

**PURDUE UNIVERSITY
GRADUATE SCHOOL**

Minutes of the Graduate Council Meeting
February 16, 2017
1:30 p.m.

Sixth Meeting
Room 214CD
STEW

PRESENT: Mark J. T. Smith, chair; Council Members, Thomas W. Atkinson, Bedrich Benes, Richard E. Blanton, Natalie J. Carroll, David S. Cochran, Joy L. Colwell, Marius D. Dadarlat, (Vincent) Jo Davisson, Melissa M. Franks, Mary E. Johnson, David B. Klenosky, Linda J. Mason, Susan M. Mendrysa, James L. Mohler, Melanie Morgan, Jerry P. Ross, Paul Salama, Carol S. Sternberger, Jen Tang, Candiss B. Vibbert (Provost's Representative), Henry E. Williams, Jun Xie, Yan Ping Xin, Andrew K. Zeller, Howard N. Zelaznik

APOLOGIES FOR ABSENCE RECEIVED FROM: Michael J. Connolly, Lucy M. Flesch, Jonathan M. Harbor, Takashi Hibiki, James L. Mullins, David G. Skalnik, Carol S. Sternberger, Vikas Tomar

ABSENCES: Carlos M. Corvalan, Michael A. Jenkins, Kathryn M. Obenchain, Steven Son, Chong Xiang, Mohammad Zahraee

GUESTS: Barb Almanza, Debbie Fellure, Richard Ghiselli, Lee Gordon, Diane Greenberg, Brian King, Cindy Nakatsu, Dimitri Peroulis, Manushag Powell, JoAnn Sandifur, Elizabeth Taparowsky, Brittany Wright

I. MINUTES

The minutes of the January 19, 2016, Graduate Council meeting were approved as presented.

II. DEANS REMARKS AND REPORTS

- a) Dr. Mark Smith noted that the Graduate Council meetings will begin using a different format with a discussion of different topics.
- b) Dr. James Mohler gave a report on pending degree program proposals in various stages of review and approval.
- c) Dr. James Mohler gave a report on pending course proposals in review with the Graduate Council area committees, proposals awaiting additional information from proposers, course proposals requested by departments for removal, and new course proposals received since the previous Graduate Council meeting.

III. PANEL DISCUSSION

The discussion generated good feedback on the holistic vs. non-holistic approaches to the admission process. The majority of programs seem to be using a more holistic approach and plan to continue with this method, noting that it is more time consuming but the pool of applicants is better. Most programs noted that the research aspect was weighted highest.

Dr. Colleen Gabauer, Managing Director, Office of Interdisciplinary Graduate Programs

Dr. Gabauer provided a video on *An Ongoing Analysis of the Holistic Review Process*. The video outlined the findings of two studies that were completed by Dr. Colleen Gabauer, Dr. Janet Beagle, and Dr. Kathy Dixon. At the completion of two studies, their findings were that 60% of programs define themselves as taking a holistic approach to reviewing applications and that their definition of holistic was “all aspects of the application are considered and cutoff scores and rank scores are not used.” Some considerations included were: moving away from a focus on certain schools, avoiding cut off scores, and gaining awareness of hidden biases in letters of recommendation.

Three panel members discussed their process for applicant review and selection:

Professor Barb Almanza, Professor of Hospitality and Tourism Management

Professor Almanza noted that they try to keep the applicant pool large enough so that their faculty will have a good representation to look at for admissions. The faculty may have a particular research agenda and it is helpful to have a larger pool of applications to review. If they are only lacking one standard for admissions then they would not be immediately eliminated.

She noted that they have a three member committee that looks at the applicants and chooses to either move forward, unsure (discussion follows), or don't move forward. From there all faculty in the department may rank by giving their top three candidates by research focus and whether they would be willing to chair their committee. If a student does not have a faculty member willing to chair their committee, they are not selected to move forward. From there they move to Skype or face-to-face interviews. They have a huge pool of international applicants and they want to be sure that their English skills are acceptable and that the reviewers are not just going by the GRE scores provided. Applicants may be eliminated at this stage.

The department will then look at additional criteria in addition to the minimum requirements, such as work experience, verbal skills, ability for spontaneous conversation, etc... Some examples of questions at this stage might be, “Do you like to cook?”, “What is the nicest hotel you have ever stayed at?”. They feel that the Skype interviews are important and they require that they put a photo ID next to their face during the interview to ensure that they are truly who they say they are.

