PURDUE UNIVERSITY
GRADUATE SCHOOL

Minutes of the Graduate Council Meeting
November 17, 2022
2:30 p.m.

Third Meeting
Zoom

PRESENT: Council Members, James L. Mohler, Deputy Chair, Raida Abuizam, Kola Ajuwon,
Bradley J. Alge, Thomas W. Atkinson, Yong Bao, Arun Bhunia, Janice S. Blum,
Joy Colwell, G. Jonathan Day, Eric D. Deemer, Emad Elwakil, Keith B. Gehres,
Kevin D. Gibson., Catherine A. Golden (Provost's Representative),
Jeffrey P. Greeley, Chong Gu, Nancy A. Jackson, Troy D. Janes, Qing Jiang,
Mary E. Johnson, Kimberly P. Kinzig, Ann L. Kirchmaier, Douglas J. LaCount,
Jiliang Li, Yanjun Li, Qiang Liu, Patti Ludwig-Beymer, Clarence D. Maybee,
Melanie Morgan, Brad E. Oliver, Julia M. Rayz, Paul Salama, Abraham Schwab,
Alex Seto, Ann Shanahan, Michael G. Smith, James E. Tisdale,
Joshua R. Widhalm, Nicole Widmar, Amanda D. Zelechoski

APOLOGIES FOR ABSENCE RECEIVED FROM: Shawn G. Bauldry, Carrie Berger,
Steven J. Burdick, William B. Collins, Duane D. Dunlap, Levon Esters,
Richard H. Grant, Nilupa Gunaratna, Judith Lewandowski, Linda J. Mason, chair,
Tina L. Payne, Rodolfo Pinal, David Rollock

ABSENCES: Suzanne C. Bart, Stacy K. Betz, Esteban Garcia Bravo,
Erla Heyns, Tong Jin Kim, Joseph P. Robinson, Kristin K. White,
Christine Wuenschel

GUESTS: Mawuena Abortta, Nicole Barr, Debbie Fellure, Mark Haugen, Lori Miller
Korena Vawter

I. MINUTES
The October 2022 Graduate Council meeting minutes were approved via the
Qualtrics Survey.

II. DEANS REMARKS AND REPORTS

James Mohler
- Update on the IUPUI transition
    - The West Lafayette degrees have been at IUPUI. Those degrees
      are going to be West Lafayette degrees delivered at that location.

Indianapolis is going to be an additional location as opposed to having its own degrees.
- o Units involved - Engineering, Computer Science, and Polytechnic.
- o Carrie Berger is leading the academic effort.
- o Linda Mason is directly involved with the graduate effort in making sure that no graduate student is harmed due to the transition.
- o Catherine Golden, who serves in the Provost Office is our liaison with the Higher Learning Commission (HLC).
- o Conversations between the faculty at IUPUI and West Lafayette as far as to where their tenure homes will be.
- Catherine Golden will present information in the spring of a project for a more efficient proposal process for Graduate and Undergraduate.
- Three files placed on the Graduate Council Box folder to share with graduate students about the Concord Law agreement.
  - o Allows graduate students to be able to take Concord Law courses in addition to their degree.
  - o May be possible to count those courses towards their degree if the major professor chooses to allow them to count.
  - o The courses are only the Concord Law courses not the entire portfolio of Purdue Global courses.
  - o Working on making sure that students on an assistantship or if they had paid banded tuition where they pay up to an amount and anything over that they will not have to pay for.
  - o One goal was to make sure that students can take advantage of the law courses without having to pay more money.
  - o The biggest challenge is that international students cannot participate because Purdue Global is not in the SEVIS system.
  - o The Concord law courses are limited to West Lafayette graduate students. The arrangement with Purdue Global has to be set up at each campus because the financial systems at each campus are separate.
- The Online Ph.D. Task Force was established pre pandemic and is now looking at what it would look like. Offering online Ph.D. totally online where students would never have to be on campus.
  - o Could an international student outside of the country do this?
  - o How to deal with intellectual property?
  - o How do we make sure good mentoring occurs?
  - o How do we make sure that the experience for these Ph.D. students is the same as the Ph.D. students on campus?
- Online Ph.D.'s are going to be a focal point for incoming President Mung Chiang.
- Catherine Golden is the liaison with the Indiana Commission for Higher Education (ICHE) with any issues they may have.
- The plan is to have a document to bring to the Graduate Council for consideration this spring.

- How would a unit propose doing an Online Ph.D. completely online?
  - What things they would have to address as far as issues on how to make sure that the experience and the education that one would receive in the online mode would be equivalent to what one receives on campus.
- Ashlee Messersmith is no longer working for the Thesis Dissertation Office. Those operations have been moved to the Graduate School Records Office under the purview of Nicole Barr.
- Purdue West Lafayette students will have access to LinkedIn Learning starting in January.
- Faculty and staff have access to LinkedIn Learning which is the online training provided through the LinkedIn training mechanism.
- Purdue Global provides it for their students, so they are paying the fee for the next three years that gives access to all Purdue Global students, Purdue West Lafayette, and Regional Campus students.

Catherine Golden
- Scheduling the initial interaction meeting to sit down following the formal of intent to set some high-level timelines from HLC on what will be required and when with the IUPUI transition.
- A joint letter in conjunction with IUPUI to have those clear deliverables to be able to communicate with everyone.

