

**PURDUE UNIVERSITY
GRADUATE SCHOOL**

Minutes of the Graduate Council Meeting
February 15, 2018
1:30 p.m.

Fifth Meeting
Room 218AB
STEW

PRESENT: Linda J. Mason, interim chair; Council Members, Thomas W. Atkinson, Natalie J. Carroll, Kuan-Chou Chen, David S. Cochran, William (Bart) Collins, Joy L. Colwell, Carlos M. Corvalan, (Vincent) Jo Davisson, Brian R. Dineen, Melissa M. Franks, Takashi Hibiki, Mary E. Johnson, David B. Klenosky, Maricel A. Lawrence, Michael C. Loui, Marcela Martinez, Susan M. Mendrysa, Samuel P. Midkiff, James L. Mohler, Melanie Morgan, Jerry P. Ross, Paul Salama, Candiss B. Vibbert (Provost's Representative), Yan Ping Xin

APOLOGIES FOR ABSENCE RECEIVED FROM: Michael J. Connolly, Lucy M. Flesch, Jonathan M. Harbor, Singe E. Kastberg, Nancy Pelaez, Rhonda G. Phillips, Manushag (Nush) Powell, David G. Skalnik, Carol S. Sternberger, Chong Xiang, Jun Xie, Mohammad Zahraee

ABSENCES: Christopher R. Agnew, Janice S. Blum, Ryan A. Cabot, Marius D. Dadarlat, Steven F. Son

GUESTS: Boshra Afra, Scott Brandt, Rita Burrell, Debbie Fellure, William Gorman, Cyndi Lynch, Kathy Newton, Mark Schuver, Mitch Springer, Stephen Wanders, Brittany Wright

I. MINUTES

The minutes of the January 18, 2018, Graduate Council meeting were approved as presented.

II. DEANS REMARKS AND REPORTS

- a) Dr. Linda Mason asked the Graduate Council members to reach out to their departments/colleges as we move forward to other types of things that can be accomplished in graduate education for next year. Purdue University currently has the core value of the thesis based degrees for Masters and Ph.D.'s. Looking beyond the ways in which we serve other graduate student populations at Purdue and a large segment of a population that we are not serving at Purdue, that would be: 1) The idea of professional degrees within each disciplinary area. 2) The idea of certificates – at this time certificates serve the resident student population taking a series of courses to be certified when graduating with this special expertise that a student did not have in their regular degree seeking path. 3) There are conversations being discussed in graduate education about

stackable degrees and stackable units. The idea of what is this other unit of education that we would present to and give option to a whole student body that Purdue does not have attending. Dr. Mason suggested that initially we start these discussions with the idea of an online certificate for a person that has graduated and is now a working professional who does not have intentions of coming back to Purdue for another degree. Perhaps the world has changed and there was no such thing as Forensic Science when they graduated. There is the idea of Big Data which was not offered when they attended Purdue and now they want to come back and take a unit of courses to receive credentialing. Dr. Mason asked the Council to consider what kind of growth could we look at to bring in a student body that we currently do not serve and how might we serve them in the structure that we have? If we cannot serve them in the current structure that we have, how might we change that structure to be able to offer this?

- b) Dr. Mason noted that the Graduate School is continuing to follow the plan of the changes that are being made. At the end of the semester, a final report on the improvements the Graduate School has accomplished this year will be presented to the Provost.
- c) Dr. James Mohler gave a report on pending degree program proposals in various stages of review and approval.
- d) 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. AREA COMMITTEE REPORTS (Area Committee Chairs)

Graduate Council Document 18B, Graduate Council Documents Recommended for Approval:

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

Graduate Council Document 17-29m, CS ~~59700~~ 59799 Graduate Professional Practice (PWL) Sem. 1 and 2. SS. Experiential. Credit 0.

Discussion to change the number for CS 59700 to 59799. The new number was approved by the council, upon a motion by Dr. Natalie Carroll.

Due to the absence of Chair, Dr. Lucy Flesch, Dr. Paul Salama presented one course for consideration. The course was approved by the council, upon a motion by Dr. Salama.

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

Graduate Council Document 17-37a, Graduate Certificate in Systems, College of Engineering, PWL

Due to the absence of Chair, Dr. Lucy Flesch, Dr. Paul Salama presented one certificate for consideration. The certificate was approved by the council, upon a motion by Dr. Salama.