Cindy Nakatsu, Professor of Agronomy (participates in the PULSe Interdisciplinary program)

Professor Nakatsu noted that the PULSe program is different in its application review process since they are an interdisciplinary program. There are eleven training groups and one faculty member from each training group is involved in the selection process to cover the diversity of the applicants. This committee is very diverse as well; with underrepresented minorities, good ration of men to women, and those with international educational experience having been trained somewhere else. They also have a mix of full, assistant, and associate professors. Since PULSe has a campus visit for their new students, it causes the review team to have to speed this process up in order to have their final selection made in time. They are very dedicated

and meet twice per week as a group each December and January. They have two people per committee member to assess each student. Whether they are accepted or denied, they still have them speak because at the meeting someone may see something in someone and say, "Maybe we shouldn't be denying this person at this time." The PULSe program team feels that research experience is more important of a factor in this process than the GRE scores. The statistics show that students coming in with research experience are more likely to complete their degree. The requirement is one year minimum of research experience.

The next step is to review the international pool to see where they could be narrowed down. In this group there is diversity among the countries represented, as well as within each country. These applicants have a requirement of one journal paper publication. In total, PULSe received 160 applicants this year and only twenty five were accepted into the program.

Dimitri Peroulis, Professor of Electrical and Computer Engineering and Director of Graduate Admissions

The School of Electrical and Computer Engineering is the largest program on campus with around 3400 applicants per year. Nearly 85% are international students. Around 5% are funded and about 15% are admitted.

The school has a very decentralized process with an admissions committee with representatives from all eight research areas. They do not use cut scores and do not have a minimum GRE requirement. The GRE scores are published, but not factored into the initial decision. By and large, the faculty does not feel that the standardized tests should be used in their review process. Primarily, they are looking at where the students are coming from, their GPA, and research experience. They are asked to come up with a consensus for their final selections.

Questions by council members followed:

How many use Skype? The majority of the attendees indicated that Skype was used for their interviews with international students.

Do any programs use student rankings? A respondent indicated their program does.

Is the entire Graduate Faculty invited to be a part of the review process? This was asked to the panel and Barbara Almanza replied that for the most part, yes, all faculty are able to review and share opinions. Many have funding to consider. The other two panelists agreed.

How do the students choose their major professor? Professor Almanza noted that each student is given the list of faculty who have agreed to be their student's major professor and the student chooses from this list.

Do any of the programs ask for a video presentation where the student answers a set of predetermined questions? No, most prefer not disclosing the questions in advance.

What are you looking for when you talk to students via Skype? The panelists noted they wanted to know the student's areas of interest and his/her overall verbal ability. In addition, Skype interviews allow the student to ask questions.

Are there any downsides to holistic applicant review? One of the panel members noted that when you look at an applicant holistically you are going to find attributes and strengths in certain areas that need further developing. You need to be able to find faculty members who are willing to help the students in developing those skills that may need strengthening. Another point made is that the workload is much higher. Using a holistic approach means you are taking more time to get to know the whole person. Professor Nakatsu agreed that the holistic approach

is more time consuming but you definitely get a better pool of admits.

Are you using Fellowships as a creative way to recruit or to get students to matriculate into your programs? Professor Peroulis noted that they do use fellowships when considering applicants. They sometimes need to take more time with them to be sure they understand the process.

What type of criteria do you use in your review process and what weights do you assign to your criteria? Professor Peroulis, ECE, noted that they look at scores, GPA/rankings, recommendation letters, if they have their own funding, resources needed from the department, have they been actively participating in research, and review of the interview outcomes and comments including Skype interviews. Most programs noted that the research aspect was weighted highest. Other than that, no particular weight is given to any of the areas.

Do you focus on particular schools? Professor Nakatsu, Agronomy, noted that they do not focus on particular schools any longer. They have found that even students coming from smaller schools can have four years of research and be as qualified as the other applicants from the larger schools. They will also deny Berkeley or Harvard students if they have never been in the lab before. It is beneficial to have a large review committee so that they can share experiences and better calibrate GPA equivalencies from school to school.