Melanie Morgan
- Introduced Mawuena Abortta from the University of Ghana who is the Senior Assistant Registrar from the College of Science at the University of Ghana. They are looking to redesign and lead related reforms at their university.
- Dr. Morgan is sponsoring her as a global scholarship as part of a program through the IREC University Administration Support Program Research Management Fellowship. As part of this program our fellow must participate in ten virtual events this semester on graduate education.

III. NEW BUSINESS

a) Dr. Joy Colwell presented the PNW Fall 2022 Enrollment Report. The complete report is posted on the Graduate School website.
https://www.purdue.edu/gradschool/faculty/enrollment.html

IV. AREA COMMITTEE REPORTS (Area Committee Chairs)
   Graduate Council Document 22, J Graduate Council Documents Recommended
   for Approval. See Appendix B. Voted via Qualtrics survey.

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

   Alex Seto, President of the Purdue Graduate Student Government (PGSG)
   - PGSG hosted many events that are opened to graduate students.
   - PGSG endorsed the Authorship Standard at the Senate meeting last night. It is very important that these things can be clearly outlined to resolve conflicts relating to authorship and to potentially mitigate them from happening.
   - PGSG is collaborating with the Graduate School on graduate housing. The housing survey was sent out to graduate students. Many responses have been received.

VI. CLOSING REMARKS
   - Dr. Mohler asked Alex Seto to relay his thanks to the Senate for endorsing the Purdue University Authorship Standard. The University Senate will vote on it Monday, November 21, 2022. There were some additional changes made so the document will be presented to the Council again.
   - Dr. Mohler thanked Alex Seto and the PGSG for sending the Housing survey. President elect Mung Chiang will be looking at the housing cost issue for graduate students. He was very supportive of the endeavor last year to increase stipends as Dean Mason has been a huge advocate already.
   - Dr. Mohler thanked the chairs and committees for their work in processing new proposals through this semester. It is an important part of graduate education in assuring the quality that Purdue delivers.
   - Dr. Mohler noted the voting that is done via Qualtrics has allowed more time for the Council to be able to discuss graduate education matters.

   The council meeting was adjourned by Dr. Mohler at 3:10 p.m.

                                        James Mohler, Deputy Chair
                                        Debbie Fellure, Graduate Council Assistant

APPENDIX A

PENDING DOCUMENTS

(November 2022)

BOLDED ITEMS ARE IN REVIEW WITH AN AREA COMMITTEE

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

Graduate Council Document 22-40b, **HDFS 60600, Advanced Human Development (PWL)**
Graduate Council Document 22-42a, **PSY 50001, Introductory Proseminar (PNW)**
Graduate Council Document 22-42b, **PSY 51001, Biological Bases Of Behavior (PNW)**
Graduate Council Document 22-42c, **PSY 52100, Cognitive And Affective Bases Of Behavior (PNW)**
Graduate Council Document 22-42d, **PSY 53000, Child Developmental Psychopathology (PNW)**
Graduate Council Document 22-42e, **PSY 53501, Adult Developmental Psychopathology (PNW)**
Graduate Council Document 22-42f, **PSY 57001, Psychometric Theory & Practice** (PNW)

Area Committee B, Engineering, Sciences, and Technology (Duane Dunlap, chair; ddunlap@purdue.edu):

*Graduate Council Document 22-18b***, CE 50100, Map Projection And Geometric Geodesy (PWL)**
*Graduate Council Document 22-18e***, CE 50600, Adjustment Of Geospatial Observations (PWL)**
Graduate Council Document 22-18L, **CE 65000, Photochemical Reactors: Theory, Methods, And Applications Of Ultraviolet Radiation (PWL)**
Graduate Council Document 22-41a, **CGT 55400, Configuration Management In The Digital Enterprise (PWL)**
*Graduate Council Document 22-30a***, CIT 50100, Data-Driven Cloud Computing Applications (IUPUI)**
Graduate Council Document 22-32c, **CS 55100, Cloud Computing Fundamentals (PWL)**
Graduate Council Document 22-23f **ECE 51214, CMOS Analog IC Design (PWL)**
Graduate Council Document 22-23b, **ECE 60270, Structure And Dynamics Of Large-Scale Networks (PWL)**
Graduate Council Document 22-23c, **ECE 60431, Fiber Optic Communications (PWL)**
Graduate Council Document 22-23d **ECE 60432, Nanophotonic Modeling (PWL)**
Graduate Council Document 22-23e **ECE 60645, High-speed Semiconductor Devices (PWL)**
Graduate Council Document 22-, **ENGT 54200, Cyber-Animal Systems I: Technology-Enhanced Animal Welfare (PWL)**

Area Committee C: Chemistry, Engineering, and Physical Sciences, (Suzanne Bart; chair, sbart@purdue.edu):

Graduate Council Document 22-33a, **EAPS 51201, Planetary Origins (PWL)**
Graduate Council Document 22-33b, **EAPS 52400, Laboratory Analysis (PWL)**
Graduate Council Document 22-33c, **EAPS 55501, Numerical Modeling of Planetary Orbits (PWL)**
Graduate Council Document 22-33d, **EAPS 56700, Planetary Atmospheres (PWL)**
Graduate Council Document 22-33e, **EAPS 58801, Impact Cratering (PWL)**

Area Committee E: Life Sciences, (Richard Grant, chair; rgrant@purdue.edu):

Graduate Council Document 22-44a, **NUTR 51400, Food Chemistry Laboratory (PWL)**
Graduate Council Document 22-44b, **NUTR 54100, Food Policy And Nutrition (PWL)**

