

PURDUE UNIVERSITY GRADUATE SCHOOL

Minutes of the Graduate Council Meeting
November 18, 2021
2:30 p.m.

Third Meeting
Via Zoom

PRESENT: Council Members, James L. Mohler, Deputy Chair, Raida Abuizam, Kola Ajuwon, Yong Bao, Janice S. Blum, Steven J. Burdick, David S. Cochran, Joy Colwell, G. Jonathan Day, Eric D. Deemer, Bryan DeWitt, Margaret Gitau, Jeffrey P. Greeley, Chong Gu, Erla Heyns, Randolph D. Hubach, Troy D. Janes, Ann L. Kirchmaier, Jiliang Li, Yanjun Li, Melanie Morgan, Zhan Pang, Tina L. Payne, Paul Salama, Megan Sapp Nelson, Abraham Schwab, Ann Shanahan, Michael G. Smith, John A. Springer, Joseph D. Thomas, Eric Waltenburg, Christine Wuenschel

APOLOGIES FOR ABSENCE RECEIVED FROM: Thomas W. Atkinson, Levon Esters, Keith B. Gehres, Kevin D. Gibson, Tong Jin Kim, Douglas J. LaCount, Timothy B. Lescun, Linda J. Mason, chair, Madelina Nuñez, Jenna Rickus (Provost's Representative), Jill J. Sutor, William R. Watson

ABSENCES: Christopher R. Agnew, Suzanne C. Bart, Christopher K. Belous, Emad Elwakil, Judith Lewandowski, Chenn Zhou

GUESTS: Debbie Fellure, April Ginther, Sean McCan, Sharry Vahed, Korena Vawter

I. MINUTES

The October 2021 Graduate Council meeting minutes were approved via the Qualtrics Survey.

II. DEANS REMARKS AND REPORTS

Associate Dean James Mohler

- Reminder that the minutes approved each month are part of the Qualtrics survey.
- Dean Mason would like to relay that everyone is familiar that the council some time ago required the first two weeks of the course that faculty members who has a graduate student taking research credits have a discussion on the deliverables within the first two weeks and check off the checkbox in myPurdue.
- We are working to enable the graduate contacts in each department to be a proxy to check off the checkbox in the Spring. Most of these discussions are happening; however, the box is not getting checked off in myPurdue. This is the only course that does not have a syllabus, so it is important that it is clear for the students to know what the expectations are for research credits.
- Dean Mason held Town Hall meetings this fall with the Colleges in Agriculture, Education, Engineering and Veterinary Medicine. The Town Hall meetings will continue in the Spring.
- The meetings have been enlightening. Most concerning for graduate students is pay and housing. The Town Halls have provided a way to get information out about what things graduate students can influence and how. There is misperception that the Graduate School

can suddenly fix things that we do not have direct control over. With all of us working together, however, we can collectively make things better.

Melanie Morgan

- On January 19, 2022 we will be kicking off a three year mentoring type of assessment and improvement program that we will engage in.
- The keynote speaker Melissa McDaniels from the University of Wisconsin from the Office of Mentoring will present a workshop for graduate students on getting the mentoring they need.
- The initiative with mentoring in January will have faculty fellow mentors who will represent each of the ten academic colleges. They will engage in: 1) understanding an assessment of mentoring in their colleges opportunities for things that could be improved, 2) noticing things that are working well in those colleges that could be extended across the rest of the university.
- In addition to those faculty mentor fellows, there will be graduate student fellows who will give that side of the perspective and will work along with those faculty fellows to improve mentoring.
- There will be a small stipend of \$5,000 for both the faculty and the graduate students.
- The documents on these two initiatives are posted in Box for the Council to access. Colleges will receive information via email.

III. POSTHUMOUS DEGREE REQUEST

Graduate Council Document 21-N, Request to Award a Posthumous Degree, submitted by The Department of Chemistry.

Dr. James Mohler presented Graduate Council Document 21-N, Request to Award a Posthumous Degree, which stated that the late William Lewis Robinson met the University's requirements for the conferral of a posthumous Doctor of Philosophy degree. During the review of Mr. Robinson's records, the following were noted:

- Mr. Robinson began his Purdue University graduate program in the Fall of 2018 in the Ph.D. program in Chemistry.
- Mr. Robinson's plan of study for the Ph.D. degree in Chemistry was approved on August 30, 2019 (modified January 10, 2020). The plan of study included 18 credits of coursework, all completed by the end of the Spring 2020 semester.
- Mr. Robinson's plan of study and research focused on synthetic organic chemistry and medical chemistry for drug discovery for HIV.
- Mr. Robinson passed his prelim exam on October 21, 2020.

Given that Mr. Robinson was on track to graduate in May 2022, and his dissertation was being written and was recently completed by Professor Ghosh, his Ph.D. advisor, it is his conclusion that Mr. Robinson fully meets the requirements to receive a posthumous Doctor of Philosophy degree.

A motion was made. The council unanimously approved the request. The request will be forwarded to the Office of the President for final approval.

IV. AREA COMMITTEE REPORTS (Area Committee Chairs)

Graduate Council Document 21M, Graduate Council Documents Recommended for Approval.
See Appendix B. Voted via Qualtrics survey.

V. PRESENTATION

Theresa Mayer, Executive Vice President for Research and Partnerships

- Challenging year with COVID especially for graduate students. Leaving many of our graduate students, particularly those who work with human subjects and rely on international engagement who are still facing some delays.
- A tremendous amount of time and effort spent to mitigate the most severe impacts of COVID.
- We had the support of our federal agencies and many of our industry sponsors and others to try to ensure that there were no gaps in funding for graduate students. We ended up in a position that was much stronger than many of our peers and would like to acknowledge the strong support from across the country.
- The Senior Research Officers worked closely as they tried to develop the path forward during these uncertain times.
- Met with the Graduate Student Government and pulled some interesting statistics.
- Working with Dean Mason and the leadership with a topic that has been discussed with the Graduate Student Government looking at graduate student salaries, as well as the coverage of tuition and particularly for our post and prelim tuition.
- There are active discussions as we look at how to elevate the salary for our graduate students.
- Other areas being worked on over the last few years is ensuring that as we work with our graduate students from the perspective of making sure that they have access to resources to ensure that they are well rounded as they leave Purdue, particularly as it pertains to ethics and integrity.
- With the support of James Mohler and others, a Research Integrity and Responsible Conduct of Research Program has been rolled out with strong participation from graduate students that includes a discipline focused discussion.
- Many disciplines are faced with ethical challenges as they may be working on protocols or within their own research, but know that they have a place to go and are given resources in order to work through these different challenges.
- Pleased with the participation in our Responsible Conduct for Research that serves our graduate students well as they move to the next phase of their careers.
- A number of communications have been sent regarding the work to assess our research environment particularly focused on ensuring that we have an equitable environment in our research enterprise that is free of harassment.
- There is ongoing work with the National Institute of Health and the National Science Foundation in this area. We are one of the universities that has taken a leading approach in collaborating with the University of Illinois.
- A team there has developed support from several different foundations with two different assessment tools to assess the research climate and the research environment.
- The University of Hawaii will integrate the data and provide the data to us to share with the university at large in the Spring.
- An overall response rate of those contacted across the university was 20%. For those who have worked in the survey environment, that is a high response rate.
- The ongoing work on the topic of foreign influence that is driven by legislation throughout our federal agencies and as we look at the graduate student population on harassment.
- Balancing the agency responses to foreign influence together with ensuring that we have a positive research environment. There are activities that we are engaged with as we continue work with our delegation and with others in the broad area of foreign influence.