How many use cut scores? Attendees said their programs use cut scores.

How many have training for search committees? Only one person indicated that their program required training for the admission committee.

Dr. Mark Smith noted that representatives from the Graduate Record Examinations (GRE) Boards will be speaking at Purdue.

Dr. Smith noted that the goal of this discussion is: 1) To help us understand how the GRE is to be used. 2) What are the best practices for admissions? Using the GRE or not using the GRE. 3) If the GRE is not good, what is the metric they could provide?

The GRE Board is asking Purdue what product would we like them to develop. Those who are interested in these conversations will receive an email.

IV. AREA COMMITTEE REPORTS (Area Committee Chairs)

Graduate Council Document 17-B, Graduate Council Documents Recommended for Approval:

Area Committee A, Behavioral Sciences (Yan Ping Xin, yxin@purdue.edu):
Graduate Council Document 17-1a, ENE 50400, Leadership, Policy, and Change in Science, Technology, Engineering, and Mathematics (STEM) Education (PWL)
Graduate Council Document, 16-29c, ENGT 50100, Graduate Research Seminar (PWL)

Dr. Yan Ping Xin presented two courses for consideration. The courses were approved by the council, upon a motion by Dr. Xin.

Area Committee C, Engineering, Chemistry, and Physical Sciences (Lucy Flesch, lmflesch@purdue.edu):

Graduate Council Document 16-30d, AAE 56100, Introduction to Convex Optimization (PWL)

Graduate Council Document 16-34a, BME 50000, Biomedical Engineering Graduate Seminar (IUPUI)

Graduate Council Document 16-34b, BME 52700, Implantable Systems (IUPUI)

Graduate Council Document 16-34c, BME 53700, Experimental Methods in Biomedical Engineering (IUPUI)

Graduate Council Document 16-34d, BME 54400, Musculoskeletal Biology and Mechanics (IUPUI)

Graduate Council Document 16-34e, BME 57100, Drug Delivery (IUPUI)

Graduate Council Document 16-34f, BME 58200, Advanced Biomedical Polymers (IUPUI)

Graduate Council Document 17-2a, BME 69699, BME Professional Practice Graduate Internship (PWL)

Graduate Council Document 16-10n, ECE 51012, Electromechanics (PWL)

Graduate Council Document 17-3a, ECE 51018, Hybrid Electric Vehicles (PWL)

Graduate Council Document 17-3b, ECE 52301 Nanosystems Principles (IUPUI)

Graduate Council Document 17-3c, ECE 52601 Integrated Nanosystems Processes and Devices (IUPUI)

Graduate Council Document 16-10o, ECE 60022, Wireless Communication Networks (PWL)

Graduate Council Document 16-10p, ECE 60419, Numerical Simulations of Electro-optic Energy Systems (PWL)

Graduate Council Document 17-3d, ECE 60421, Nanophotonics and Metamaterials (PWL)

Graduate Council Document 16-10q, ECE 60872, Fault Tolerant Computer System Design (PWL)

Graduate Council Document 16-10r, ECE 61014, Electromagnetic and Electromechanical Component Design (PWL)

Graduate Council Document 16-10s, ECE 61016, Power Electronic Converters & Systems (PWL)

Graduate Council Document 17-5a, ME 52301 Nanosystems Principles (IUPUI)

Graduate Council Document 17-5b, ME 52601 Integrated Nanosystems Processes and Devices (IUPUI)

Graduate Council Document 16, 32a, ME 52900, Sustainable Energy Options and Analysis (PWL)

Graduate Council Document 16-32c, ME 54400, Modeling and Simulation of Mechanical Engineering Systems (IPFW)

Graduate Council Document 16-32d, ME 54700, Mechatronics, Robotics, and Automation (IPFW)

Graduate Council Document 16, 32b, ME 65000, Computational Fracture Mechanics (PWL)

Dr. Marius Dadarlat presented twenty-four courses for consideration. The courses were approved by the council, upon a motion by Dr. Dadarlat.

Area Committee E, Life Sciences (Natalie J. Carroll, chair; ncarroll@purdue.edu):
Graduate Council Document 16-37a, NUR 66100, Theories and Principles of Teaching and Learning in Nursing Education (PNW-Hammond)

Dr. Natalie Carroll presented one course for consideration. The course was approved by the council, upon a motion by Dr. Carroll.