DOCUMENTS RECOMMENDED FOR APPROVAL
BY THE GRADUATE COUNCIL
NOVEMBER 2022

GRADUATE COURSE PROPOSALS:

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

Graduate Council Document 22-40b, **HDFS 60600, Advanced Human Development** (PWL)
Lecture 1 time per week for 165 minutes. Credit 3.
     This course provides an overview of human development and serves as a graduate-level introduction to HDFS. Relevant theories and models will provide the structure for consideration of the nature, processes, and mechanisms of developmental change. Particular attention will be paid to diversity in developmental influences and trajectories, including atypical development. Students will gain specific knowledge and professional skills through the pursuit of individual research interests, culminating in a written grant proposal and class presentation of the proposal.
https://purdue.curriculog.com/proposal:21600/form

Graduate Council Document 22-42a, **PSY 50001, Introductory Proseminar** (PNW) Lecture 1 time per week for 50 minutes. Credit 1.
This course will provide students with an introduction to graduate school and professional development in psychology. Topics will include professional skill development, academic preparation for various career paths, and specific strategies to uncover the "hidden curriculum" and maximize one's experience as a psychology graduate student.
https://purdue.curriculog.com/proposal:21467/form

Graduate Council Document 22-42b, **PSY 51001, Biological Bases Of Behavior** (PNW)
Lecture 1 time per week for 150 minutes. Credit 3.
     This course will provide an overview of the many and varied relationships between the brain and behavior, including such topics as neural, physiological, anatomical, and genetic aspects of behavior.
https://purdue.curriculog.com/proposal:21454/form

Graduate Council Document 22-42c, **PSY 52100, Cognitive And Affective Bases Of Behavior** (PNW) Lecture 1 time per week for 150 minutes. Credit 3.

This course will provide an overview of the core theories of both cognition and affect, as well as their interplay and impact on human behavior. Basic components of cognition will be reviewed, such as knowledge acquisition and presentation, language, memory, and problem-solving, as will basic components of affect, such as emotional awareness and regulation, understanding the self, individual differences in emotion, cognition, and mood.
https://purdue.curriculog.com/proposal:21456/form

Graduate Council Document 22-42d, **PSY 53000, Child Developmental Psychopathology** (PNW) Lecture 1 time per week for 150 minutes. Credit 3.

This course will provide integrated exposure to psychopathology, with a particular emphasis on child and adolescent psychopathology. We will closely examine etiology, diagnostic criteria, developmental context, assessment, and intervention of child and adolescent mental health disorders.
https://purdue.curriculog.com/proposal:21457/form

Graduate Council Document 22-42e, **PSY 53501, Adult Developmental Psychopathology** (PNW) Lecture 1 time per week for 150 minutes. Credit 3.

This course will provide integrated exposure to psychopathology, with a particular emphasis on adult psychopathology. We will closely examine etiology, diagnostic criteria, developmental context, assessment, and intervention of adult mental health disorders, as well as the contribution and trajectory of childhood disturbance to the expression of adult psychiatric disorders.
https://purdue.curriculog.com/proposal:21458/form

Graduate Council Document 22-42f, **PSY 57001, Psychometric Theory & Practice** (PNW) Lecture 2 times per week for 100 minutes. Credit 4.

This course will introduce advanced theories, principles, techniques, and issues in the measurement of emotional and behavioral functioning. Topics will include development and evaluation of psychological tests, standardized tests currently used in the field, and basic clinical interviewing and test administration practices.
https://purdue.curriculog.com/proposal:21475/form

Area Committee B, Engineering, Sciences, and Technology (Duane Dunlap, chair; ddunlap@purdue.edu):

Graduate Council Document 22-18b, **CE 50100, Map Projection And Geometric Geodesy** (PWL) Lecture 3 times per week for 50 minutes. Credit 3.
    After the course, the student will be able to:
• Solve most 1D/2D/3D survey problems based on rigorous 1D-, 2D-, 3D-modelling,
• Perform coordinate transformations,
• Assess mapping characteristics based on principles of differential geometry,
• Develop mapping dedicated to any engineering project,
• Generate novel engineering solutions to newly presented survey problems,
• Evaluate 1D-, 2D-, 3D-models, the coordinate frames used for these and their interrelationships,
• Model the physical reality underlying most geometry-based models, in earth-fixed as well in inertial space.
https://purdue.curriculog.com/proposal:13950/form

Graduate Council Document 22-18e, **CE 50600, Adjustment Of Geospatial Observations** (PWL) Lecture 3 times per week for 50 minutes. Credit 3.
    This course presents a thorough and comprehensive look at the topic of fitting data to a mathematical model. The techniques presented will free the scientist or engineer from dependence on restrictive software applications, and allow customization of solutions using weighting, constraints, parameter dependencies, and robust techniques which minimize the influence of blunders. Example applications include 2D/3D ranging, 2D/3D triangulation, curve and surface fitting, coordinate transformations, leveling, and image triangulation. Pre-analysis and design techniques permit the precision of unknown parameters to be determined in advance, prior to expending time and effort in field measurements.
https://purdue.curriculog.com/proposal:13947/form

Graduate Council Document 22-18L, **CE 65000, Photochemical Reactors: Theory, Methods, And Applications Of Ultraviolet Radiation** (PWL) Lecture 3 times per week for 50 minutes. Credit 3. Prerequisites: CE 55000 or Graduate Status.
    This course provides comprehensive coverage of the foundational principles of photochemistry and fundamental photochemical reactor theory. Contemporary analytical and numerical methods used to simulate and design photochemical reactors are also presented, along with detailed presentations of several common and emerging applications of these devices.
https://purdue.curriculog.com/proposal:20005/form

Graduate Council Document 22-41a, **CGT 55400, Configuration Management In The Digital Enterprise** (PWL) Lecture 1 time per week for 150 minutes. Distance. Credit 3. Prerequisite(s): CGT 51400.