- Within the Office of the Executive Vice President for Research and Partnerships there are a number of task forces that are looking at many of our university wide core facilities that support our state of the art infrastructure. This includes our computational infrastructure all the way to our experimental infrastructure.
- Our graduate students rely on having easy and ready access to this infrastructure in order that they can remain at the cutting edge of the work that they are doing.
- These areas were hit particularly hard during COVID due to many of our core facilities operate through a grant recharge mechanism.
- We have been looking at opportunities that we have from how do we shore up those resources and thinking about how we continue to make investments. For those who access this infrastructure, you know that it is a struggle.
- We want to take a three to five year look at our core infrastructure not only the tools to ensure that our students and our faculty have access to professional staff who can train our students and who can maintain that infrastructure.
- One task force is currently looking at our electron microscopy.
- Another task force will be launched to look at our magnetic resonance imaging facilities and infrastructure.

VI. NEW BUSINESS

- a) Dr. Joy Colwell presented the Purdue Northwest Fall 2021 Enrollment Report. The complete report is posted on the Graduate School website.
<https://www.purdue.edu/gradschool/faculty/enrollment.html>
- b) Dr. Paul Salam presented the IUPUI Fall 2021 Enrollment Report. The complete report is posted on the Graduate School website.
<https://www.purdue.edu/gradschool/faculty/enrollment.html>
- c) Dr. James Mohler presented GC Doc 21-L, Guidelines for Stackable Certificates. Document will be presented to the Graduate Council in January. See Appendix C.

VII. OLD BUSINESS

- a) Dr. James Mohler presented GC Doc 21-G, Guidelines for Conducting Remote Thesis and Dissertation Defenses. Document will be voted on via the November Qualtrics Survey. See Appendix D.
- b) Dr. James Mohler presented GC Doc 21-H, Purdue University Authorship Standard. Document will be voted on via the November Qualtrics Survey. See Appendix E.

The council meeting was adjourned by Dr. Mohler at 3:30 p.m.

James Mohler, Deputy Chair
Tina L. Payne, Secretary

APPENDIX A

PENDING DOCUMENTS

(November 2021)

BOLDED ITEMS ARE IN REVIEW WITH AN AREA COMMITTEE

Area Committee A, Behavioral Sciences (G. Jonathan Day, chair; gjday@purdue.edu):

Graduate Council Document 21-55a, CFT 69500, Research And Writing In Couple & Family Therapy (PNW)

Graduate Council Document 21-1i, EDPS 51010, Counseling Children And Adolescents (PNW)

Graduate Council Document 21-1j, EDPS 53010, Introduction To Addictions And Psychopharmacology (PNW)

Graduate Council Document 21-31d, PUBH 60000, Professional Development In Public Health Seminar (PWL)

Graduate Council Document 21-31e, PUBH 69400, Graduate Seminar In Public Health (PWL)

Graduate Council Document 21-50a, SLHS 67000, Integrative Audiology Grand Rounds (PWL)

Area Committee B, Engineering, Sciences, and Technology (John A. Springer, chair; jaspring@purdue.edu):

Graduate Council Document 21-41a, ECE 51501, Smart Grid (IUPUI)

Graduate Council Document 21-41b, ECE 53401, Embedded Autonomous Systems In Automotive Platforms (IUPUI)

Graduate Council Document 21-41c, ECE 58500, Automotive Control (IUPUI)

Graduate Council Document 21-42d, ECE 60422, Primer On RF Design (PWL)

Graduate Council Document 21-42e, ECE 60423, RF System Design (PWL)

Graduate Council Document 21-42f, ECE 60424, RF Design: Passive And Active Components (PWL)

Graduate Council Document 21-42g, ECE 60858, Introduction To Operating Systems (PWL)

Graduate Council Document 21-54a, FMGT 55500, Healthcare Facilities Management (IUPUI)

Graduate Council Document 21-54b, FMGT 56000, Emergency Preparedness for Facilities Personnel (IUPUI)

Graduate Council Document 21-54c, FMGT 59800, Facilities Management Directed Project (IUPUI)

Graduate Council Document 21-7f, ME 50801, Orthopaedic Tissue Mechanics (IUPUI)

Graduate Council Document 21-7n, ME 55610, Finite Element Method For Fluid Flow And Heat Transfer (PNW)

Graduate Council Document 21-7o, ME 59310, Modeling Of Solar Cells And Batteries (PNW)

Graduate Council Document 21-7p, ME 59400, Modeling Of Micro/Nano Materials Systems (PNW)

Graduate Council Document 21-7r, ME 61700, Applied Thermal Physics And Molecular Spectroscopy (PWL)

Graduate Council Document 21-7q, ME 62000, Combustion Of Energetic Materials (PWL)

Area Committee C: Chemistry, Engineering, and Physical Sciences, Margret Gitau, chair; mgitau@purdue.edu):

Graduate Council Document 21-48a, BME 54500, Orthopaedic Tissue Mechanics (IUPUI)

Graduate Council Document 21-20e, CHE 52300, Engineering Applications Of Biological Molecules (PWL)

Graduate Council Document 21-20f, CHE 56000, Introduction To Energy Storage Systems (PWL)

Area Committee D, Humanities and Social Sciences (Jill Sutor, chair; jsutor@purdue.edu):

Graduate Council Document 21-16a, AMST 60600, American Studies Methods (PWL)

Area Committee E: Life Sciences, (Timothy Lescun, chair; tlescun@purdue.edu):

Graduate Council Document 21-44a, BMS 52900 Basic Bone Biology (PWL)

Graduate Council Document 21-46a, CPB 61100 Veterinary Pathology Literature Review Seminar (PWL)

Graduate Council Document 21-28b, FNR 59100, Teaching In Natural Resources Practicum (PWL)

Graduate Council Document 21-30e, NUR 64210, Systems Approaches To Health Care Engineering (PNW)

Graduate Council Document 21-29b, NUTR 52900 Basic Bone Biology (PWL)

Area Committee F, Management Sciences (Chair TBD):

Graduate Council Document 21-41c, ECON 53600, Public Economics (PWL)

Graduate Council Document 21-41d, ECON 53900, Wage Discrimination (PWL)

Graduate Council Document 21-41g, ECON 58400, Experimental Economics (PWL)

Graduate Council Document 21-41i, ECON 62400, Estimating Game Theoretic Models (PWL)