Area Committee F, Management Sciences (Jun Xie, chair: junxie@purdue.edu):
Graduate Council Document 16-16c, HTM 51200, Leadership in Hospitality and Tourism (PWL)
Graduate Council Document 16-33a, OBHR 65200, Organizational Development & Consulting (PWL)

Dr. Jun Xie presented two courses for consideration. The courses were approved by the council, upon a motion by Dr. Xie.

GRADUATE DEGREE PROPSAL:

Area Committee C, Engineering, Chemistry, and Physical Sciences (Lucy Flesch, lmflesch@purdue.edu):
Graduate Council Document 17-5c, Proposal for Ph. D. in ECE (IUPUI)

Dr. Marius Dadarlat presented one degree proposal for consideration. The degree proposal was approved by the council, upon a motion by Dr. Dadarlat.

V. PURDUE GRADUATE STUDENT GOVERNMENT -- PRESIDENT'S REPORT

Mr. Andrew Zeller, President of the Purdue Graduate Student Government (PGSG) provided information regarding:

- Spring Career Fair
- Success factors presented to grad students
- Preparations being made for Graduate Student Appreciation Week in April
- Organizational restructuring

VI. OLD BUSINESS

Dr. Jun Xie, Chair of the English Proficiency Task Force committee reported that the committee has been provided with information from the Graduate School and Dr. April Ginther, Director, Oral English Proficiency Program. Several members of the Task Force collected data from their departments for the English Proficiency requirements.

Dr. Xie noted that the Task Force has made the following recommendations:

1. Raise the minimum TOEFL iBT score to 80 with 20 required for the four

subsections; recommended 88 with 22 for the subscales for PhD degree applicants. Inform individual program departments that target yields are possible with higher selection.

2. Eliminate waivers to international degree-seeking applicants whose native language is not English but who have been conferred a baccalaureate, graduate, professional degree within the last 24 months from an English speaking institution in a county where English is the native language. Do not waive the requirement even if an applicant has obtained a degree from a US institution.
3. Raise awareness about better use of English language proficiency test scores in the selection/admission process. Emphasize that cutoff scores are minimums.
4. Provide English for academic purposes courses for all graduate students. These would be voluntary and equivalent to a two-semester sequence.
5. Establish the corresponding requirements for IELTS and Pearson, with subscales, Which are equivalent to the TOEFL iBT requirements.

The final report for recommendation should be ready for the Graduate Council meeting in March.

VII. CLOSING REMARKS AND ADJOURNMENT

Dean Mark Smith noted that

The council meeting was adjourned by Dr. Smith at 2:50 p.m.

Mark J. T. Smith, Chair
Tina L. Payne, Secretary

APPENDIX A

PENDING DOCUMENTS

(February 16, 2017)

BOLDED ITEMS ARE IN REVIEW WITH AN AREA COMMITTEE

Area Committee A, Behavioral Sciences (Yan Ping Xin, chair; yxin@purdue.edu):

Graduate Council Document 17-1a, ENE 50400, Leadership, Policy, and Change in Science, Technology, Engineering, and Mathematics (STEM) Education (PWL)

Graduate Council Document 17-1b, ENE 50500, Theories of Development and Engineering Thinking (PWL)

Graduate Council Document, 16-29c, ENGT 50100, Graduate Research Seminar (PWL)

Graduate Council Document 16-14h, PSY 62901, fMRI Design and Analysis (PWL)

Area Committee C, Engineering, Chemistry, and Physical Sciences (Lucy Flesch, chair:
lmflesch@purdue.edu

Graduate Council Document 16-30d, AAE 56100, Introduction to Convex Optimization (PWL)

Graduate Council Document 16-34a, BME 50000, Biomedical Engineering Graduate Seminar (IUPUI)

Graduate Council Document 16-34b, BME 52700, Implantable Systems (IUPUI)

Graduate Council Document 16-34c, BME 53700, Experimental Methods in Biomedical Engineering (IUPUI)

Graduate Council Document 16-34d, BME 54400, Musculoskeletal Biology and Mechanics (IUPUI)

Graduate Council Document 16-34e, BME 57100, Drug Delivery (IUPUI)

