the College of Agriculture and Bioresources, it is my great pleasure to confirm support for the proposed joint PhD in Applied Economics. I have been kept informed throughout the development process, and the Executive of the College, consisting of the five Department Heads, two Associate Deans and myself, approve of the proposal. It admirably meets our current Integrated Plan, is congruent with the preliminary discussions we have had on the future needs of our College and the agricultural interest communities we serve, and the inter-college collaboration in its development and proposed implementation are both highly desirable and exemplify the strong commitment to growing research intensity at the University of Saskatchewan. Furthermore, we have a college Research Facilitator whose support will be available to faculty wishing assistance in developing and strengthening their research portfolio.

We recognize the resource implications of the proposed degree. The College of AgBio has adequate administrative capacity to manage the new program, and commits to providing graduate secretarial support appropriate for the program as it grows. In the past two years, the College has dedicated considerable resources to enhancing the faculty complement in the (soon-to-be-officially-renamed) Department of Agricultural and Resource Economics, and we clearly see that the topic areas of Regional Economics and Knowledge Creation, Infrastructure Provision & Governance are areas where a faculty appointment would be a good fit within the College. As the program matures and student demand leads the department to identify one of these areas as its highest discipline priority, the College will ensure faculty expertise is in place to meet the demand.

Sincerely,

Mary M. Buhr, PhD
Dean and Professor

c: Bob Tyler, Associate Dean, Research and Graduate Studies



UNIVERSITY OF SASKATCHEWAN

College of Arts and Science

ARTSANDSCIENCE.USASK.CA



April 18, 2016

The College of Arts & Science is pleased to provide an enthusiastic letter of support for the PhD in Applied Economics. This proposed graduate degree program is the result of extensive and thoughtful consultations with departments in our college, the College of Agroculture & Bioresources, the Edwards School of Business, and the Johnson-Shoyama Graduate School of Public Policy. The PhD in Applied Economics will provide an exciting opportunity for all three colleges and graduate school to offer innovative and collaborative graduate programming, and to expand our collective research and expertise in the areas of applied economics.

In terms of college resources to commit to this program, we have twelve faculty members (including a recently recruited position) in the Department of Economics with the experience to teach and supervise at the applied economics PhD level. One department member, initially Prof. Don Gilchrist (current head of the Department) will sit on the Applied Economics Graduate Committee. The college realizes that the administrative management of the program is the responsibility of all cooperating units, and will participate in admin support on a rotational basis when and if required.

The Applied Economics PhD program offers a multidisciplinary approach, with cooperation between participating academic units, to large-scale, team-based research projects in the complementary disciplines of Economics. It will prepare a new generation of students for a rapidly expanding collaborative and research agenda, who will be better prepared for future employment opportunities.

In summary, the College of Arts and Science fully supports the proposed PhD in Applied Economics program - it fits very well within our integrated plan in terms of focal areas and college-specific priorities, and the spirit of necessary and multidisciplinary research and knowledge exchange.

Sincerely,

Peta Bonham-Smith
Interim Dean and Professor

Cc: Dean's Executive Committee; Associate Dean Graduate Studies; Department of Economics Head

From: PCIP Info Email <pcip.info@usask.ca>
Subject: PhD in Applied Economics Scholarship
Date: October 6, 2016 at 4:42:39 PM CST
To: "Gray, Richard" <richard.gray@usask.ca>, "Fulton, Murray" <murray.fulton@usask.ca>, "Gilchrist, Donald" <donald.gilchrist@usask.ca>
Cc: "Baxter-Jones, Adam" <baxter.jones@usask.ca>, "Rigby, John" <john.rigby@usask.ca>, PCIP Info Email <pcip.info@usask.ca>, "Freeman, Jen" <jen.freeman@usask.ca>

From: PCIP Info Email

Sent: Tuesday, August 09, 2016 11:09 AM

To: Gray, Richard <richard.gray@usask.ca>; Gilchrist, Donald <donald.gilchrist@usask.ca>