Graduate Council Document 21-41j, ECON 64100, Agent-Based Computational Economics

Graduate Council Document 21-41m, ECON 65400, Topics In Empirical Labor & Public Economics (PWL)

Graduate Council Document 21-41r, ECON 69100, Advanced Topics In Panel Data (PWL)

Graduate Council Document 21-41u, ECON 69400, Bayesian Econometrics II (PWL)

Graduate Council Document 21-41v, ECON 69700, Thesis Research (PWL)

Graduate Council Document 21-52a, STAT 52700, Introduction To Computing For Statistics (PWL)

Graduate Council Document 21-52b, STAT 65600, Bayesian Data Analysis (PWL)

**DOCUMENTS RECOMMENDED FOR APPROVAL
BY THE GRADUATE COUNCIL
NOVEMBER 2021**

GRADUATE COURSE PROPOSALS:

Area Committee A, Behavioral Sciences (G. Jonathan Day, chair; gjday@purdue.edu):

Graduate Council Document 21-55a, CFT 69500, Research And Writing In Couple & Family Therapy (PNW) Sem. 1 and 2. Lecture 1 time per week for 150 minutes. Credit 3.

This course provides an introduction to conducting graduate level research and professional writing in couple and family therapy. Students will learn how to critically read empirical articles, conduct a literature search, write professionally using APA format, and write a literature review. Permission of instructor required.

<https://purdue.curriculog.com/proposal:17917/form>

Graduate Council Document 21-1i, EDPS 51010, Counseling Children And Adolescents (PNW) Sem. 1. Lecture 1 time per week for 170 minutes. Credit 3.

The purpose of this course is twofold: 1) to present theories, techniques, and strategies for working with children and adolescents and their families and 2) to provide an in-depth understanding of the etiology, symptomology, assessment, and treatment of child and adolescent psychopathology.

<https://purdue.curriculog.com/proposal:17719/form>

Graduate Council Document 21-1j, EDPS 53010, Introduction To Addictions And Psychopharmacology (PNW) Sem. 1. Lecture 1 time per week for 170 minutes. Credit 3.

A special course in selected area of education in addictions and pharmacology, designed to provide theories and practical knowledge in selected situations related to the candidate's area of specialization. Permission of instructor required.

<https://purdue.curriculog.com/proposal:17720/form>

Graduate Council Document 21-31d, PUBH 60000, Professional Development In Public Health Seminar (PWL) Sem. 1 and 2. Lecture. Meets once a month, four times a semester for 50 minutes. Rest is independent study and open hours with faculty instructor. Credit 0.

A professional development course designed to meet the needs of MPH students in the Department of Public Health.

<https://purdue.curriculog.com/proposal:17399/form>

Graduate Council Document 21-31e, PUBH 69400, Graduate Seminar In Public Health (PWL) Sem. 1 and 2. Lecture. Meets once a month for 50 minutes. Four meetings per semester. Credit 0.

Seminar course covering a broad range of current research topics in public health and related fields of study. Seminar presentations by representatives from academia, industry, government, other external institutions and organizations, and members of the Purdue University community. Intensive analysis of application of various research and statistical methodologies to the study of public health.

<https://purdue.curriculog.com/proposal:17602/form>

Graduate Council Document 21-50a, SLHS 67000, Integrative Audiology Grand Rounds (PWL) Sem. 1 and 2. Distance. Credit 1.

This course provides advanced audiology students an opportunity to share and think deeply about the complex cases they are experiencing on off-campus placements. Students share cases online with their peer students who will provide thoughtful responses and reflections based on their own experiences. This course also provides a summative assessment of the students' knowledge in the final two years of their education. Due to the highly complex nature of the cases, students must use past clinical experiences and knowledge learned in multiple courses in order to successfully present cases and to respond in thoughtful ways that contribute to the online learning environment. Permission of department required; must also be currently enrolled in SLHS 57900 or SLHS 67900 completing an audiology externship.

<https://purdue.curriculog.com/proposal:17406/form>

Area Committee B, Engineering, Sciences, and Technology (John A. Springer, chair; jaspring@purdue.edu):

Graduate Council Document 21-41a, **ECE 51501, Smart Grid** (IUPUI) Sem. 1 and 2. SS. Lecture 2 times per week for 75 minutes. Credit 3.

The course analyzes the history of the U.S. power grid and to the basic concepts on the current electric power system. The main challenges on the transition of the traditional power system with unidirectional power flow to the new and complex system connected to renewable sources and bidirectional power flow capability is also presented in this course. In addition, the impact of distributed generation and electric vehicles is discussed along with cybersecurity and information privacy issues inherent in this new power grid.

<https://purdue.curriculog.com/proposal:16826/form>

Graduate Council Document 21-41c, **ECE 58500, Automotive Control** (IUPUI) Sem. 1 and 2. SS. Lecture 2 times per week for 75 minutes. Credit 3.

Basic engine operation; Air-Fuel Ratio control, Idle Speed control, Knock control, Fuel injection timing control, Ignition control of SI engines; Engine fault diagnosis; Driveline modeling and control, Clutch phasing control; Hybrid Electric Vehicle and its control; Wheel model and complete vehicle model; Observers, Friction coefficient estimators, Tire contact patch force estimators; Anti-lock brake control, Traction control, Yaw stability control, Drive-By-Wire systems.

<https://purdue.curriculog.com/proposal:16828/form>

Graduate Council Document 21-54a, **FMGT 55500, Healthcare Facilities Management**

(IUPUI) Sem. 1 and 2. SS. Lecture 1 time per week for 150 minutes for 16 weeks or 1 time per week for 120 minutes for 12 weeks. Credit 3. Prerequisites: ART 51500/FMGT 51500 with a C or better.

This course will provide an overview of hospital layout and associated building elements along with code compliance and functionality. Discussion includes operating rooms, medical/surgical units, OB/labor and delivery, radiology/MRI/CT/emergency department, electrical systems, medical gas systems, HVAC, fire protection, telecommunications/network and maintenance/regulatory requirements.

<https://purdue.curriculog.com/proposal:17616/form>

Graduate Council Document 21-54c, **FMGT 59800, Facilities Management Directed Project** (IUPUI) Sem. 1 and 2. SS. Individual Study 1 time per week for 150 minutes for 16 weeks or 1 time per week for 200 minutes for 12 weeks. Variable Credit 1 to 3.

The Directed Project is defined as an applied research project that is more extensive and sophisticated than a graduate-level independent study and less formal than a master's thesis. The overall objective of the requirement is to engage in a facilities management related study focused in industry, business or education. The focus is to be placed on a topic with practical implications rather than original research.

<https://purdue.curriculog.com/proposal:16714/form>

Area Committee C: Chemistry, Engineering, and Physical Sciences, Margaret Gitau; chair, mgitau@purdue.edu):

Graduate Council Document 21-48a, **BME 54500, Orthopaedic Tissue Mechanics** (IUPUI)

Cross-listed with ME 50801. Sem. 1. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: MATH 17100 and ME 27200 or equivalent (BME 24101).