Graduate Council Document 16-34f, BME 58200, Advanced Biomedical Polymers (IUPUI)

Graduate Council Document 17-2a, BME 69699, BME Professional Practice Graduate Internship (PWL)

Graduate Council Document 17-6a, CE 50910, Watershed Management (PNW-Calumet)

Graduate Council Document 17-6b, CE 52910, Matrix Analysis of Structures (PNW-Calumet)

Graduate Council Document 17-6c, CE 53210, Bridge Engineering (PNW-Calumet)

Graduate Council Document 17-6d, CE 53410, GIS and Remote Sensing Applications in Civil Engineering (PNW-Calumet)

Graduate Council Document 17-6e, CE 53710, Optimization and Simulation Models (PNW-Calumet)

Graduate Council Document 16-10n, ECE 51012, Electromechanics (PWL)

Graduate Council Document 17-3a, ECE 51018, Hybrid Electric Vehicles (PWL)

Graduate Council Document 17-3b, ECE 52301 Nanosystems Principles (IUPUI)

Graduate Council Document 17-3c, ECE 52601 Integrated Nanosystems Processes and Devices (IUPUI)

Graduate Council Document 16-10o, ECE 60022, Wireless Communication Networks (PWL)

Graduate Council Document 16-10p, ECE 60419, Numerical Simulations of Electro-optic Energy Systems (PWL)

Graduate Council Document 17-3d, ECE 60421, Nanophotonics and Metamaterials (PWL)

Graduate Council Document 16-10q, ECE 60872, Fault Tolerant Computer System Design (PWL)

Graduate Council Document 16-10r, ECE 61014, Electromagnetic and Electromechanical Component Design (PWL)

Graduate Council Document 16-10s, ECE 61016, Power Electronic Converters & Systems (PWL)

Graduate Council Document 17-5a, ME 52301 Nanosystems Principles (IUPUI)

Graduate Council Document 17-5b, ME 52601 Integrated Nanosystems Processes and Devices (IUPUI)

Graduate Council Document 16, 32a, ME 52900, Sustainable Energy Options and Analysis (PWL)

Graduate Council Document 16-32c, ME 54400, Modeling and Simulation of Mechanical Engineering Systems (IPFW)

Graduate Council Document 16-32d, ME 54700, Mechatronics, Robotics, and Automation (IPFW)

Graduate Council Document 16, 32b, ME 65000, Computational Fracture Mechanics (PWL)

Area Committee D, Humanities and Social Sciences (Richard Blanton, chair; blantonr@purdue.edu):

Graduate Council Document 16-36a, LC 65900, Seminar in Literature and Culture of the African Diaspora (PWL)

Area Committee E, Life Sciences (Natalie J. Carroll, chair; ncarroll@purdue.edu):

Graduate Council Document 16-35a, HORT 52500, The Plant Microbiome (PWL)

Graduate Council Document 16-37a, NUR 66100, Theories and Principles of Teaching and Learning in Nursing Education (PNW-Hammond)

Area Committee F, Management Sciences (Jun Xie, chair; junxie@purdue.edu):

Graduate Council Document 16-16a, HTM 50300, Business Statistics and Quantitative Analysis in Hospitality (PWL)

Graduate Council Document 16-16b, HTM 51100, Hospitality Business Law and Risk Management (PWL)

Graduate Council Document 16-16c, HTM 51200, Leadership in Hospitality and Tourism (PWL) Updated

Graduate Council Document 16-16d, HTM 53600, Advanced Service Management for Hospitality and Tourism (PWL)

Graduate Council Document 16-16e, HTM 54200, Strategic Revenue Management in the Hospitality Industry (PWL)

Graduate Council Document 16-16f, HTM 59500, Applied Management Project (PWL)

Graduate Council Document 16-33a, OBHR 65200, Organizational Development & Consulting (PWL)

NEW DOCUMENTS RECEIVED

(After the February 16, 2017 Graduate Council Meeting)

Area Committee A, Behavioral Sciences (Yan Ping Xin, chair; yxin@purdue.edu):

Graduate Council Document 17-10a, TCM 52000, Teaching Technical & Professional Communication (IUPUI) Sem. 1 and 2. SS. Lecture 1 time per week for 140 minutes. Distance. Variable Credit 3 to 4. Prerequisites: A background in technical communication and /or teaching is desirable, but not required.