Cc: Provost & VP Academic <provost.vpacademic@usask.ca>; VP Finance and Resources <vp.financeandresources@usask.ca>; Rigby, John <john.rigby@usask.ca>; Thomarat, Jacquie <jacquie.thomarat@usask.ca>; Freeman, Jen <jen.freeman@usask.ca>; Lukey, Heather <heather.lukey@usask.ca>; Sen, Piya <piya.sen@usask.ca>; PCIP Info Email <pcip.info@usask.ca>; PCIP Info Email <pcip.info@usask.ca>

Subject: PhD in Applied Economics Scholarship

This email is being sent on behalf of John Rigby, Interim Vice-Provost, Institutional Planning and Assessment (IPA)

Good afternoon, Murray, Richard, and Donald,

As discussed with you, on behalf of the Provost's Committee on Integrated Planning (PCIP), I am pleased to inform you that, pending approval of the program by Council, one-time funding of \$50,000 per year for two year has been approved to support the PhD Program in Applied Economics. The funding will be sourced from the Strategic Envelope.

Please contact Jacquie Thomarat, Director of Resource Allocation and Planning or myself if we can be of further assistance in establishing this strategic interdisciplinary program.

The members of PCIP thank you and your colleagues for your work.

Regards,

John

✦ John M. Rigby Ph.D.

Interim Associate Provost

Institutional Planning and Assessment

Ph: (306) **966-1827**





UNIVERSITY OF SASKATCHEWAN

College of Graduate
Studies and Research

GRAD.USASK.CA

Adam Baxter-Jones, Ph.D.
Interim Dean of the College of Graduate Studies and Research
Professor in Kinesiology
105 Administration Place
Saskatoon Saskatchewan S7N 5A2 Canada
Telephone: 306-966-5759
Facsimile: 306-966-5756

20 October 2016

Dr. Murray Fulton,
Fellow in Co-operatives and Public Policy
Centre for the Study of Co-operatives
Professor, Johnson-Shoyama Graduate School of Public Policy
Associate Member, Department of Bioresource Policy, Business and Economics
101 Diefenbaker Place
University of Saskatchewan
Saskatoon SK S7N 5B8

Dear Murray,

I would like to start by thanking you and your colleagues for the invaluable work on developing the PhD in Applied Economics program. These types of interdisciplinary programs are exactly the type of initiatives that CGSR/CGPS sees as essential to growing graduate student numbers and enhancing the reputation of graduate studies at the UoS.

CGSR/CGPS would like to show its support by providing one \$25,000 PhD UGS scholarship per year for the first three-years of the program, a total of \$75,000 in support.

All funds must be spent or committed during each of the identified academic years, no funds will be available to be rolled over into following years. Scholarships must be awarded in line with current USG terms and conditions and will be administered through CGSR/CGPS.

Please contact Heather Lukey, Director of Graduate Awards and Scholarships with the appropriate student information for her to make the appropriate arrangement to ensure scholarship payments are made to the identified students.

Sincerely

Dr. Adam Baxter-Jones, Ph.D.

Interim Dean College Graduate Studies and Research

cc: Ms. Heather Lukey, Director of Graduate Awards and Scholarships



January 10, 2017

On behalf of the Edwards School of Business, I am pleased to support – with enthusiasm – the development of a PhD in Applied Economics. Sharing resources among a number of faculties will allow us to run a strong, well-resourced PhD program, with tremendous opportunities to do applied research and develop cross-college collaborations in teaching and research.

The Edwards School of Business will participate with the following in-kind and monetary contributions:

- Our Department of Finance and Management Science is keenly interested in participating through teaching courses, seminars, providing supervisors, committee members, and other forms of assistance that would support the program.
- We have recently hired two research-active faculty members in the Management of Information Systems (MIS) area. We expect that they could be involved in the PhD program.
- We anticipate hiring a faculty person explicitly in data analytics in the next year or two. This position also would support the PhD program.
- From our Dean's Circle funding, we will make significant multi-year scholarships available to students with an interest in applications pertinent to the Edwards School, whose supervisors are in the Edwards School.
- We have good data sets (e.g. Compustat) and the Wharton Platform, which we pay for at great expense. It would be a pleasure to have PhD students and colleagues collaborating with our faculty members using these data sets and the Wharton platform.
- Once students pass their candidacies, we are interested in hiring them to teach courses so they can demonstrate their teaching skills and increase their employability in academic settings. Professors at Edwards have very strong teaching dossiers, and five have become Master Teachers for the University. Many others have won significant teaching awards. This would be a good environment within which future academics could be mentored.