Orthopaedic tissues, such as bone, cartilage, tendon and ligament, serve functions that are largely mechanical in nature and that are critical for our health. This course is structured around classical topics in mechanics of materials and their applications in biomechanics and musculoskeletal tissues. Primary emphasis will be on the mechanical behavior of tissues, including elastic and failure properties as well as more advanced topics such as anisotropy, nonlinearity, viscoelasticity, poroelasticity, damage, and fatigue. Importantly, the theories used to describe these mechanical properties were originally developed for advanced engineering materials such as fiber composites, polymers, elastomers, hydrogels, etc. Thus, while the theories will be presented in the context of biological materials, potential applications are much broader. Tissue microstructure and its importance to the material properties will be covered. Mechanics of whole bones and implants (composite and asymmetric beam theories) and the mechanical function of native and artificial joints (contact mechanics, lubrication and wear) may also be discussed, time permitting. Some homework assignments will emphasize the use of experimental data to develop and test theoretical models via nonlinear curve fitting and optimization using Matlab. Students will receive an introduction to tissue mechanics literature to better understand how the concepts presented in class are used in the research setting.

<https://purdue.curriculog.com/proposal:16802/form>

Area Committee E: Life Sciences, (Timothy Lescun, chair; tlescun@purdue.edu):

Graduate Council Document 21-46a, **CPB 61100 Veterinary Pathology Literature Review Seminar** (PWL)

Sem. 1 and 2. Presentation 1 time per week for 60 minutes. Credit 1.

Understanding of principles of veterinary pathology is required. The class will provide the graduate students with in-depth knowledge in current pathology research and diagnostics. Permission of department required.

<https://purdue.curriculog.com/proposal:17130/form>

Area Committee F, Management Sciences (TBD):

Graduate Council Document 21-41c, **ECON 53600, Public Economics** (PWL) Sem. 1 and 2. Distance. Credit 2.

This course is designed to introduce masters' students in economics to the field of health economics. We will analyze health and health care theories, institutions, and key policy issues. The course covers how the markets for health and health services are different from other goods, with a particular emphasis on the role of government and market failure. We will examine the demand for and the production of health and health care, and the behavior and organization of health care providers. We will also explore information asymmetries and the functioning of health insurance markets. We will consider health and healthcare systems around the world, paying particular attention to the U.S. health care system and recent reforms to it.

<https://purdue.curriculog.com/proposal:17089/form>

Graduate Council Document 21-41d, **ECON 53900, Wage Discrimination** (PWL) Sem. 2. Distance. Credit 3.

This course is an applied economics course that focuses on race and gender discrimination in the labor market. We will use the tools you have developed so far in the MA program to study the extent, causes and consequences of disparities in wages and employment across race and gender.

<https://purdue.curriculog.com/proposal:17087/form>

Graduate Council Document 21-41g, **ECON 58400, Experimental Economics** (PWL) Sem. SS. Distance. Credit 2 or 3.

This course introduces you to the experimental methods used by economists to study human behavior. These methods analyze data collected in controlled laboratory experiments. Throughout the course, we will discuss different types of experiments that have been extensively researched by experimental economists. To help introduce and motivate each topic, you will participate in weekly synchronous experiments with your classmates over the internet. You will then complete an assignment analyzing the data generated by your class in the online experiment. The following lecture will provide an overview of the theoretical framework and experimental predictions. We will also discuss commonly observed behavior and any relevant explanations for such behavior.

<https://purdue.curriculog.com/proposal:17150/form>

Graduate Council Document 21-41i, **ECON 62400, Estimating Game Theoretic Models** (PWL) Sem. 1 and 2. SS. Credit 3: Lecture 2 times per week for 75 minutes. Credit 2: Lecture 2 times per week for 50 minutes. Online. Credit 2 or 3.

This course examines topics in empirical industrial organization (I.O.), which aims to use data to draw conclusions about how market and firm structure, firm conduct, and market performance interact in imperfectly competitive markets. We will take a "structural" approach, focusing on estimating the parameters of game theoretic models using real industry data, and then simulating those same models to generate predictions under alternative ("counterfactual") scenarios. We will cover theory only to the extent that it provides intuition or testable conclusions. The course is divided into two unequal parts. In the first part, we will learn about static games in the context of mergers, market power, and entry. In the second part, we will focus on the estimation of dynamic games, after first understanding how to solve and estimate dynamic single-agent problems.

<https://purdue.curriculog.com/proposal:17144/form>

Graduate Council Document 21-41j, **ECON 64100, Agent-Based Computational Economics** (PWL) Sem. 1 and 2. SS. Credit 3: Lecture 2 times per week for 75 minutes. Credit 2: Lecture 2 times per week for 50 minutes. Distance. Credit 2 or 3.

Computational study of economic systems involving interacting agents who do not necessarily possess perfect rationality and information. In addition to equilibrium analysis, agent-based models focus on out-of-equilibrium dynamics that may or may not lead to equilibrium in the long run.

<https://purdue.curriculog.com/proposal:17115/form>

Graduate Council Document 21-41m, **ECON 65400, Topics In Empirical Labor & Public Economics** (PWL) Sem. 1 and 2. SS. Lecture 2 times per week for 50 minutes. Distance. Credit 2.

Provide an introduction to the baseline models of labor supply, including static and dynamic model of labor supply. Introduce students to several seminal and new papers on labor supply. Provide students with the conceptual understanding and computational tools (Stata and Matlab) required to adapt and apply the models presented in the course to address new research questions in labor and public economics. Provide students with a basic understanding of the Current Population Survey (CPS). Motivate and illustrate simulation-assisted estimation as a method for estimating structural models of labor supply.

<https://purdue.curriculog.com/proposal:17142/form>

Graduate Council Document 21-41r, **ECON 69100, Advanced Topics In Panel Data** (PWL) Sem. 1 and 2. SS. Credit 3: Lecture 2 times per week for 75 minutes. Credit 2: Lecture 2 times per week for 50 minutes. Distance. Credit 2 or 3. Prerequisites: ECON 67100 and ECON 67200.

This course covers selected topics in the econometrics of panel data with an emphasis on developing a clear understanding of the methodological issues involved as well as identifying a set of substantive empirical issues where such methods can be applied.

<https://purdue.curriculog.com/proposal:17128/form>

Graduate Council Document 21-41u, **ECON 69400, Bayesian Econometrics II** (PWL) Sem. 1 and 2. SS. Credit 3: Lecture 2 times per week for 75 minutes. Credit 2: Lecture 2 times per week for 50 minutes. Distance. Credit 2 or 3. Prerequisites: ECON 69300.

This is a second course in Bayesian Econometrics. After completion student should be able to conduct research in Bayesian econometrics using state-of-the-art models and techniques.

<https://purdue.curriculog.com/proposal:17126/form>

Graduate Council Document 21-41v, **ECON 69700, Thesis Research** (PWL) Sem. 1 and 2. SS. Lecture 2 times per week for 90 minutes for 8 weeks. Distance. Credit 2 or 3. Prerequisites: ECON 60700 and ECON 60800.