Area Committee D, Humanities and Social Sciences (Manushag (Nush) Powell, chair; mnpowell@purdue.edu):

Graduate Council Document 18-3a, COM 64011, Seminar in Advertising (PWL) Sem. 1 and 2. SS. Distance. Credit 3.

Due to the absence of Chair, Dr. Lucy Flesch, Dr. Michael Loui presented ten courses for consideration. The courses were approved by the council, upon a motion by Dr. Loui.

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

Graduate Council Document 17-50a, FNR 52900, Disease Ecology (PWL) Sem. 1. Lecture 2 times per week for 75 minutes. Credit 3.

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 17-13k, MGMT 56800, Supply Chain Analytics (PWL) Sem. 1 and 2. Lecture 2 times per week for 90 minutes for 8 weeks. Credit 2.
Prerequisites: MGMT 66000 (or equivalent course) and MGMT 67000 (or equivalent course).

Due to the absence of Chair, Dr. Jun Xie, Dr. Brian Dineen presented one course for consideration. The course was approved by the council, upon a motion by Dr. Dineen.

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

Ms. Marcela Martinez, President of the Purdue Graduate Student Government (PGSG) noted the following items that PGSG will be working on:

- Graduate student success focusing on time to degree and how long it takes Master and Ph.D. students to complete degrees
- Graduate students will be participate in the Community Outreach Program the week of Spring Break
- Graduate student week will be held in April

V. OLD BUSINESS

- a) Dr. James Mohler received feedback of the proposed changes to Graduate Faculty Status classifications and service levels. A formal document was presented to the Graduate Council with the proposed changes to reduce the number of regular faculty classifications from eight (8) to four (4) and sixteen (16) special statuses to five (5). If approved, the proposed modifications would become effective fall 2018. The goal would be to modify the Graduate School database in the spring/summer and conduct a reclassification and review of all faculty in late spring and through the summer. It has been approximately six (6) years since the last reclassification. While reclassifying all faculty will require effort on the part of departments (as they must originate the requests) it will put into place a fairer system and simultaneously permit a review of graduate faculty that is to occur every five years anyway.

VI. NEW BUSINESS

- a) Dr. Melanie Morgan noted that two new awards have been established similar to the Provost Award for Faculty Mentoring. The first award is for graduate students who are mentoring other graduate/undergraduate students. The second award is for post-doctoral trainees.
- b) Dr. Linda Mason noted that there will be a change in the Graduate Faculty Mentoring Award Dinner. There will also be a recognition of Graduate Education Awards, The Three Minute Thesis winners, The Outstanding Teacher Award which will be held in the Purdue Memorial Ballroom on Monday, May 7, 2018.

VII. CLOSING REMARKS AND ADJOURNMENT

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

Linda J. Mason, Interim Chair

Tina L. Payne, Secretary

APPENDIX A

PENDING DOCUMENTS

(February 15, 2018)

BOLDED ITEMS ARE IN REVIEW WITH AN AREA COMMITTEE

Area Committee B, Special Committee for Area Committee A Excess (Mary Johnson, chair: mejohnson@purdue.edu):

Graduate Council Document 17-47a, AT 50700, Quantitative Research Methodologies in Transportation (PWL)

Graduate Council Document 17-47b, AT 53300, Aviation Graduate Professional Practice Internship (PWL)

Graduate Council Document 17-47c, AT 54000 (Upgrade to 64000), Aviation and Aerospace Sustainability (PWL)

Graduate Council Document 17-47e, AT 57500 (Upgrade to 67500), Aviation Safety Program Development (PWL)

Graduate Council Document 17-47d, AT 65900, Airport and Transportation Sustainability (PWL)

Graduate Council Document 17-45a, BCM 57200, Construction Research Fundamentals (PWL)

Analysis (PWL)

Graduate Council Document 17-49b, CNIT 53100, IT Requirements Analysis & Modeling (PWL)

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

Graduate Council Document 17-29m, CS 59700, Graduate Professional Practice (PWL)

Area Committee D, Humanities and Social Sciences (Manushag (Nush) Powell, chair: mnpowell@purdue.edu):

Graduate Council Document 18-3a, COM 64011, Seminar in Advertising (PWL)

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

Graduate Council Document 17-50a, FNR 52900, Disease Ecology (PWL)

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

Graduate Council Document 17-11a, ECON 63300, Macroeconomics with Heterogeneous Agents (PWL)