I estimate there are 16 full-time tenured faculty members within the Edwards School who would be qualified to participate in the PhD program as supervisors, committee members, mentors, course directors, and research collaborators.

It is with no hesitation that I urge the governance bodies to give their assent to the launch of the PhD in Applied Economics. It has been many years in the making, and it is time for us to build the program. The Edwards School of Business is committed to participate in the new program.

Sincerely,

Keith A. Willoughby, Ph.D.
Interim Dean
Edwards School of Business

KAW:see



March 7, 2017

Re: Letter of Support for the PhD in Applied Economics

I am pleased to write a letter of support for the PhD in Applied Economics program proposal. The Department of Agricultural and Resource Economics strongly supports the proposed program, with members of our department having taken an active role in its development. While our Department has offered a successful PhD in Agricultural Economics for the past 25 years, we recognize that it is increasingly difficult to remain globally competitive without a critical mass of PhD students, coursework, and shared resources. The proposed program would provide this critical mass and strengthen our existing program. Moreover, as applied economists, we are eager to expand our engagement with economists and graduate students, and to tackle a growing list of complex problems that require a broad range of knowledge and expertise.

Locating the administrative support for the program within our department will build on our long-term experience in PhD delivery and leverage existing administrative support to enable both effective and efficient support for the program and its students. Creating a shared space for the first year students in both PhD programs will create a larger critical mass of students, and enable them to develop the collegial bonds and the sense of community required for an engaged, interactive learning cohort.

The additional faculty member that would be available in conjunction with the establishment of this program will play a critical role in the department. While we have had some faculty renewal, a large number of retirements (six since 2011), combined with record undergraduate enrollment, have strained our departmental teaching and research resources. An additional faculty member will enable the department to support both the new program and our very successful existing programing.

In terms of specific teaching assignments, the applied PhD will give recent and new faculty increased opportunity to teach and involve students in cutting edge applied economic research. As a department, we are committed to offering a range of excellent graduate courses in applied economics. In addition to the existing courses outlined in the proposal, it is important to point out that several new courses are currently being developed or will be developed by recent faculty hires. Furthermore, as an ongoing process, we will continue to assess the demand for graduate instruction. If a significant cohort of PhD students shows an interest in an area of applied economics or econometrics where there is faculty expertise and interest to teach, the department will support the development and teaching of a course or courses in this area. This adaptive model allows the set of graduate-level applied economics courses to evolve to reflect interests, expertise, and relevance over time, all of which is vital for a successful applied economics program.

Finally, I would like to stress that when economists from multiple units work together to deliver a shared program, they will inevitably see other ways to co-operate and create synergies, making the whole larger than the sum of the parts. We see this joint PhD as an innovative and enormously important step forward for the university and for our department. The program will allow the University of Saskatchewan to increase the numbers and quality of graduate students, to expand research and its impact, and to recruit even better faculty. As a result, we are extremely supportive of this important initiative.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Bill Brown', with a stylized, cursive script.

Bill Brown
Professor and Department Head
Agricultural and Resource Economics
Bill.brown@usask.ca
(306) 966-4011



UNIVERSITY OF SASKATCHEWAN

College of
Arts and Science

DEPARTMENT OF ECONOMICS
ARTSANDSCIENCE.USASK.CA

819 Arts Building, 9 Campus Drive
Saskatoon SK S7N 5A5 Canada
Telephone: 306-966-5197
Facsimile: 306-966-1641
Email: economics.dept@usask.ca
Web: artsandscience.usask.ca/economics

15 March 2017

Re: Proposed PhD in Applied Economics

The Department of Economics is one of the original proponents of, and strongly supports, the proposed PhD in Applied Economics.

This innovative program will gather expertise distributed amongst several academic units to provide the depth and breadth required to train nationally and internationally competitive doctoral students.