The first steps in doing a thesis research paper, proposal/idea, growing the proposal/idea. Developing a set of critical professional skills.

<https://purdue.curriculog.com/proposal:17146/form>

Graduate Council Document 21-52a, **STAT 52700, Introduction To Computing For Statistics** (PWL) Sem. 2. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisite(s): Graduate students can automatically register, but undergraduates at the 3rd or 4th year level need to have passed STAT 51600 and STAT 51700.

This course provides a thorough introduction to the R programming language, and its use for statistical computing and data science. The course will first look at the fundamentals of R, including different data-structures, control-flow, and the basic vocabulary. An emphasis will be placed on learning idiomatic and efficient R, covering ideas such as recycling, vectorization and functional programming. The course will then look at principles and tools for tasks like organizing data ('tidy data'), manipulating data ('data carpentry'), querying data (through topics like regular expressions) as well as visualizing data (including interactive visualizations). The material and the homework will encourage development of modular reusable code and reproducible research through ideas such as object-oriented programming and dynamic documents in R Markdown. The last part of the course will study statistical procedures such as least-squares regression, LASSO, Monte Carlo sampling and Markov chain Monte Carlo. Besides exams and homework, the course will involve a final project that students can collaborate together on.

<https://purdue.curriculog.com/proposal:17679/form>

Graduate Council Document 21-52b, **STAT 65600, Bayesian Data Analysis** (PWL) Sem. 2. Lecture 2 times per week for 75 minutes or 3 times per week for 50 minutes. Credit 3. Prerequisite(s): Mirror pre-requisites for STAT 54500: (Student Attribute: GR May not be taken concurrently.) or (Course or Test: STAT 51600 Minimum Grade of D- May not be taken concurrently. and Course or Test: STAT 51700 Minimum Grade of D- May not be taken concurrently. and Rule: 1.: CS 15900 or 17700 for a total of 1 conditions) CS 15900 Minimum Grade of D- May not be taken concurrently. CS 17700 Minimum Grade of D- May not be taken concurrently. End of rule 1.

Bayesian data analysis refers to practical inferential methods that use probability models for both observable and unobservable quantities. The flexibility and generality of these methods allow them to address complex real-life problems that are not amenable to other techniques. This course will provide a pragmatic introduction to Bayesian data analysis and its powerful applications. Topics include: the fundamentals of Bayesian inference for single and multiparameter models, regression, hierarchical models, model checking, approximation of a posterior distribution by iterative and non-iterative sampling methods, and Bayesian nonparametrics. Specific topics and the course outline are subject to change as the semester progresses. All topics will be motivated by problems from the physical, life, social, and management sciences. Conceptual understanding and inference via computer simulation will be emphasized throughout the course. Permission of department required.

<https://purdue.curriculog.com/proposal:17373/form>

APPENDIX C



Graduate Council Report 21-L

To: Purdue University Graduate Council
From: Jamie Mohler, Associate Dean
Date: November 18, 2021
Subject: GC Report for Guidelines and Expectations for Stackable Certificates Leading to a Master's Degree

Being able to “stack” certificates towards a master’s degree can be advantageous for students. At times, a student does not have the confidence, or possibly the interest, in pursuing a master’s degree but does see value in post-bachelorette certificates. Yet, once a student has completed one or more certificates and then feels confidence in pursuing an applicable master’s degree they may wish to stack those certificates towards a master’s degree that allows it. Additionally, certain programs may desire purposefully stacking two or more certificates towards a master’s degree.

Enabling the stacking of certificates towards master’s degrees, then, can be advantageous. Students can obtain certificates on the way towards a master’s degree, but those pursuing master’s degrees may obtain appropriate certificates when the coursework taken meets the requirements of those certificates and so long as the following requirements are met:

- Each certificate in a stacked scenario must have nine unique credits apart from any other certificate being pursued.
- Any overlapping courses amongst certificates must be replaced with appropriate courses (as determined by the student and major advisor) such that the resulting master’s degree has no duplicative or “double counted” courses.
- A student cannot obtain both a certificate and a degree concentration or degree major with the same name as the certificate. Graduate
- A student may be enrolled in multiple certificates at the same time as enrollment in a master’s degree.
- Certificates stacking towards a master’s must be awarded prior to or concurrently with the master’s degree.

APPENDIX D

TO: Purdue University Graduate Council
FROM: James L. Mohler, Associate Dean
DATE: November 18, 2021
SUBJECT: Guidelines for Conducting Remote Thesis and Dissertation Defenses

In response to the COVID-19 pandemic, the Purdue University Graduate School modified the policy requiring thesis and dissertation defenses to be conducted in a face-to-face modality. After surveying faculty and students in the fall of 2020 on the effectiveness and convenience of this approach, the Graduate School is planning to extend this exception, possibly permanently, pending approval by the Graduate Council. Likely a decision concerning the permanence of this practice will be decided in the fall of 2021.

In the meantime, the guidelines in this document are being provided to create a set of shared expectations and guidance across campus. It is our hope that the information contained herein assists faculty advisors/chairs, graduate students and committees as plans are made for upcoming defenses.

Faculty Advisors/Chairs

Before the defense

- Work with the student to determine the best video conference software to use (Zoom, WebEx or Teams). Zoom is recommended. It is best if the faculty advisor creates the invitation and sends it out via Outlook to the student and all committee members.
- The faculty advisor/chair should be the host of the meeting and if possible, set up a “waiting room” or similar feature to facilitate private discussions amongst the committee members and to manage who can get into the meeting. You may need to set preferences in the software to enable this.
- Consider making at least one other committee member a host or co-host at the meeting.
- Ensure you know how to permit the student to share their slides and/or control the screen.
- Consider offering a practice run with your student to ensure the technology works and create a backup plan for how you might communicate if the technology fails (for example, texting or a voice call).
- A day before the defense, check in with committee members to ensure they have the information they need to access the meeting. Encourage them to wear headphones in the meeting to reduce noise, feedback and echoes.
- Ask the candidate if they plan to invite guests; have them provide you a list of names ahead of time.
- With the increased security concerns of video conferencing, you may want to check the latest information provided by ITaP:

- Zoom: <https://www.itap.purdue.edu/zoom/>
- WebEx: <https://itap.purdue.edu/services/webex.html>
- Teams: <https://www.itap.purdue.edu/services/microsoft-teams.html>

At the defense

- If possible, start the virtual defense at least 15 minutes before the scheduled start time and check with the candidate to ensure that the audio and video are working correctly.
- At the beginning of the meeting, have the members of the committee introduce themselves, which provides an opportunity to test microphones, speakers and cameras.
- Introduce the candidate as you would in a face-to-face meeting.
- To begin the defense, provide instructions to the candidate, committee and any guests as to the order, etiquette and expectations of the meeting:
 - Microphones and cameras – Committee mics muted (recommended)? Cameras on or off?
 - Order of events – presentation, questions, deliberation, etc.
 - Questions - can they be provided during the presentation? Via audio, chat or hand raising?
 - Public guests - Dismissed at some point or placed in a waiting room?
 - How will the committee privately deliberate?
 - How will results be communicated to the candidate?
 - What is the plan if a committee member or the candidate momentarily drop off the meeting?
 - If "board" work is expected of the candidate, makes sure plans are made to accommodate this option.
 - If part of the committee is virtual and part is in the room, how will discussion occur?
- At the end of the meeting, remind committee members that they will receive electronic forms to complete in the Graduate School Database.