This course, Configuration Management in the Digital Enterprise, will cover Configuration Management (CM) in the context of the digital enterprise and Product Lifecycle Management (PLM). Configuration Management applies processes, resources and controls to establish and maintain consistency between product configuration information and the product. Configuration information includes product requirements and changes to the product. This course provides preparation for IpX CM2 Certification at the Application Specialist level.
https://purdue.curriculog.com/proposal:12610/form

*Graduate Council Document 22-30a***, CIT 50100, Data-Driven Cloud Computing Applications** (IUPUI) Lecture 2 times per week for 75 minutes. Credit 3. Prerequisite(s): Any programming course equivalent to 300-level programming, any relational database course equivalent to 200-level database course, and any introductory web development course.

This course introduces students to data hosted in cloud platforms and provides the opportunity to develop applications that read and write to those sources. Projects include transferring data to the cloud, development of a user interface, and development of software applications that meet user needs and utilize custom datasets.
https://purdue.curriculog.com/proposal:20984/form

Graduate Council Document 22-32c, **CS 55100, Cloud Computing Fundamentals** (PWL) Lecture 3 times per week for 50 minutes or 2 times per week for 75 minutes. Credit 3.

A comprehensive course that investigates all aspects of cloud computing, including: cloud data centers and infrastructure (equipment for processing, storage, communication, and special-purpose facilities); the use of virtualized servers (virtual machines and containers), virtualized storage (Storage Area Networks, Network Attached Storage, object storage), and virtual networks; automation; orchestration systems, such as Kubernetes; programming paradigms used to construct cloud-native software, such as MapReduce, microservices, controller based computing, and serverless computing; edge computing; security and privacy in cloud systems; software models. The course emphasizes researching new ways to use cloud computing and research into new ways to design and build cloud systems. The course includes a project. Students should have completed coursework in or have equivalent familiarity with operating systems and computer networks.
https://purdue.curriculog.com/proposal:21272/form

Graduate Council Document 22-23f **ECE 51214, CMOS Analog IC Design** (PWL) Lecture 3 times per week for 50 minutes. DIS. Credit 3. Prerequisite(s): ECE 255 or equivalent.
The course covers general topics in CMOS analog IC design; biasing, noise, single stage amplifiers, differential amplifiers, OP-Amp, OTA, frequency domain analysis, and active filters. While the focus of the course is on CMOS IC design, design in bipolar andBi CMOS technologies are introduced as well. A design project is a key component of the course. The students conduct group or individual design projects. Process Design *Kit* and EDA tools are provided for the design projects.
https://purdue.curriculog.com/proposal:20966/form

Graduate Council Document 22-23b, **ECE 60270, Structure And Dynamics Of Large-Scale Networks** (PWL) Lecture 3 times per week for 50 minutes. Credit 3.
　　Large-scale networks are prevalent in both engineered systems (e.g., the Internet, the power grid, industrial control networks, large robotic swarms and sensor networks) and in natural systems (e.g., genetic networks, ecological networks, social and economic networks). While the specific details of such
networks will depend on the application, the last few decades have seen the emergence of an underlying "science" of networks, comprised of a common language (graph theory) for representing large-scale networks, along with mathematical models and analytical techniques for studying structure and dynamics. This course will provide a detailed introduction to the field of network science. It will develop common mathematical representations of networks, metrics for identifying important features of networks, generative mechanisms for networks (including both random-graph and strategic network formation perspectives), and tools for studying dynamical processes on networks (such as information cascades, opinion dynamics and interconnected dynamical systems). This is an introductory course that establishes several of the fundamental tools and concepts in network science, and requires only an undergraduate background in probability and linear algebra.
https://purdue.curriculog.com/proposal:18643/form

Graduate Council Document 22-23c, **ECE 60431, Fiber Optic Communications** (PWL) Lecture 3 times per week for 50 minutes for 5 weeks. Distance. Credit 3. Prerequisite(s): ECE 60400.
　　This course will aim to introduce students to the fundamentals of fiber optic communications, which constitute the backbone of the internet. The course will start with a refresher on the operation of key components needed for an effective fiber optic communication system, and then show how these
components interact at a system level. Finally, the course will conclude with outlook for future research in extending the capabilities of these networks to higher bandwidths and quantum-secured communications.
https://purdue.curriculog.com/proposal:18704/form

Graduate Council Document 22-23e **ECE 60645, High-speed Semiconductor Devices** (PWL) Lecture 3 times per week for 50 minutes. Credit 3. Prerequisite(s): ECE 60600.