Our department has already hired into this prospect with an appointment in experimental economics to take advantage of our university's state of the art facility, the Social Sciences Research Laboratory.

We currently resource and deliver courses that will be core as well as key field requirements for this program. In particular, we commit to regularly offering the required core of five courses in microeconomics (the sequence Econ 800 and 873), macroeconomics (Econ 801), and econometrics (the sequence Econ 808 and 809) on an annual basis. As needs and interest arise, we do and will continue to offer further advanced courses in microeconomic theory (Econ 850) and advanced macroeconomic theory (Econ 874).

We regularly offer field courses (Econ 811, 812, 823, 830, 833, 834, and 870 — see Appendix 3), which in combination with complementary courses in the other participating units, form coherent specializations that will deliver first class doctoral training. Moreover, we have the capacity to create new courses with particular focuses as opportunities emerge.

Perhaps the most exciting prospect is the creation of an institutional structure within which our faculty will work directly with faculty from each of the other units to train and supervise doctoral students. The synergies that will flow from these interactions will enhance our research activity and support new joint grant applications.

To restate: the Department of Economics is enthusiastically supportive of the PhD in Applied Economics. We are prepared to fully resource the commitments this entails and we warmly anticipate the research collaborations it will foster.

Sincerely,

DA Gilchrist

Donald Gilchrist, Head
Department of Economics

March 20, 2017

Murray Fulton, Chair
Program Development Committee
PhD in Applied Economics Program

Dear Murray:

On behalf of the Johnson Shoyama Graduate School of Public Policy, we are pleased to reiterate our strong support for the PhD in Applied Economics. The proposed program is an excellent example of the opportunities that emerge – in this case, a strong and well-resourced PhD in economics – when academic units and faculty collaborate. We anticipate that the establishment of this program will lead to other benefits, such as new teaching and research opportunities.

The Johnson Shoyama Graduate School of Public Policy would be pleased to provide the following resources to the program:

- We currently have two economists on faculty, Murray Fulton and Haizhen Mou, who would be available to be involved in graduate student supervision and mentoring.
- We understand a JSGS faculty member will serve on the Applied Economics Graduate Committee. Murray Fulton will serve in this role at startup and for the next several years.
- We are currently negotiating a scholarship donation to the school. If this negotiation is successful (and indications are very good that it will be), the Johnson Shoyama Graduate School would direct the scholarship funding to a student doing behavioural economics in the PhD in Applied Economics program.
- We currently have two courses, JSGS 862 Decision Making in Organizations and JSGS 865 Political Economy. These courses are offered on an annual basis and would be of interest to students in the proposed Applied Economics program. It should be noted that JSGS 862 is a required course in our public policy PhD program. We would be pleased to accommodate any students who would like to enroll in these courses.
- We are often looking for teaching assistants and sessional lecturers for our economics and quantitative methods courses, and would be delighted to be able to choose from a pool of PhD students in the Applied Economics program.

In summary, we are strongly committed to this program and support it fully. We look forward to its introduction.

Yours truly,



Kathleen McNutt, PhD
Executive Director and Professor
Johnson Shoyama Graduate School of Public
Policy



Jeremy Rayner
Director and Professor
Johnson Shoyama Graduate School of Public
Policy, University of Saskatchewan



March 22, 2017

RE: Letter of Support for the Ph.D. in Applied Economics

On behalf of the Department of Finance & Management Science (F&MS), I am delighted to write this letter supporting the proposed Ph.D. program in Applied Economics. Allow me to state that the F&MS currently runs a successful research focused M.Sc. in Finance program. While this program is relatively new, several graduates of this program have pursued their Ph.D. and have gone on to hold academic positions at excellent business schools (for example, one of our graduates is a professor at the University of Toronto). The M.Sc. in Finance students complete a rigorous curriculum involving four required finance courses, year-round research seminars, and several courses from the department of economics; the students also write a thesis by working closely with faculty supervisors.