Committee Members

- All committee members are responsible for ensuring that they know how to use the chosen conferencing platform (Zoom, WebEx, or Teams) in advance of the defense.
- As with all video conference meetings, please ensure you remain muted and are in a distraction free location.
- If needed, contact the faculty advisor/chair to do a practice run of the meeting to ensure your technology is functioning correctly.

Candidate Defending

Before the defense

- Work with your graduate coordinator to complete the Graduate School Form 8: Request for Appointment of Examining Committee at least two weeks before the defense.
- Coordinate with your major advisor/chair on the video conference software being used (Zoom, WebEx, or Teams) and make sure you know how to use the software.
- Conduct a practice run with another graduate student to make sure your technology works and that you are prepared for the presentation.
- Consider requesting a practice run with your major advisor/chair.
- Talk with your advisor about how questions will be handled: Chat? Raise hand? Vocally? During the presentation or at the end of the presentation?
- Share your slides with at least your advisor so that they can run them from their computer if something goes wrong on your end.
- Ask your major advisor/chair about the agenda for the meeting and how you will “step out” of the meeting during the committee deliberation period.
- Inform your major advisor/chair about any guests you are expecting to attend the meeting. If you plan to share a URL for the meeting (such as with Zoom or WebEx) do not post it broadly (for example, on Facebook) because it may increase the odds of a “Zoom bomber” or other such event.
- Plan your environment for the defense:
 - Reduce visual distractions (avoid glare, shadow, or an overly cluttered backdrops).
 - Make sure you are properly illuminated and can be seen without a shadow (use a ring light if possible).
 - Make sure you are in a quiet area that will not have distractions.
 - If possible, use a computer that has two monitors so that you may see your slides and your committee at the same time.
 - If board work is expected, make sure you have the ability to accomplish this – ask and plan in advance.

At the defense

- Log onto the meeting at least 15 minutes before the scheduled start time.
- When delivering your presentation, make sure there is a good view of you in the camera from the shoulders up. The camera should be at eye level (not above looking down nor below looking up).
- If possible, stand as you present to enable better gestures and non-verbal cues. Even if sitting, remember to use gesture and non-verbals.

- Remember to look at the camera when speaking rather than a computer screen or other area away from the camera.

When sharing your screen, it is best to share a specific application window (such as PowerPoint) rather than the entire screen to avoid inadvertently sharing something you don't intend to.

For all participants (including “public” participants)

- Respect your colleagues and don't multitask during the defense.
- Latency creates delays in response; pause before speaking and yield conversational right of way.
- Reduce visual distractions (avoid glare, shadow, or an overly cluttered backdrops).
- Use headphones, if possible, to reduce any potential background noise, feedback or echoes.
- Facial expressions and gestures are often more effective than audio. Use these more frequently.

This guidance has been adapted from The University of Maryland Graduate School's "[Advice for Remote Dissertation/Thesis Defenses](#)".

Proposal

During the 2020 academic year, the Graduate Council and Graduate School provided exception to its stance on remote graduate examinations and defenses to enable students to progress on degree objectives due to the COVID-19 pandemic. After successfully conducting remote examinations and defenses for over a year, and after surveying faculty and students to find that it was favored, this proposal seeks to change the language in the *Policies and Procedures for Administering Graduate Student Programs* to permanently allow remote examinations and defenses.

This proposal also recommends adding the document titled, *Guidelines for Conducting Remote Thesis and Dissertation Defenses* (which was developed and distributed during the COVID-19 pandemic) as Appendix C in the *Policies and Procedures for Administering Graduate Student Programs*.

<https://catalog.purdue.edu/content.php?catoid=14&navoid=16498#establishing-examining-committees>

Existing

E. Conducting Examinations

The Graduate Council has recommended that oral examinations not last more than two hours. If additional time is needed, the examination may be continued at a later date.

If the situation warrants, and it is agreeable with the members of the examining committee and the candidate, one member of the examining committee, or even the candidate, may participate in the examination via electronic media.

Proposed

E. Conducting Examinations

The Graduate Council has recommended that oral examinations not last more than two hours. If additional time is needed, the examination may be continued at a later date.

~~If the situation warrants, and it is agreeable with the members of the examining committee and the candidate, one member of the examining committee, or even the candidate, may participate in the examination via electronic media.~~

If it is agreeable with the members of the examining committee and the candidate, examinations may be conducted remotely. Chair, committee and candidate should Follow guidelines provided in Appendix C



Graduate Council Document 21-H
Presented to the Graduate Council on September 17, 2021

From: James Mohler
To: Purdue University Graduate Council
Date: November 18, 2021
Subject: Purdue University Authorship Standard

Authorship of Scholarly Works (S-)

Standard: [University Policy Office will complete]
Responsible Executive: Provost and Executive Vice President for Academic Affairs and Diversity
Responsible Office: Research Integrity Office
Date Issued: [University Policy Office will complete]
Date Last Revised: N/A

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Contacts
Individuals and Entities Affected by this Standard
Statement of Standard
Responsibilities
Definitions (defined terms are capitalized throughout the document)
Related Documents, Forms and Tools
History and Updates
Appendix

CONTACTS

| Clarification of Standard | | |
|----------------------------|--------------|--|
| Title/Office | Telephone | Email/Webpage |
| Research Integrity Officer | 765-496-3844 | researchintegrity@purdue.edu |

INDIVIDUALS AND ENTITIES AFFECTED BY THIS STANDARD

All Purdue Associates who make a scholarly contribution to research or the reporting of research in scholarly works.

STATEMENT OF STANDARD

Accuracy of authorship attribution is paramount to scholarly integrity and maintaining the public trust in the research and scholarship generated from Purdue University. Attribution of authorship is as critical to the integrity of the publication record as the reported methodology, interpretation or conclusions. Inaccurate identification of authors harms the participating scholars and the credibility of the research and the institution.

This standard affirms the university's commitment to research and scholarship integrity as represented by listed authors and associated acknowledgement sections. This standard and its requirements are rooted in, and informed by, Purdue's overarching [Statement of Integrity and Code of Conduct](#).

Suitable Authorship Practices

All Purdue Associates are required to list authors of scholarly works in accordance with authorship norms commonly accepted within a particular domain of scholarship and in accordance with the following:

1. List authors accurately and completely;
2. Do not list any gift authors, guest authors or ghost authors (see Unacceptable Authorship Practices below);
and
3. Apportion credit fairly and accurately (through the order of authorship or other means).