As semiconductor device geometry miniaturizes, the device becomes faster and some devices move into the quantum-effect region. These high-speed devices are the key components for future electronic systems in communications, computers, control, and consumer applications. This course covers the physics and operational principles of these devices to meet the needs of microelectronics in the 21th century. This course emphasizes the integration of the state-of-the-art technologies such as high-k dielectrics, SiGe, SiC and GaN devices. This course is intended for graduate students in science and engineering who are either i) interested in pursuing research in semiconductor materials, structures or devices, or ii) seeking the broad device background on the state-of-the-art technologies for a future R&D career in the microelectronic industry.
https://purdue.curriculog.com/proposal:20610/form

Graduate Council Document 22-, **ENGT 54200, Cyber-Animal Systems I: Technology-Enhanced Animal Welfare** (PWL) Lecture 2 times per week for 50 minutes. Laboratory 1 time per week for 100 minutes. Credit 3.

Cyber-Animal Systems is an interdisciplinary course involving hardware science, software science, and animal science students, who will study the interaction of animals and computer-controlled systems. The course addresses recent advances in robotics, data science, and animal husbandry that combine to create collaborative robots, wearable devices, and biological and environmental sensing systems that improve the practice of precision animal agriculture. Topics include case studies of technology adoption in animal agriculture, impacts of animal welfare on farm production and climate, and the importance of animal societies, confounding variables in animal studies, and animal anxiety on the design of experiments for technology integration. All students will learn mentoring techniques for tutoring other students from different disciplines so they develop skills in "lifelong teaching".
https://purdue.curriculog.com/proposal:17849/form

Area Committee C: Chemistry, Engineering, and Physical Sciences, (Suzanne Bart; chair, sbart@purdue.edu):

Graduate Council Document 22-33a, **EAPS 51201, Planetary Origins** (PWL) Lecture 3 times per week for 75 minutes. Credit 3.

The goal of this course is to introduce students to our current understanding of how planetary systems form and evolve. We will focus on the physical theories describing how the structures of planetary systems develop and how planets, moons, and other heavenly bodies form. We will also consider the relationship between these theories and observations (astronomical, geophysical, cosmochemical) of the Solar System and extrasolar planetary systems. This will include some discussion how the Solar System fits into our understanding of the veritable menagerie of planetary systems.
https://purdue.curriculog.com/proposal:20152/form

Graduate Council Document 22-33b, **EAPS 52400, Laboratory Analysis** (PWL) Lecture 3 times per week for 75 minutes. Credit 3. Prerequisites: Junior, Senior, or Graduate status required. Recommended minimum background for undergraduates: Introductory knowledge of Earth and Planetary materials (e.g., one of EAPS 10500, 24300, 34300)

    This course focuses on becoming familiar with various laboratory techniques used in the analysis of earth and planetary materials and understanding what questions data products from these techniques can answer. This course will include discussion of the instruments and how they operate, as well as provide hands-on experience working in the lab and processing data.
https://purdue.curriculog.com/proposal:20154/form

Graduate Council Document 22-33c, **EAPS 55501, Numerical Modeling of Planetary Orbits** (PWL) Lecture 3 times per week for 75 minutes. Credit 3. Prerequisites: Instructor Approval.

    The goal of the course is twofold. First, you will develop quantitative skills to understand the orbital motions of planets and minor bodies in planetary systems, both in our solar system and in exosolar systems. Second, you will develop practical skills and techniques for using computers to solve scientific problems. We will begin with classical analyses of the two-body and N-body problems. We will then learn about modern, powerful, analytical and numerical techniques. We will then see how these techniques are applied to solving real problems in understanding the origin and evolution of planetary systems. These problems will include understanding planet formation, planet migration, resonance dynamics and resonance capture, tidal evolution of planets and natural satellites, and the collisional evolution of small body populations.
https://purdue.curriculog.com/proposal:20177/form

Graduate Council Document 22-33d, **EAPS 56700, Planetary Atmospheres** (PWL) Lecture 3 times per week for 75 minutes. Credit 3.

    This course is intended for upper-level undergraduates and graduate students and will provide an in-depth look into the to the diversity of planetary atmospheres in our solar system and beyond. Topics to be covered in this class include: The processes by which atmospheres are constructed and eroded over plants lifetime, radiative balance, general circulation, the formation of hazes, clouds, and aerosols, atmospheric compositions and chemistry, the link between planetary interiors, surfaces, and atmospheres, how we measure and interpret observations of exoplanet atmospheres, and much more. To achieve this, we will briefly introduce the properties and components of an atmosphere, visit the planetary atmospheres in our solar system to learn more, and finally explore exoplanetary atmospheres.
https://purdue.curriculog.com/proposal:20179/form

Graduate Council Document 22-33e, **EAPS 58801, Impact Cratering** (PWL) Lecture 3 times per week for 75 minutes. Credit 3. Prerequisite(s): Senior or graduate status.

    Impact cratering is arguably the most pervasive geologic process in the solar system. In this course we will study the physical process of impact cratering and its place in planetary science. The course will take a process oriented approach to understanding impact cratering with firm foundations in geologic observation and impact experiments. To explore the extreme process of impact cratering, we will use continuum/rock mechanics, thermodynamics, numerical modeling,

experiments, and observations. Principal topics will include the formation of craters from contact of the projectile to final crater morphology; shock metamorphism; impact ejecta and products; cratered terrains; impacts and planetary evolution; and impact hazards.
https://purdue.curriculog.com/proposal:20176/form

Area Committee E: Life Sciences, (Richard Grant, chair; rgrant@purdue.edu):

Graduate Council Document 22-44a, **NUTR 51400, Food Chemistry Laboratory** (PWL*)* Lecture 1 time per week for 50 minutes. Laboratory 1 time per week for 150 minutes. Credit 2. Prerequisite(s): Undergraduate level CHM 25600 Minimum Grade of D- or Undergraduate level CHM 262 Minimum Grade of D- or Undergraduate level CHM C3420 Minimum Grade of D- or Undergraduate level CHM 25700 Minimum Grade of D-

   Application of fundamental laws and concepts of chemistry, physics, and biology to foods and eating. Experiments with food will be designed, reported and critiqued using the scientific method.
https://purdue.curriculog.com/proposal:18737/form

Graduate Council Document 22-44b, **NUTR 54100, Food Policy And Nutrition** (PWL) Lecture 2 times per week for 75 minutes. Credit 3.