As one of the four participating units of the proposed Ph.D. program, F&MS expects to contribute by providing access to existing graduate courses and seminars devoted to financial economics, existing physical resources such as research databases and the graduate faculty resources for supervision and mentoring. The graduate courses in finance, while currently targeted to our thesis based M.Sc. in Finance program, are suitable as field courses for the proposed Ph.D. in Applied Economics. The speakers at our graduate seminars include research active academics in the field of finance and financial economics drawn from Canadian and foreign universities. The department has a contingent of a dozen graduate faculty members working in the areas of financial economics, quantitative analysis and management science, information systems management and data analytics. These members could be available to participate in the Ph.D. in Applied Economics program.

Furthermore, the strength of a graduate program in finance is often highly related with the strength of graduate course offerings in the area of economics. The Ph.D. in Applied Economics program will provide significant opportunity to our graduate students to choose from a wide range of high quality economics courses.

Finally, the proposed Ph.D. in Applied Economics will provide an opportunity for F&MS faculty to collaborate with colleagues from participating units in delivering courses and supervising Ph.D. students. We expect that in the long run, this opportunity can significantly help enhance the research intensity in this department. F&MS is very much looking forward to this opportunity for academic collaboration with faculty and students affiliated with the proposed Ph.D. program, and accordingly we offer our strongest support for this program.

A handwritten signature in blue ink that reads "D. Mishra".

Dev R. Mishra, Ph.D.
Department Head
Finance & Management Science

22 March 2017

Re: Proposed PhD in Applied Economics

The College of Arts & Science is pleased to affirm our support for the PhD in Applied Economics program as originally expressed in my letter of April 18, 2016.

The College has proactively invested in a position in the Department of Economics expressly designated for the program. Our newly hired experimental economist is now teaching a graduate course in experimental economics and engaging with our state of the art Social Sciences Research Laboratory.

The College is pleased to support the program commitments as explained in the March 15, 2017 letter from Dr. Donald Gilchrist, Head of the Department of Economics, and looks forward to the new collaborative research activity and grant applications that will flow from this institutionally innovative program.

The Applied Economics PhD program offers a multidisciplinary approach, with cooperation between participating academic units, to large-scale, team-based research projects in the complementary disciplines of Economics. It will prepare a new generation of students for a rapidly expanding collaborative and research agenda, who will be better prepared for future employment opportunities.

The College of Arts & Science fully supports the PhD in Applied Economics. This program implements our spirit of multidisciplinary, multi-unit research, and the exchange of knowledge between our College and the University of Saskatchewan.

Sincerely,



Peta Bonham-Smith
Interim Dean and Professor

From: PCIP Info Email pcip.info@usask.ca

Subject: Ph.D. in Applied Economics

Date: June 6, 2017 at 3:50 PM

To: Buhr, Mary mary.buhr@usask.ca

Cc: Provost & VP Academic tov758@mail.usask.ca, VP Finance and Resources vp.financeandresources@usask.ca, Germida, Jim jim.germida@usask.ca, Fulton, Murray murray.fulton@usask.ca, Rigby, John john.rigby@usask.ca, Thomarat, Jacquie jacquie.thomarat@usask.ca, Freeman, Jen jen.freeman@usask.ca, Sawatzki, Laurel laurel.sawatzki@usask.ca, Summers, Terry terry.summers@usask.ca, Sen, Piya piya.sen@usask.ca, PCIP Info Email pcip.info@usask.ca

PI

This email is being sent on behalf of John Rigby, interim vice-provost, Institutional Planning and Assessment (IPA)

Good afternoon Mary,

I am writing today on behalf of the Provost's Committee on Integrated Planning (PCIP) to indicate preliminary approval for funding of a tenure track faculty position to support the Ph.D. Program in Applied Economics.

PCIP's approval is conditional on several conditions and clarifications. Jim Germida will discuss those conditions with you before the final transfer of funds is authorized.

The members of PCIP thank you and your colleagues for your work.