This standard applies to all situations that include, or allegedly should include, a Purdue Associate as a co-author.

Authorship Defined

Many organizations, journals and conferences publish guidelines for author identification. In the absence of such a guideline, include authors based upon the following from the Committee on Publication Ethics (COPE):

1. Substantial contribution to the work (e.g., conception, design, acquisition, analysis or interpretation);
and
2. Accountability for the work that was done and its review, approval and presentation in a publication.

At Purdue University, substantial contribution to a work that deserves credit as an author requires both material participation and intellectual contribution. Credit for Co-author is expected when an individual both materially participates in a research project and provides intellectual contribution for which a resulting publication would suffer if it were lacking.

Acknowledgements may be used to denote contributions to the work that do not meet the criteria of authorship, such as supporting the study, general mentoring, acting as study coordinator and other related auxiliary activities.

Author Order

The meaning of author order may vary by discipline or publication. Purdue Associates are encouraged to follow discipline or source conventions in the ordering of authors. Typically, the order of authorship conveys level of contribution. If there is equal involvement, authors are often ordered alphabetically by surname.

Where there is no prevailing convention and authorship is unequal, Purdue Associates should strive for correct representation based on contribution to the work. It is encouraged that Purdue Associates discuss and agree upon authorship and author order at the outset of a project.

Unacceptable Authorship Practices

Purdue Associates are required to avoid any manipulation of author identification to mislead the reader. In particular, the following practices are unacceptable:

1. Gift authorship – co-authorship given as reward or repayment to someone who did not contribute significantly to a work; “quid pro quo” authorship.
2. Guest authorship – co-authorship given due to reputation or influence to increase the potential for acceptance of the publication, when the co-author did not contribute significantly to the work; “honorary” authorship.
3. Ghost authorship – concealment of an author’s hand in the research or report of research.

Resolution of Authorship Disputes

A Purdue Associate who experiences an inaccurate or omitted authorship identification is encouraged to seek satisfactory resolution from the lead author or Corresponding author. If attempts to resolve the issue fail, the associate may report the concern in writing to the Research Integrity Officer.

The Research Integrity Officer and/or a tenured faculty member of their choosing, with no conflict of interest, will mediate among authors to obtain a voluntary resolution to the dispute. Choices of tenured faculty could be: disinterested faculty in the appropriate discipline, the chair of a unit graduate program, the associate dean of research, or others. If a voluntary resolution is not reached, the Research Integrity Officer will, in consultation with the Office of the Provost, refer the dispute to an appropriate academic head or dean to advise the Office of the Provost on an appropriate resolution.

In the event that a credible allegation of plagiarism exists in addition to the authorship dispute, the allegation will be subject to review under the University’s policy on [Research Misconduct \(III.A.2\)](#).

This standard does not supersede intellectual property rights outlined in University [Policy I.A.1. Intellectual Property](#) and Standard S-19 Courseware and Online Modules.

RESPONSIBILITIES

Purdue Associates

- Understand this standard and use it as a guide for establishing authorship credit, author order and appropriate acknowledgement in all scholarly activities.
- Report in good faith inaccurate, omitted or unacceptable authorship information as outlined in this standard.
- Abstain from the unacceptable practices of gift, guest and ghost authorship.
- Communicate this standard to other Purdue Associates in the course of research work and graduate advising at Purdue University.
- When requested, work with Purdue officials to resolve authorship disputes

Dean/Associate Dean and School/Department Head/Chair

- Understand this standard and use it as a guide for establishing authorship credit, author order and appropriate acknowledgement in all scholarly activities.
- Report in good faith inaccurate, omitted or unacceptable authorship information as outlined in this standard.
- Using this standard as a guide, assist in resolving authorship disputes.

Provost

- With guidance from the RIO, assign an academic head or dean to mediate and propose an authorship dispute resolution if faculty mediation fails to resolve the situation.
- When disputes involve external parties, work with the RIO to assign an appropriate individual to mediate and propose an authorship dispute resolution.

Research Integrity Officer

- Administer this standard.
- Receive reports of inaccurate, omitted or unacceptable authorship information as outlined in this standard and coordinate resolution of authorship disputes.

DEFINITIONS

All defined terms are capitalized throughout the document. Refer to the central [Policy Glossary](#) for additional defined terms.

Acknowledgment

Recognition of a participant whose involvement does not meet the discipline's recognized criteria for authorship.

Co-author

A participant whose contribution to a scholarly work meets the discipline's recognized criteria for authorship.

Corresponding Author

Sometimes also called primary author; a participant who takes primary responsibility for the submission and communication with the publisher and responds to any questions about the work during and after publication.

Principal Investigator

Principal Investigator is the primary individual responsible for the preparation, conduct, and administration of a research grant, cooperative agreement, training or public service project, contract, or other sponsored project in compliance with applicable laws and regulations and institutional policy governing the conduct of sponsored research.

Purdue Associate

See definition in the policy on [Research Misconduct \(III.A.2\)](#).

Research Misconduct

See definition in the policy on [Research Misconduct \(III.A.2\)](#).

RELATED DOCUMENTS, FORMS AND TOOLS

This standard is issued in support of the policy on [Research Misconduct \(III.A.2\)](#), as amended or superseded.

[Authorship Determination Scorecard](#) (PDF): A score sheet for quantifying contributions to a project to determine order of authorship.

[Authorship Tie-breaker Scorecard](#) (PDF): A score sheet used when two or more people achieve the same score on the authorship determination scorecard.

HISTORY AND UPDATES

[TBD]: This is the first standard to address this issue.

APPENDIX

There are no appendices to this standard.

NEW DOCUMENTS RECEIVED
(After the November 18, 2021 Graduate Council Meeting)

GRADUATE COURSE PROPOSALS:

Area Committee A, Behavioral Sciences (G. Jonathan Day, chair; gjday@purdue.edu):

Graduate Council Document 21-1k, EDPS 55800, Transition Education And Services (PWL) Distance. Credit 3.

This course will explore a variety of resources, strategies, and techniques for promoting successful life transitions for students with mild and intense intervention needs before and throughout the school years and into postsecondary and adult settings.

<https://purdue.curriculog.com/proposal:18190/form>

Graduate Council Document 22-1a, PUBH 52000, Human Sexuality And Sexual Health (PWL) Lecture 1 meeting per week for 150 minutes. Credit 3.

This course is designed to provide students with an in-depth and applied understanding of the major theories and principles guiding human sexuality and sexual health research. Content covered will enrich an understanding of sexuality and sexual health research methods, past and present research findings, and the intersection of this field and public health practice.

<https://purdue.curriculog.com/proposal:17972/form>

Graduate Council Document 22-1b, PUBH 54600, Child And Family Health Policy (PWL) Lecture 1 meeting per week for 150 minutes. Credit 3.

The main goals of the course are to provide students with foundational knowledge related to research and policies that affect the health and wellbeing of children and families. Students will read and discuss policy-relevant research on current topics associated with child and family health. Students will read and discuss examples of researchers who have made an impact on child and family policies. Students will also write three papers that integrate research and policy perspectives.