   We will explore the nature of contemporary United States food policy and key events throughout history that have shaped what it is today. We will investigate and discuss the roles individuals, corporations, and federal, state, and other government agencies play in creating food policy, and how these stakeholders as well as complex sociological and economic factors influence the way Americans eat. These questions will lead us to consider the future of food and food policy in the United States. Can Americans develop food policy that supports the agricultural economy AND promotes the consumption of healthy foods? Could our agricultural system support this? We will learn about and explore these questions with class discussions, debate, research, guest lectures, relevant documentary films, and thought-provoking readings that present a variety of viewpoints. You will explore current, real-life problems and have an opportunity to develop potential solutions.
https://purdue.curriculog.com/proposal:21214/form

GRADUATE COURSE PROPOSALS:

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

Graduate Council Document 22-29b, **EDU 52401, Counseling Practicum In Student Affairs** (PFW) Individual Study. Credit 3. Prerequisite(s): B- equals the lowest passing grade.
   Practicum experience. Closely supervised counseling practice with clients in the department's counseling laboratories or approved field sites in schools or agencies. Intensive supervision.
https://purdue.curriculog.com/proposal:22097/form

Graduate Council Document 22-29c, **EDU 52402, Advanced Counseling Practicum In Student Affairs** (PFW) Individual Study. Credit 3. Prerequisite(s): B- equals the lowest passing grade.
   Practicum experience. Closely supervised counseling practice with clients in the department's counseling laboratories or approved field sites in schools or agencies. Intensive supervision.
https://purdue.curriculog.com/proposal:22205/form

Graduate Council Document 22-29d, **EDU 53700, Organization And Development Of Student Affairs** (PFW) Lecture 1 time per week for 150 minutes. Credit 3. Prerequisite(s): C- equals lowest passing grade.
   Foundations and contextual dimensions of the student affairs profession. Leadership and student service theories, program development and implementation, and data evaluation. Environmental and population-based needs assessment for program planning. Emergency response plans. Post-secondary transitions. Budget, finance, and personnel practices in higher education.
https://purdue.curriculog.com/proposal:22071/form

Graduate Council Document 22-29e, **EDU 55001, Internship In Student Affairs** (PFW) Individual Study. Credit 3. Prerequisite(s): B- equals the lowest passing grade.
   Advanced internship experience. Provide counseling services in a field placement with supervision.
https://purdue.curriculog.com/proposal:22264/form

Graduate Council Document 23-4a, **EDU 55002, Advanced Internship In Student Affairs** (PFW) Individual Study. Credit 3. Prerequisite(s): B- equals the lowest passing grade.
   Advanced internship experience. Provide counseling services in a field placement with supervision.
https://purdue.curriculog.com/proposal:22265/form

Area Committee B, Engineering, Sciences, and Technology (Duane Dunlap, chair; ddunlap@purdue.edu):

Graduate Council Document 22-20c, **CIT 50300, Cloud Security And Privacy** (IUPUI) Lecture 2 times per week for 75 minutes. Credit 3. Prerequisite(s): CIT 35600 or equivalent network administration course.

    The course focuses on the security/privacy issues in Cloud Computing systems. We will first examine cloud computing models and get familiar with environments of popular cloud platforms such as Amazon Cloud Services. Then, we will investigate the threat model and security/privacy issues related to data/computation in a cloud.
https://purdue.curriculog.com/proposal:22025/form

Graduate Council Document 22-20d, **CIT 51200, Application-Oriented Advanced Database Design** (IUPUI) Lecture 2 times per week for 75 minutes. Credit 3. Prerequisite(s): CIT 30400 or CIT 31400 or graduate standing.

    This course addresses enterprise data management and logical database design concepts with an emphasis on needs determination and data modeling skills from an organizational perspective. Students will create data models and apply forward and reverse engineering techniques by participating in scale-down real-world projects.
https://purdue.curriculog.com/proposal:22046/form

Graduate Council Document 22-20e, **CIT 52300, Advanced Programming In IT** (IUPUI) Lecture 2 times per week for 75 minutes. Credit 3. Prerequisite(s): Graduate Standing: Previous knowledge of data structures and algorithms are helpful. CIT 38800 or CIT 30900 or instructor approval.

    This course will explore how we can use the Python built-in data structures such as lists, dictionaries, and tuples to perform increasingly complex data and network analysis. Moreover, this course will provide in-depth knowledge of network programming, socket programming, and use cases of computer security using Python.
https://purdue.curriculog.com/proposal:22022/form

Graduate Council Document 22-20f, **CIT 52400, E-Commerce Application Development** (IUPUI) Lecture 2 times per week for 75 minutes. Credit 3. Prerequisite(s): CIT 31300 or equivalent web programming experience. Front-end web design experience (CIT 31200 or equivalent) is highly recommended. Students MUST be comfortable working in JavaScript and interacting with a database from day one.