Graduate Council Document 17-11b, ECON 64100, Computational Economics/Numerical Methods (PWL)

Graduate Council Document 17-11c, ECON 65300, Economics of Early Childhood and Skill Formation (PWL)

Graduate Council Document 17-11d, ECON 68100, Bayesian Econometrics I (PWL)

Graduate Council Document 17-11e, ECON 68200, Bayesian Econometrics II (PWL)

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

Graduate Council Document 17-13k, MGMT 56800, Supply Chain Analytics (PWL)

NEW DOCUMENTS RECEIVED

(After the February 15, 2018 Graduate Council Meeting)

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

Graduate Council Document 18-20a, CIT 57800 Advanced Topics in Data Management (IUPUI) Sem. 1 and 2. SS. Lecture 1 time per week for 150 minutes. Distance. Credit 3. Prerequisites: TECH 50700 or equivalent and TECH 52600 or equivalent and basic knowledge about computing architecture, and programming in JAVA.

This is an advanced data management course. The topics might change each term it is offered. The objective of this course is to cover most emerging topics for data management and explore the cutting-edge technologies in data science. “Big data” is an emerging term to demonstrate the large volume and diversity of data that are generated by different applications every second. “Big data” is exposed to new techniques about how to efficiently store the data, manage the data, analyze the data, and integrate the data. In this course, topics to be discussed include but not limited to emerging data storage and management techniques for large-scale data sets, cloud based data mining tools for analyzing large-scale data collections, information retrieval over large-scale data collections and related data security and privacy issues. The class will also focus on research, evaluate and design data management infrastructure for real-world application domains, such as health care, online marketing, social network analysis and so on.

Graduate Council Document 18-16a, EDCI 60001, Intro to Demonstrating Professional Competencies in LDT (PWL) Sem. 1 and 2. SS. Lecture 50 minutes per meeting 1 time per week. Distance. Independent Study. Credit 1.

This course is designed to help you to understand the knowledge and skills necessary for your successful online learning in the Learning Design and Technology program, with a focus on the process of earning digital badges aligned with professional competencies. In this orientation, you will explore what online learning entails and reflect on how you can best set yourself up to succeed

in your studies. You will also learn and apply the process of both earning digital badges within the program and evaluating your peers' work as part of the badge earning.

Graduate Council Document 18-16b, EDCI 60002, Demonstrating Professional Competencies in LDT (PWL) Sem. 1 and 2. SS. Lecture 50 minutes per meeting 1 time per week. Distance. Independent Study. Credit 1.

This course will primarily focus on the further earning of badges as part of demonstrating required program competencies. We will also further explore the purpose and process behind this. Additional resources and activities regarding a better understanding of the profession will also be available.

Graduate Council Document 18-16c, EDCI 60003, LDT Professional Competencies Portfolio (PWL) Sem. 1 and 2. SS. Lecture 50 minutes per meeting 1 time per week. Distance. Independent Study for 8 weeks. Credit 1.

This course will focus on completion of the competency portfolio reflecting on the depth and breadth of your educational growth since entering the Master's program. The purpose of the LDT competency portfolio is to demonstrate that you have mastered the graduate competencies. The portfolio will contain student evidence aligned with LDT competencies and will be reviewed by your committee. The completed competency portfolio is a requirement for graduation from the LDT Master's program.

Graduate Council Document 18-5a, EDPS 54700, Foundations and Principles of Behavior Analysis (PWL) Sem. 1 and 2. SS. Distance. Credit 3. Prerequisites: Enrolled in Applied Behavior Analysis Certificate Program or with permission of the instructor.

This course will provide a historical perspective of ABA as well as the core principles of ABA. The learner will be exposed to the foundational concepts and methods of ABA including defining behaviors, collecting data, and understanding the three-term contingency of behavior.

Graduate Council Document 18-5b, EDPS 54800, Ethics and Professional Practice of Applied Behavior Analysis (PWL) Sem. 1 and 2. SS. Distance. Credit 3. Prerequisites: Enrolled in Applied Behavior Analysis Certificate Program or with permission of the instructor.

This course will address the professional and ethical responsibilities of behavior analysts. Key issues of responsible conduct as it relates to areas such as confidentiality, consent, consultation, treatment planning, and research will be discussed and applied through case studies. Learners will be able to apply ABA techniques within the bounds of both legal and ethical frameworks.