<https://purdue.curriculog.com/proposal:17977/form>

Area Committee B, Engineering, Sciences, and Technology (John A. Springer, chair; jaspring@purdue.edu):

Graduate Council Document 21-26b, CS 57100, Artificial Intelligence (PWL) Lecture 1 time per week for 150 minutes or 2 times per week for 75 minutes or 3 times per week for 50 minutes. Credit 3. Prerequisites: Graduate standing or C or better in CS 38100 and (STAT 35000 or 35500) and (MA 26500 or MA 35100).

Artificial Intelligence (AI) systems are increasingly being deployed in many real-world tasks. This course provides an introduction to the fundamental principles and applications of AI. The course covers classic material including search-based methods, probabilistic reasoning, game playing, decision making, exact and approximate inference, causal learning, and reinforcement learning as well as selected advanced topics. The focus of the course

is on foundational methods and current techniques for building AI systems that exhibit ‘intelligent’ behavior and can ‘learn’ from experience. The course assumes students are familiar with basic concepts in analysis, linear algebra, optimization, discrete mathematics, elementary probability, statistics, data structures, and algorithms. Students are expected to have good programming and software development skills and have a working knowledge of Python and Java.

<https://purdue.curriculog.com/proposal:18707/form>

Graduate Council Document 21-42o, **ECE 51800, Digital Image Processing** (PFW) Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: ECE 22900 or equivalent. Co-Requisites: ECE 30100.

This course introduces the fundamentals of digital image processing from both theory and application perspectives. It covers digital image fundamentals, image transformation, image enhancement in spatial and frequency domains, image restoration and reconstruction, image segmentation, and advanced topics in digital image processing including deep learning for image classification, object recognition, and semantic/instance segmentation.

<https://purdue.curriculog.com/proposal:17807/form>

Graduate Council Document 21-42p, **ECE 60146, Deep Learning - Theory And Practice Of Deep Neural Networks** (PWL) Lecture 2 times per week for 75 minutes. Credit 3.

This course teaches the theory and practice of deep neural networks from basic principles through state-of-the-art methods. The class blends hands-on programming, using a variety of state-of-the-art programming frameworks, with theoretical treatment based on current literature. Implementation will emphasize the use of the Pytorch language and the use of dynamic computational graphs. Some previous experience with optimization techniques is important for success in the course.

<https://purdue.curriculog.com/proposal:18102/form>

Area Committee C: Chemistry, Engineering, and Physical Sciences, Margaret Gitau; chair, mgitau@purdue.edu):

Graduate Council Document 22-2a, **BME 51500, Practical MRI and Applications** (PWL)

Lab Prep 1 time per week for 50 minutes for 8 weeks and Laboratory 1 time per week for 100 minutes for 8 weeks. Credit 1.

This course covers basic theory and practical training for magnetic resonance imaging. Students will gain hands-on experience with, and work to become independent operators on, current MRI equipment within the Purdue MRI Facility. Weekly lectures will be provided on a wide range of applied and relevant topics, including image formation and contrast, pulse sequence basics, artifacts, advanced sequences, and safety. Weekly labs will allow students to directly train on a 7 tesla (T) animal system (Bindley Biosciences), a 3T GE human system

(MRI Facility), or a 3T Siemens human system (MRI Facility). The course is ideally designed for students who want to make use of MRI to advance their research.

<https://purdue.curriculog.com/proposal:19324/form>

Graduate Council Document 21-60a, **EAPS 50600, Cosmochemistry And Geochemistry** (PWL) Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: Student Attribute: GR or EAPS 24300.

The course focuses on the chemical processes involved in the formation and evolution of our solar system and our planet. The course includes discussion of nucleosynthesis and chemical abundances, the origin and composition of various planetary objects and their constituent materials, and the distribution and cycling of elements within and between different Earth systems, including the solid Earth, atmosphere, and oceans.

<https://purdue.curriculog.com/proposal:16248/form>

Area Committee E: Life Sciences, (Timothy Lescun, chair; tlescun@purdue.edu):

Graduate Council Document 21-61a, **ANSC 51600, Molecular Microbiome Analysis** (PWL) Lecture 2 times per week for 75 minutes. Credit 3.

The overall goal of the course is to provide students with an advanced understanding of microbial ecology in the animal microbiome and how to analyze next-generation sequencing data of amplicon libraries. In order to complete this goal, students will participate in activities including classroom lecture, group discussion, critical reading of literature, written assignments and exams, and student projects. Permission of instructor required.

<https://purdue.curriculog.com/proposal:18995/form>

Graduate Council Document 21-28c, **FNR 57400, Big Data, AI, And Forests** (PWL) Lecture 2 times per week for 75 minutes. Credit 3.

This course is focused on introductory big data analysis, artificial intelligence, and associated applications in large-scale forest research. The lecture will cover the challenges we encounter in big data ecological research, and the approaches to overcome these challenges. Real-time forest inventory and wildlife survey data at national and continental levels will be utilized in this course, and actual high-impact research projects will be introduced as case studies to inform students of the state-of-the-art in this subject area. High-performance computing clusters will be utilized for big data analysis.

This course is also open to non-forestry majors. We will introduce basic machine learning techniques that are applicable to other subject areas. Guest lectures may cover big data analyses in different fields, internet-of-things, and/or data management and optimization/decimation for collaborative Virtual Reality experiences.

The class will be evaluated through a final project, for which students will work independently or in a group setting to develop a 'mini' research manuscript with a title of their own selection. All the groups are encouraged to submit their manuscript for publication at peer-reviewed journals, and those whose manuscripts have passed the initial journal screening will get extra bonus points.

<https://purdue.curriculog.com/proposal:18365/form>

Area Committee F, Management Sciences (TBD):

Graduate Council Document 21-62a, TDM 51100, Corporate Partners (PWL) Lecture 2 times per week for 75 minutes. Distance. Credit 3.

Students in The Data Mine Corporate Partners Learning Community will work in groups with Corporate Partner mentors on a variety of projects. They will analyze real data related to questions that the Corporate Partner proposes. Most projects will last for a full academic year (late August through late April), with multiple reports and presentations given more frequently. The mentor is expected to meet with the students weekly by Microsoft Teams, or (more rarely) in person. Students are expected to actively participate in these meetings and in all individual and group work. The goal of the course is to help students build impactful industry related skills in data science, visualization, and data engineering. The Data Mine staff also has data scientists who can assist students with technical questions focused on the skills being built and the research conducted. Students can work on real-world industry facing issues that have a high value add for the corporate partner.

<https://purdue.curriculog.com/proposal:18483/form>

DEGREE(S):

Area Committee E: Life Sciences, (Timothy Lescun, chair; tlescun@purdue.edu):

Graduate Council Document 22-3a, MS in Dietetics for the Department of Nutrition Science (PWL)

<https://purdue.curriculog.com/proposal:17981/form>