    Students will create data-driven e-commerce web applications based on given business requirements. Topics include user authentication and authorization, data storage and analytics, security, authentication, cloud-based data sources and services, and fundamental financial transaction processing. Students will combine custom code and third-party utilities for user and transaction management.
https://purdue.curriculog.com/proposal:22049/form

Graduate Council Document 22-20g, **CIT 57400, Agile Systems And Database Analysis** (IUPUI) Lecture 2 times per week for 75 minutes. Credit 3. Prerequisite(s): CIT 21400 or introductory relational database experience; CIT 31300 or JavaScript-based web programming experience

    Students will learn modern development methodologies to be ready to contribute as members of a fast-paced, highly engaged team that is working to build products for both business and consumer use. Students will collaboratively develop a variety of applications with relational and non-relational databases.

https://purdue.curriculog.com/proposal:22048/form

Graduate Council Document 22-27c, **CNIT 55501, Social Engineering Mitigation In Information Technology** (PWL) Lecture 2 times per week for 75 minutes. Credit 3.

    Human vulnerability is currently one of the biggest threats to cybersecurity. Social engineering is one of the primary tools used to take advantage of this vulnerability. In this course students will learn about some techniques used in social engineering, the psychology harnessed to carry out social engineering attacks, and learn to identify possible avenues of attack and procedures to prevent and mitigate specific risks. Permission of instructor required.

https://purdue.curriculog.com/proposal:14253/form

Graduate Council Document 22-27d, **CNIT 62500, Research Methods In Computing** (PWL) Lecture 2 times per week for 75 minutes. Credit 3. Prerequisite(s): STAT 501 or STAT 511 or other statistics course; 6 credits of CNIT at the 500 level.

    The goal of this course is to provide you with the tools necessary to not only understand how to create your own research study on cyberphysical systems, but how to critically assess the different methodologies and components in various research designs used in applied information technology. In this course you will learn about the landscape of research in information technology. You will learn to differentiate between different research methodologies used in IT, identify threats to validity, learn specific protocols for commonly used methods in IT, and synthesize empirical literature and theory in order to design a scientific research study. The end product of this course will be the ability to design and report on an IT related research project. Permission of instructor required.

https://purdue.curriculog.com/proposal:14252/form

Area Committee C: Chemistry, Engineering, and Physical Sciences, (Suzanne Bart; chair, sbart@purdue.edu):

Graduate Council Document 22-33f, **EAPS 50701, Geospatial Data Analytics** (PWL) Lecture 3 times per week for 50 minutes. Credit 3. Prerequisite(s): EAPS 50801. Cross-listed with CE 50700.

    The course will introduce fundamental theories, analytical methods and programming skills that are needed to work with geospatial data. Students will learn the theories, methods, and techniques to visualize, analyze and model various geospatial data through hands-on computer

programming practice based on various open source geospatial libraries. To be specific, the course will use R and its related packages as the basic tool for implementation. The goal is to enable the learners to develop their own geospatial analytical applications.
https://purdue.curriculog.com/proposal:21411/form

Graduate Council Document 22-33g, **EAPS 50801, Geographic Information Systems** (PWL) Lecture 3 times per week for 50 minutes. Credit 3. Prerequisite(s): EAPS 50801. Cross-listed with CE 50801.

This course covers a range of fundamentals in geographic information science and technology. Students will learn the use of current popular geographic information system (GIS) tools to handle various geographic data. Through working on real world geospatial problems, students shall gain extensive and hands-on experience in geographic data manipulation, visualization, and analysis. Course assignments are focused on both GIS theoretical basics and practical skills for students to achieve expected proficiency. The course will work with geospatial data in geography, topography, environmental science, hydrology, transportation, and geosocial science. It is targeted to students with interest in civil and environmental engineering, agriculture, geography, earth science, natural resources, smart cities or other related subjects.
https://purdue.curriculog.com/proposal:21409/form

Graduate Council Document 23-3a, **PHRM 69500, Introduction To Pharmaceutical Sciences Research** (PWL) Lecture 1 time per week for 110 minutes. Credit 0.50.

Introduction of new graduate students to graduate programs, various disciplines, and the research environment in the College of Pharmacy, and prepare them for their graduate studies at Purdue College of Pharmacy. Each meeting is expected to have ~90 minutes presentation(s) and 30 minutes student discussion. Permission from department required.
https://purdue.curriculog.com/proposal:22312/form

Area Committee D, Humanities and Social Sciences (William (Bart) Collins, chair; bcollins@purdue.edu):

Graduate Council Document 23-2a, **ILS 51400, Information Skills For Health Professionals** (PWL) Lecture 2 times per week for 50 minutes for 8 weeks. Credit 1.

This course is designed to help you develop essential information skills to support your professional goals and prepare you to succeed in graduate or professional school in the health sciences. Learn how to navigate PubMed and other subject-specific databases, and differentiate between various types of research articles. Become adept at saving, organizing, and annotating articles so you can easily locate them, "cite while you write," and share them with your classmates or research group. Prepare for writing for publication. And avail yourself of the resources and services academic libraries provide, beyond books and journals, to support your coursework and research. Permission from department or instructor required.
https://purdue.curriculog.com/proposal:22941/form

Graduate Council Document 22-50a, **LC 57300, Methods Of Experimental Research In Linguistics** (PWL) Lecture 2 times per week for 75 minutes. Credit 3.