Graduate Council Document 18-5c, EDPS 54900, Verbal Behavior and Social Communication (PWL) Sem. 1 and 2. SS. Distance. Credit 3. Prerequisites: EDPS 61200; Enrolled in Applied Behavior Analysis Certificate Program or with permission of the instructor.

This course will explore the development of verbal and social behavior as explained through tenets of applied behavior analysis. Students will identify the similarities and differences between verbal operants as well as appropriate function-based interventions to develop each including augmentative communication systems and functional communication training. Measurement and intervention for more complex social-communication skills will also be addressed.

Graduate Council Document 18-5d, EDPS 55000, Behavioral Consultation and Systems Change (PWL) Sem. 1 and 2. SS. Distance. Credit 3. Prerequisites: Enrolled in Applied Behavior Analysis Certificate Program.

This course will address the provision of behavioral analytic services through consultation within an implementation science framework. Application of ABA principles to evaluate and address system change will be explored including application of behavioral skills training. Techniques for program evaluation, collaborative planning, and progress monitoring will be discussed.

Graduate Council Document 18-5e, EDPS 55100, Intensive Practicum in Applied Behavior Analysis (PWL) Sem. 1 and 2. SS. Lecture 1 time per week for 75 minutes. Distance. Experiential. Credit 3. Prerequisites: EDPS 61200 and enrolled in the Applied Behavior Analysis Certificate Program or with Permission of the Instructor. Students must have a field experience site and onsite BCBA supervisor for field experience.

University-supervised fieldwork in applied behavior analysis. This practicum will facilitate development and fluency of essential professional and ethical skills necessary for the delivery of high-quality ABA services. The course may be repeated up to 4 times (5 credit/semester)

Graduate Council Document 18-5f, EDPS 60700, Mixed Methods Research Designs and Applications (PWL) Sem. 1. Lecture 1 time per week for 170 minutes. Distance. Credit 3. Prerequisites: EDPS 53300, EDPS 55600, and EDPS 55700 and an introductory qualitative methods course (one of COM 58500, EDCI 61500, SOC 68600). Students having taken courses equivalent to these should contact the instructor.

This course provides an overview of mixed methods research designs within social science and educational research. The focus of the course will emphasize the philosophical pragmatism embedded in enacting mixed methods research. Further, the course will demonstrate the utility and plausibility of integrating quantitative and qualitative data into a single study. This demonstration will be accomplished through reviewing the historical context of qualitative and quantitative research in social sciences and students' application of mixed methods research within their respective fields of study.

Graduate Council Document 18-17a, ITS 55300, Software Security & Secure Programming (PNW-Hammond) Sem. 1 and 2. SS. Lecture 1 time per week for 150 minutes. Credit 3. Prerequisites: Knowledge and skills of Object Oriented Programming or Java programming. Master's student standing.

This course covers software security goals, threats and threat modeling, software design principles, fundamental programming security (input validation, expression and numeric types and operations), object oriented software design and security, network and concurrency software programming and security, platform security.

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

Graduate Council Document 18-10b, AAE 54500, Dynamic Behavior of Materials (PWL) Sem. 1. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: AAE35200 or ME32300 or CE23100 or CE27000 or MSE38200.

Materials' responses to high-rate loading are different from their quasi-static behavior. Applications of materials in structures subjected to impact loading from events such as bird strike require the understanding of dynamic material behavior. Such high-rate materials behavior is not available in standard materials handbooks or design manuals. This course introduces stress wave propagation in solids, which is the foundation to characterization and understanding of high-rate response of materials. Then, the theoretical background and working principles of high-rate experimental methods are presented to characterize the material response under high-rate loading conditions. Finally, rate-dependent material models are introduced to describe the dynamic material behavior and deformation mechanisms.

Graduate Council Document 18-10a, AAE 54800, Mechanical Behavior of Aerospace Materials (PWL) Sem. 1. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: AAE 35200, or ME 32300, or CE 23100 or CE 27000, or MSE 38200.

This course serves as an overview for materials behavior for students without a materials background, including seniors and entry-level graduate students. Materials are at the foundation for all of engineering, as evident by the latest products that we design, to the airplanes that we fly, to the latest smart phones. In fact breakthroughs with material research are often accompanied by rapid advancements in technology. Thus it is paramount for all engineers to have an understanding of the structure and behavior of materials.