This course is intended for graduate students who wish to learn the theory and practice of teaching technical and/or professional communication at secondary or post-secondary levels. Professor Hovde.

Graduate Council Document 17-10b, TCM 53000, Advanced Visual Technical Communication (IUPUI) Sem. 1 and 2. SS. Lecture 1 time per week for 140 minutes. Distance. Variable Credit 3 to 4. Prerequisites: A background in technical communication is desirable, but not required.

This course is intended for graduate students who wish to learn the theory and practice of visual technical communication. Professor Hovde.

Graduate Council Document 17-10c, TCM 55500, Advanced Research Approaches for Technical and Professional Communication (IUPUI) Sem. 1 and 2. SS. Lecture 1 time per week for 140 minutes. Distance. Credit 3 Prerequisites: A background in technical communication is desirable, but not required.

This course is intended for graduate students who wish to learn the theory and practice of conducting applied research in technical and/or professional communication. Professor Hovde.

Area Committee C, Engineering, Chemistry, and Physical Sciences (Lucy Flesch, chair: lmflesch@purdue.edu):

Graduate Council Document 17-9a, SYS 50000, Perspective on Systems Engineering (PWL) Sem. 1. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: Graduate standing or permission of instructor.

This course provides an introduction to, and references for, each of four distinct approaches to Systems Engineering concepts and tools. Individual assignments and team projects will be based on readings from these multiple approaches and selected case studies. Participants will be encouraged to bring their own prior expertise and examples to the discussions and projects. While the course will discuss quantitative topics (including: cybernetics, feedback control systems, and statistical process control), the course itself will emphasize a more interdisciplinary conceptual integration rather than stand-alone analysis of these topics. Professor Caldwell.

Graduate Council Document 17-9b, SYS 51000, Tools and Methodologies for Designing Systems (PWL) Sem. 1. Lecture 3 times per week for 50 minutes. Credit 3. Prerequisites: Graduate standing or permission of instructor. Students are assumed to have completed some college-level mathematics, as they will be asked to solve problems related to sets, graphs, and probability and decision trees. Ability to install and operate software on a Windows operating system is necessary to use the modeling tools.

Introduction to modeling tools and methods for designing engineered systems. Topics include: defining the design problem; defining and validating stakeholders' and system requirements; discrete mathematics for system modeling; defining and modeling system operational scenarios; the system development life cycle; defining and modeling functional, physical, and allocated architectures; evaluating and modeling functional, physical, and allocated architectures; evaluating and modeling the tradeoffs between alternative architectures, and defining the system qualification process. Professor Kenley.

Graduate Council Document 17-9c, SYS 53000, Practical Systems Thinking (PWL) Sem. 2. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: Graduate standing or permission of instructor.

Practical systems thinking is designed to give students a sense of how problem solving happens in the real world. This is accomplished through case examples and group projects. Professor Dumbacher.

Area Committee F, Management Sciences (Jun Xie, Chair: junxie@purdue.edu):

Graduate Council Document 17-11a, ECON 63300, Macroeconomics with Heterogeneous Agents (PWL) Sem. 1 and 2. Lecture 2 times per week for 90 minutes for 8 weeks. Distance. Credit 2.

In the first part of the course, we document empirical facts on inequality, and why heterogeneity is important for positive and normative analyses in macroeconomics. We review representative household models with complete markets and their properties, after which we consider incomplete markets. With household heterogeneity, we face limits in obtaining analytical solutions. Thus, we

numerically compute equilibrium of these models. These models and numerical solutions are useful for interesting applications of macroeconomics (tax, Social Security, bankruptcy, housing, etc.). In the second part of the course, we study models with heterogeneous firms, building on Hopenhayn (1992). We discuss several extensions of the model, including financial frictions, firing costs, and their aggregate implications on allocation of resources and total factor productivity (TFP). Professor Kim.

Graduate Council Document 17-11b, **ECON 64100, Computational Economics/Numerical Methods** (PWL) Sem. 1 and 2. Lecture 2 times per week for 90 minutes for 8 weeks. Distance. Credit 2.