The course is an overview of experimental methods used in linguistic research. The goal of the course is to introduce basic concepts, terminology, and procedures associated with experimental research in general, and to survey the types of experiments typically conducted in several major subfields of linguistics, including the associated experiment designs and approaches to data analysis. The course will focus mainly on designing and conducting the experiment, rather than on data analysis, although the data analysis techniques appropriate to the types of data will be briefly discussed whenever possible. The course will also cover additional topics such as ethics of experimental research (preparing an IRB protocol), doing background research, getting funding, choosing the right conference for presenting the results, writing a conference abstract, creating and delivering a conference presentation/poster, and writing up the results for publication.

https://purdue.curriculog.com/proposal:22280/form

Graduate Council Document 22-50b **LC 57700, Acoustic Analysis Of Speech** (PWL) Lecture 2 times per week for 75 minutes. Credit 3.

This course is an introduction to those aspects of acoustics most pertinent to understanding speech production and perception. It covers sound waves and their properties, digital signal processing, hearing and loudness, sound recording, and details of the acoustics of specific speech sounds such as vowels, plosives, fricatives, and nasals. The course includes a prominent practicum component aimed at learning to use software tools, specifically Praat, for analyzing acoustic properties of speech sounds.

https://purdue.curriculog.com/proposal:22279/form

Graduate Council Document 22-48a, **PHIL 56300, Directed Reading: Greek Philosophy Texts And Translations** (PWL) Lecture 1 time per week for 75 minutes. Credit 1.

In this course we shall focus on an important Greek philosophical text in fine detail. We will be working in the original language, not from an English translation. Participants will translate the text at hand and philosophical discussion will follow. Normally a Platonic dialogue or a work of Aristotle will be selected.

https://purdue.curriculog.com/proposal:22024/form

Area Committee E: Life Sciences, (Richard Grant, chair; rgrant@purdue.edu):

Graduate Council Document 22-49a, **HSCI 61300, Professionalism And Professional Development In Health Sciences** (PWL) Lecture 1 time per week for 50 minutes. Credit 1. Prerequisite(s): GRAD 61200.

Professionalism is a skill set necessary for graduate student success and future career development. Professionalism consists of multiple attributes allowing for the development of effective and productive careers while also contributing to positive workplace environments.

Specifically, these skill sets benefit all disciplines and career paths. This course will provide students with an overview of career development, soft skills, responsible conduct of research, and diversity, equity, and inclusion. This 1-credit course is specifically designed to supplement initial RCR training students receive in GRAD61200. The course is designed to support additional RCR training to meet expectations for best practices by NIH and other funding agencies. It will focus on professionalism and professional development for new students in their MS and Ph.D. programs across the Health Sciences. It will be delivered as a 50-min. combined lecture and class discussion once a week. All Ph.D. and thesis-based MS students in the School of Health Sciences are expected to take this course, typically in the Spring of their second or third year. Permission from department required.
https://purdue.curriculog.com/proposal:22152/form

Graduate Council Document 22-49b, **HSCI 62500, Grant Writing For Health Sciences** (PWL) Lecture 1 time per week for 50 minutes. Credit 1.

The ability to clearly communicate research concepts, ideas, and hypotheses is an essential skill for all researchers. Specifically, concise expression of complex research rationale, experimental design, and innovation through the grant application process benefits all disciplines and career paths. This course will provide students with an overview of the entire grant writing process through expert lectures, active discussion, writing activities, and peer-review processes.
https://purdue.curriculog.com/proposal:21993/form

Area Committee F, Management Sciences (Nicole, Widmar, chair; nwidmar@purdue.edu):

Graduate Council Document 22-11b, **ECON 56700, Managerial Economics And Business Strategy** (PWL) Lecture 2 times per week for 75 minutes. Distance. Individual Study. Credit 1 to 4. Prerequisite(s): ECON 51400.

This course studies optimal decision-making processes made by managers and policy makers within firms and other organizations. The course is based on microeconomics and applies advanced microeconomics related concepts with an emphasis on pricing strategies. The course covers topics such as monopolies (price discrimination, optimal pricing strategies), advanced strategic decision making and imperfect competition (optimal pricing and production), new product introductions, product variety offered on the market, and entry deterrence strategies. We use a variety of examples and applications, and operate with modern tools (Game Theory) that facilitate the decision making process for individuals, policy makers and managers. The main goal of this course is to provide a basis for a good understanding of the logical mechanics, and to provide a good intuition in managerial economics and business decision making processes that facilitate the understanding of daily business problems. Permission from instructor required.
https://purdue.curriculog.com/proposal:22448/form

Graduate Council Document 22-10L, **MGMT 51099, Practicum In Taxation Compliance And Consulting** (PWL) Lecture (1 credit) 1 time per week for 50 minutes. Lecture (2 credits) 1 time per week for 100 minutes or 2 times per week for 50 minutes. Lecture (3 credits) 1 time per week

for 150 minutes or 2 times per week for 75 minutes or 3 times per week for 50 minutes. Credit 1 to 3.

MGMT 51099 is an experiential course to provide real-world experience and significant community service through volunteer tax compliance and consulting. The course partners with the Internal Revenue Service Volunteer Income Tax Assistance Program to provide significant free tax preparation and consulting services to low- and middle-income families in the Greater Lafayette community with an additional focus on providing these services to international students at Purdue. Learning outcomes include technical tax abilities as well as soft skills in a professional services environment.

https://purdue.curriculog.com/proposal:22324/form