Regards,

John

 **John M. Rigby Ph.D.**

Interim Associate Provost

Institutional Planning and Assessment

Ph: (306) 966-1827



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Appendix 3
Existing Courses

Existing Courses Offered by the Participating Academic Units

| Course Number | Course Name |
|---|---|
| Department of Agriculture and Resource Economics | |
| AREC 820.3 | Applied Microeconomic Theory |
| AREC 825.3 | Research Issues in Agribusiness Management |
| AREC 832.3 | Rural Development |
| AREC 840.3 | Economics of Agri-Food Marketing |
| AREC 842.3 | Agricultural Market Organizations |
| AREC 845.3 | Transportation Economics and Regulatory Policy |
| AREC 851.3 | Agricultural Policy |
| AREC 855.3 | International Agricultural Trade Policy |
| Economics Department | |
| ECON 800.3 | Microeconomic Theory |
| ECON 801.3 | Macroeconomic Theory |
| ECON 804.3 | Research in Econometrics |
| ECON 805.3 | Mathematical Analysis in Economics |
| ECON 808.3 | Econometrics I |
| ECON 809.3 | Econometrics II |
| ECON 811.3 | International Trade Theory |
| ECON 812.3 | International Monetary Economics |
| ECON 823.3 | Labour Economics |
| ECON 830.3 | Public Finance |
| ECON 833.3 | Economic Evaluation Methods in Health Services Research |
| ECON 834.3 | Health Economics |
| ECON 850.3 | Game Theory, Strategic and Cooperative Choices |
| ECON 870.3 | Behavioural Economics |
| ECON 873.3 | Advanced Microeconomic Theory |
| ECON 874.3 | Advanced Macroeconomic Theory |
| Finance Department | |
| FIN 801.3 | Advanced Corporate Finance |
| FIN 802.3 | Advanced Investment Theory |
| FIN 803.3 | Empirical Methods in Finance |
| FIN 805.3 | Fixed Income Securities |

Existing Courses Offered by the Participating Academic Units (continued)

Johnson Shoyama Graduate School of Public Policy

JSGS 862.3 Political Economy

JSGS 865.3 Decision Making in Organizations

Appendix 4

Estimated Incremental Revenue and Expenses

Appendix 1
Joint Program PhD in Applied Economics

Estimated Incremental Revenues and Expenses

| Year | Growth/yr | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
|---|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Tuition Revenue -- Four Years in Program | | 9,848 | 29,987 | 60,874 | 102,978 | 135,880 | 159,136 | 172,292 | 174,876 |
| Tuition Revenue -- Five Years in Program | | 9,848 | 29,987 | 60,874 | 102,978 | 146,332 | 180,355 | 204,596 | 218,595 |
| <u>Incremental Expenses</u> | | | | | | | | | |
| External Examiner Travel | 1.50% | - | - | - | - | 3,354 | 6,808 | 10,366 | 14,028 |
| Web-site Design and Advertising | | 25,000 | 5,000 | 4,500 | 4,000 | 3,500 | 3,000 | 2,500 | 2,000 |
| Non-Salary Expenses | | 1,100 | 1,117 | 1,133 | 1,150 | 1,167 | 1,185 | 1,203 | 1,221 |
| University Funding for Scholarships | | | | | | | | | |
| Four Year Program | | 7,500 | 22,838 | 46,360 | 78,426 | 103,483 | 121,194 | 131,213 | 133,181 |
| Five Year Program | | 7,500 | 22,838 | 46,360 | 78,426 | 111,443 | 137,354 | 155,816 | 166,477 |
| Total Incremental Expenses | | | | | | | | | |
| Four Year Program | | 33,600 | 28,954 | 51,993 | 83,576 | 111,504 | 132,188 | 145,282 | 150,431 |
| Five Year Program | | 33,600 | 28,954 | 51,993 | 83,576 | 119,465 | 148,347 | 169,884 | 183,726 |
| <u>Net Incremental Surplus (Deficit)</u> | | | | | | | | | |
| Four Year Program | | (23,752) | 1,033 | 8,881 | 19,402 | 24,376 | 26,948 | 27,010 | 24,445 |
| Five Year Program | | (23,752) | 1,033 | 8,881 | 19,402 | 26,868 | 32,007 | 34,712 | 34,869 |
| <u>Cumulative Net Surplus (Deficit)</u> | | | | | | | | | |
| Four Year Program | | (23,752) | (22,719) | (13,838) | 5,564 | 29,940 | 56,888 | 83,898 | 108,343 |
| Five Year Program | | (23,752) | (22,719) | (13,838) | 5,564 | 32,432 | 64,439 | 99,151 | 134,020 |
| <u>Base Case Scenario Key Assumptions:</u> | | | | | | | | | |
| Domestic tuition Rate per year | | 3,939 | | | | | | | |
| Foreign Student tuition Rate per Year | | 5,909 | | | | | | | |
| New students per year | | 2 -->8 | | | | | | | |
| % foreign students | | 50.00% | | | | | | | |
| Number of years to complete Program | | 4 | | | | | | | |
| Cost of funding per student year | | 25,000 | | | | | | | |
| % domestic students provided with funding | | 50.00% | | | | | | | |
| % foreign students with own funding | | 100.00% | | | | | | | |
| Average cost per Thesis Defence | | 1,580 | | | | | | | |
| 50% Graduate Program Assistant (In-Kind Ag bio) | | 31,737 | | | | | | | |