In this class, we focus on the structure of materials, the microstructure connection to mechanical properties, and ultimately failure mechanisms. Materials play an important role in both design and manufacturing, which will be addressed in the context of components and extreme environments. Of specific interest will be defects within materials, defect formation/evolution, and their role in strengthening mechanisms.

Material anisotropy, micromechanisms, and elasto-plastic properties at the atomic, single-crystal/constituent, and polycrystal/material levels and their use in explaining the deformation and failure characteristics in metals, polymers, and ceramics; failure mechanisms and toughening in composites; structure and behavior of aerospace materials: metal alloys, ceramic-matrix composites, and fiber-reinforced polymer composites. Particular topics will also include: elastic deformation, dislocation mechanics, plastic deformation and strengthening mechanisms, creep, and failure mechanisms; design criteria; special topics. We will attempt to have minimal overlap with AAE 554 'Fatigue of Structures and Materials', therefore we will not cover fracture, fatigue, or stress concentrators.

Graduate Council Document 18-10c, AAE 64800, Modeling Damage and Strengthening Mechanisms in Materials (PWL) Sem. 1. Lecture 2 times per week for 75 minutes. Distance. Credit 3. Prerequisites: AAE 55300 or equivalent.

The usage of materials is the backbone of engineering practice. Yet, advances in materials have stagnated due to overly conservative approaches, trial-and-error testing, and long qualification times. Material modeling offers tremendous opportunities to address these issues. This class offers advanced modeling strategies at the intersection of mechanics and materials science for both polycrystalline and composite materials. The course topics are defined as follows: First, advanced micromechanics analysis of modern engineering materials with emphasis on relating elastic microstructural phenomena to the mechanics of material behavior, via the Eshelby inclusion problem and its application to fiber reinforced composites. Second, classical plasticity is summarized via phenomenological and mathematical formulation of the constitutive laws, including yielding, yield surface; von Mises, Tresca yield criteria; Drucker's stability postulate; strain or work hardening, normality rule, perfect plasticity, and stress-strain law. Third, crystal plasticity is discussed, specifically physical and mathematical foundation for plasticity in crystalline materials, with a detailed description of the Bishop and Hill implementation of the Taylor model for deformation of polycrystals. Lastly, concepts of dislocations leading to strengthening mechanisms in metals are discussed: (i) by studying the anisotropy of material and elastoplastic properties at crystal level, microstructural basis for deformation in metals, polymers, and ceramics and (ii) failure mechanisms and toughening in metals, with primary emphasis on work/strain hardening, solid solution hardening, precipitate hardening, and grain boundaries. The course will be comprised of three projects, where the student chooses the topic of the third and final project.

Graduate Council Document 18-4c, BME 56100, Preclinical and Clinical Study Design (PWL) Sem. 1. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: STAT 51400 or equivalent.

Medical devices are developed, manufactured, and distributed in a highly regulated environment. This course concerns the preclinical and clinical study design processes for obtaining FDA marketing approval for biomedical devices. Prior to marketing a medical device in the US, specific governmental approval is required dependent on the type of device and the risk associated.

This course is part of a three-course series dealing with various aspect of regulatory science. Regulatory science considers the scientific and technical foundations that support the practical testing and regulations that ensure the safety and effectiveness of medical devices. This course covers the responsible conduct of clinical and pre-clinical research, including evaluation of device tissue interactions and how they may be studied with pre-clinical animal models to predict safety and performance in human clinical trials that are necessary to gain regulatory approval for marketing. In the section on ethics we will cover several topics related to responsible conduct of clinical and pre-clinical research, including informed consent, risk assessment and ethical decisions, IRB oversight and ethical study design.

Area Committee D, Humanities and Social Sciences (Manushag (Nush) Powell, chair; mnpowell@purdue.edu):

Graduate Council Document 18-12a, ANTH 63000, Academic Professional Development (PWL) Sem. 1 and 2. Lecture 2 times per week for 75 minutes. Credit 3.

This graduate seminar focuses on skills needed in professional development for an academic career. Topics include research design, grant writing, publishing, oral presentation, online web presence and materials for the academic job market. Graduate level.

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

Graduate Council Document 18-13a, AGRY 64100, Statistical Hydrology (PWL) Sem. 1. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: AGRY 33700 or CE 54200 or ABE 32500 and STAT 51100 or STAT 50300.

This course is designed to serve as an advanced graduate course in the statistical analysis of hydrologic data, including time series analysis and modeling, frequency analysis and uncertainty.