The purpose of this class is to give you a computational toolbox you can apply to economic questions. We will introduce and use numerical methods on computationally tractable problems. The goal of the course is to encourage Ph.D. students to apply these techniques to their own research. Our in-class applications will primarily be public policy and macro-oriented, by solving and simulating the problems of microeconomic agents and aggregating the results. Professor Gallen.

Graduate Council Document 17-11c, **ECON 65300, Economics of Early Childhood and Skill Formation** (PWL) Sem. 1 and 2. Lecture 2 times per week for 90 minutes for 8 weeks. Distance. Credit 2.

This course is the second in the Ph.D. Labor Economics sequence. We will focus on the economics of skill formation and its consequences on later outcomes like schooling choices, health, social behaviors and labor market variables. We will do this, by analyzing both static and dynamic settings, in which we recognize that skill formation is a process in which early inputs strongly affect the productivity of later ones. Professor Sarzosa.

Graduate Council Document 17-11d, **ECON 68100, Bayesian Econometrics I** (PWL) Sem. 1 and 2. Lecture 2 times per week for 90 minutes for 8 weeks. Distance. Credit 2. Prerequisites: ECON 67000 and ECON 67100.

The course is intended to expose the student to the Bayesian viewpoint, to contrast this viewpoint with the frequentist perspective, and importantly, to get the student up-to-speed with modern simulation methods. This course will provide an important set of computational and methodological tools that will be extremely valuable for PhD students in Economics, Finance, Marketing, Agricultural Economics and other fields. Specifically, this course will review a variety of simulation-based methods for inference – techniques that can be used to fit a wide array of statistical models. Professor Tobias.

Graduate Council Document 17-11e, **ECON 68200, Bayesian Econometrics II** (PWL) Sem. 1 and 2. Lecture 2 times per week for 90 minutes for 8 weeks. Distance. Credit 2. Prerequisites: ECON 67000 and ECON 67100 and ECON 68100.

This second course in Bayesian econometrics covers empirical analysis and practical issues with Bayesian implementation. This course will review and extend an important set of computational and methodological tools that will be extremely valuable for PhD students in Economics, Finance, Marketing, Agricultural Economics and other fields. Specifically, this course will review a variety of simulation-based methods for inference – techniques that can be used to fit a wide array of statistical models. Markov Chain Monte Carlo (MCMC) methods, including the Gibbs Sampler, will be discussed in detail. Professor Tobias.

Graduate Council Document 17-13a, MGMT 53500, International Law for Managers (PWL)
Sem. 1 and 2. SS. Lecture 2 times per week for 90 minutes for 8 weeks. Distance. Credit 2.

Today's managers work in a highly international business environment. That creates an atmosphere where US laws interact and collide with other countries' and international law. In this class we will explore contract, marketing, intellectual property, employment law and more in the international context. We will use case studies and headlines to see how these issues effect real businesses. When you leave, you will be prepared to help lead your employer in the international environment while staying on the right side of the law. Professor Putman.

Graduate Council Document 17-13b, MGMT 53600, Employment Law for Managers (PWL)
Sem. 1 and 2. SS. Lecture 2 times per week for 90 minutes for 8 weeks. Distance. Credit 2.

Managers, regardless of your industry, will routinely face HR and employment issues that collide with the law. In this course, we will examine many laws and the practical ways you can stay on the right side of the law. Don't worry, you aren't in a law school class and I don't expect you to become employment attorneys. However, I will help you gain a working knowledge of employment laws including: The Civil Rights Act, ADA, ADEA, FMLA, FLSA, and a host of alphabet soup. We will also apply these laws from posting a job description to recruiting to hiring to employee reviews to terminating an employee. While I can't guarantee you will never be sued by a disgruntled current or former employee, I can help you put yourself and your company in the best possible position to defend that suit. And don't worry: we'll look at lots of quick case studies (less than a page) to give you context you can easily remember. Professor Putman.

GRADUATE CERTIFICATE(S):

Area Committee A, Behavioral Sciences (Yan Ping Xin, chair: yxin@purdue.edu):

Graduate Council Document 17-12a, Graduate Certificate in Information Technology Business Analysis, Submitted by the Department of Computer and Information Technology, Purdue Polytechnic Institute, PWL

Graduate Council Document 17-17a, Graduate Certificate in Managing Information Technology Projects, Submitted by the Department of Computer & Information Technology, Purdue Polytechnic Institute, PWL