| Schedule 1: Tuition Revenues | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
|-------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Four Years in Program | | | | | | | | |
| Number of Students Year 1 | 2 | 4 | 6 | 8 | 8 | 8 | 8 | 8 |
| Number of Students Year 2 | 0 | 2 | 4 | 6 | 8 | 8 | 8 | 8 |
| Number of Students Year 3 | 0 | 0 | 2 | 4 | 6 | 8 | 8 | 8 |
| Number of Students Year 4 | 0 | 0 | 0 | 2 | 4 | 6 | 8 | 8 |
| Number of Students Year 5 | 0 | 0 | 0 | 0 | 2 | 4 | 6 | 8 |
| Number of Students Year 6 | | | | | | 2 | 4 | 6 |
| Number of Students Year 7 | | | | | | | 2 | 4 |
| Number of Students Year 8 | | | | | | | | 2 |
| Expected # of Graduates | 0 | 0 | 0 | 0 | 2 | 6 | 12 | 20 |
| Total Students All Years | 2 | 6 | 12 | 20 | 26 | 30 | 32 | 32 |
| Domestic Students | 1 | 3 | 6 | 10 | 13 | 15 | 16 | 16 |
| International Students | 1 | 3 | 6 | 10 | 13 | 15 | 16 | 16 |

| Schedule 1: Tuition Revenues | | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Five Years in Program | | | | | | | | | |
| Number of Students Year 1 | | 2 | 4 | 6 | 8 | 8 | 8 | 8 | 8 |
| Number of Students Year 2 | | 0 | 2 | 4 | 6 | 8 | 8 | 8 | 8 |
| Number of Students Year 3 | | 0 | 0 | 2 | 4 | 6 | 8 | 8 | 8 |
| Number of Students Year 4 | | 0 | 0 | 0 | 2 | 4 | 6 | 8 | 8 |
| Number of Students Year 5 | | 0 | 0 | 0 | 0 | 2 | 4 | 6 | 8 |
| Number of Students Year 6 | | | | | | | 2 | 4 | 6 |
| Number of Students Year 7 | | | | | | | | 2 | 4 |
| Number of Students Year 8 | | | | | | | | | 2 |
| Expected # of Graduates | | 0 | 0 | 0 | 0 | 0 | 2 | 6 | 12 |
| Total Students All Years | | 2 | 6 | 12 | 20 | 28 | 34 | 38 | 40 |
| Domestic Students | | 1 | 3 | 6 | 10 | 14 | 17 | 19 | 20 |
| International Students | | 1 | 3 | 6 | 10 | 14 | 17 | 19 | 20 |
| | | | | | | | | | |
| Tuition Revenue | 1.50% | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
| Domestic tuition per year per student | \$3,939 | 3,939 | 3,998 | 4,058 | 4,119 | 4,181 | 4,243 | 4,307 | 4,372 |
| Int'l Tuition per year per student | \$5,909 | 5,909 | 5,998 | 6,088 | 6,179 | 6,272 | 6,366 | 6,461 | 6,558 |
| Four Year Program | | | | | | | | | |
| Total Annual Tuition | | 9,848 | 29,987 | 60,874 | 102,978 | 135,880 | 159,136 | 172,292 | 174,876 |
| Five Year Program | | | | | | | | | |
| Total Annual Tuition | | 9,848 | 29,987 | 60,874 | 102,978 | 146,332 | 180,355 | 204,596 | 218,595 |
| | | | | | | | | | |
| Schedule 2: Student Support | | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
| Student support per student per year | 1.50% | 25,000 | 25,375 | 25,756 | 26,142 | 26,534 | 26,932 | 27,336 | 27,746 |
| Four Years in Program | | | | | | | | | |
| Number of students funded | 50% | 1 | 3 | 6 | 10 | 13 | 15 | 16 | 16 |
| Funding required | | 25,000 | 76,125 | 154,534 | 261,420 | 344,943 | 403,982 | 437,377 | 443,938 |
| Funding provided by research projects | 70% | 17,500 | 53,288 | 108,174 | 182,994 | 241,460 | 282,787 | 306,164 | 310,757 |
| Funding provided by the university | 30% | 7,500 | 22,838 | 46,360 | 78,426 | 103,483 | 121,194 | 131,213 | 133,181 |
| Five Years in Program | | | | | | | | | |
| Number of students funded | 50% | 1 | 3 | 6 | 10 | 14 | 17 | 19 | 20 |
| Funding required | | 25,000 | 76,125 | 154,534 | 261,420 | 371,477 | 457,846 | 519,386 | 554,922 |
| Funding provided by research projects | 70% | 17,500 | 53,288 | 108,174 | 182,994 | 260,034 | 320,492 | 363,570 | 388,446 |
| Funding provided by the university | 30% | 7,500 | 22,838 | 46,360 | 78,426 | 111,443 | 137,354 | 155,816 | 166,477 |
| | | | | | | | | | |
| Schedule 3: Admin Support | | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
| Graduate Program Assistant | 1.50% | 31,737 | 32,213 | 32,696 | 33,187 | 33,684 | 34,190 | 34,703 | 35,223 |
| College Agriculture and Bioresources (in kind) | | 31,737 | 32,213 | 32,696 | 33,187 | 33,684 | 34,190 | 34,703 | 35,223 |
| Web site development and advertising | | 25,000 | 5,000 | 4,500 | 4,000 | 3,500 | 3,000 | 2,500 | 2,000 |
| | | | | | | | | | |
| Schedule 4: Non-Salary Expenses | | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
| Office Supplies | 1.50% | 500 | 508 | 515 | 523 | 531 | 539 | 547 | 555 |
| Books - Non Library | | - | - | - | - | - | | | |
| Materials and Supplies | | 200 | 203 | 206 | 209 | 212 | 215 | 219 | 222 |
| Printing | | 100 | 102 | 103 | 105 | 106 | 108 | 109 | 111 |
| Telephone and Fax | | - | - | - | - | - | | | |
| Courier | | 300 | 305 | 309 | 314 | 318 | 323 | 328 | 333 |
| Total Non-Salary Expenses | | 1,100 | 1,117 | 1,133 | 1,150 | 1,167 | 1,185 | 1,203 | 1,221 |
| | | | | | | | | | |
| Schedule 5: Travel Expenses | | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 |
| Cost of Travel per thesis defence | | | | | | | | | |
| Airfare | 1.50% | 750 | 761 | 773 | 784 | 796 | 808 | 820 | 832 |
| Hotel | | 400 | 406 | 412 | 418 | 425 | 431 | 437 | 444 |
| Meals | | 430 | 436 | 443 | 450 | 456 | 463 | 470 | 477 |
| Total | | 1,580 | 1,604 | 1,628 | 1,652 | 1,677 | 1,702 | 1,728 | 1,754 |
| Number of Thesis Defences/External Examiners | | - | 0 | 0 | 0 | 2 | 4 | 6 | 8 |
| Cost of External Examiners (outside U of S) | | - | - | - | - | 3,354 | 6,808 | 10,366 | 14,028 |

