PURDUE UNIVERSITY
GRADUATE SCHOOL

Minutes of the Graduate Council Meeting
March 26, 2020

Fifth Meeting – No face to face meeting due to COVID-19

I. MINUTES
The minutes of the February 20, 2020, Graduate Council meeting were approved via Qualtrics survey.

II. AREA COMMITTEE REPORTS (Area Committee Chairs)
Graduate Council Document 20C, Graduate Council Documents Recommended for Approval. See Appendix B. Voted via Qualtrics survey.

APPENDIX A

PENDING DOCUMENTS

(March 2020)

BOLDED ITEMS ARE IN REVIEW WITH AN AREA COMMITTEE

Area Committee A, Behavioral Sciences (Signe Kastberg; chair, skastber@purdue.edu):
***Graduate Council Document 20-13a,* EDCI 52001, Curriculum and Instruction Online MS Seminar I (PWL)**
***Graduate Council Document 20-13b,* EDCI 52002, Curriculum and Instruction Online MS Seminar II (PWL)**
***Graduate Council Document 20-14a,* EDPS 55300, Application Of Applied Behavior Analysis To Manage And Support Personnel (PWL)**
***Graduate Council Document 20-14b,* EDPS 62800, The Behavior Analyst As Supervisor (PWL)**
***Graduate Council Document 20-11b,* SLHS 57401, Hearing Aids II (PWL)**

Area Committee B, Engineering, Sciences, and Technology (Samuel Midkiff; chair, smidkiff@purdue.edu):

***Graduate Council Document 20-22a,* AT 54800, Aircraft Asset Management (PWL)**
***Graduate Council Document 20-22b,* AT 54900, Aircraft Leasing (PWL)**
***Graduate Council Document 19-62a,* CNIT 52300, File Systems Forensics (PWL)**
***Graduate Council Document 19-62b,* CNIT 52500, Mobile and Embedded Device Forensics (PWL)**
***Graduate Council Document 19-64a,* CS 58300, Big Data Analytics in Cloud Computing (PFW)**
***Graduate Council Document 19-38c,* CSCI 52500, Parallel Computing (IUPUI)**
***Graduate Council Document 19-38d,* CSCI 57500, Computer Systems Security (IUPUI)**
***Graduate Council Document 29-15f,* ECE 52500, Introduction To Computer Graphics, PNW)**
***Graduate Council Document 19-15g,* ECE 56810, Design with Embedded Systems (IUPUI)**
Graduate Council Document 19-15a,* ECE 61020, Operation of Modern Power Systems (PWL) *Graduate Council Document 19-61a,
***Graduate Council Document 20-7a,* ENGT 55000, Manufacturing System Design For Sustainability (PWL)**
***Graduate Council Document 19-61a,* ENGT 58300, Applied Engineering Statistics for Industry (PWL) (PFW)**
***Graduate Council Document 20-19a,* ME 53500, Design and Modeling of Fluid Power Systems (PWL)**
***Graduate Council Document 19-17d,* ME 59100, Mechanical Engineering Project (IUPUI)**
***Graduate Council Document 19-39c,* MSE 67000, Atomistic View of Materials: Theory, Modeling And Simulations (PWL)**
***Graduate Council Document 20-18a,* MSE 69600, Graduate Professional Practice (PWL)**
***Graduate Council Document 19-65a,* MSTE 57200, Vehicle Dynamics, (IUPUI)**
***Graduate Council Document 19-65b,* MSTE 57400, Advanced Vehicle Dynamics, (IUPUI)**
***Graduate Council Document 20-21a,* MSTE 57800, Composite Materials For Automotive Applications, (IUPUI)**
***Graduate Council Document 20-21b,* MSTE 57900, Design And Analysis Of Materials And Structures In Lightweight Vehicles, (IUPUI)**
***Graduate Council Document 19-65c,* MSTE 58200, Motorsports Aerodynamics, (IUPUI)**
***Graduate Council Document 19-65d,* MSTE 58400, Advanced Motorsports Aerodynamics, (IUPUI)**
***Graduate Council Document 20-21c,* MSTE 59200, Motorsports Simulations, (IUPUI)**

Area Committee D, Humanities and Social Sciences (Manushag (Nush) Powell, chair; mnpowell@purdue.edu):
***Graduate Council Document 19-2k,* ENGL 55702, Modern and Contemporary American Poetry (PFW)**
***Graduate Council Document 19-L,* ENGL 64401, Designing A Poetry Course – Using Poetry for the People (PFW)**

APPENDIX B

GC Document 20-C

DOCUMENTS RECOMMENDED FOR APPROVAL
BY THE GRADUATE COUNCIL
March 26, 2020

GRADUATE COURSE PROPOSALS:

5 courses

Area Committee A, Behavioral Sciences (Signe Kastberg; chair, skastber@purdue.edu):

Graduate Council Document 20-13a, EDCI 52001, Curriculum and Instruction Online MS Seminar I (PWL) Sem. 1 and 2. SS. Distance. Credit 1.

This boot camp is designed to help you to understand the knowledge and skills necessary for your successful online learning in the Curriculum and Instruction program. 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 about various learning strategies and online resources that you can utilize in your courses. In this seminar, you will be responsible for completing all assignments on time over the course of the semester. Read the guidelines for each week and complete the assignments. NOTE: This course is a core course in the C&I online masters program. A grade of B- or better is required (if a lower grade is received, the course must be retaken). Permission of department required.
https://purdue.curriculog.com/proposal:9962/form

Graduate Council Document 20-13b, EDCI 52002, Curriculum and Instruction Online MS Seminar II (PWL) Sem. 1 and 2. SS. Distance. Credit 1. Prerequisites: EDCI 52001

This seminar is designed to help you to understand the knowledge and skills necessary for your success throughout the Curriculum and Instruction program. In addition to providing you with information that will help you succeed in the program, you are also asked to think about ways to make yourself more marketable to current and future employers. Permission of department required.
https://purdue.curriculog.com/proposal:9971/form

Graduate Council Document 20-14a, EDPS 55300, Application Of Applied Behavior Analysis To Manage And Support Personnel (PWL) Sem. 1 and 2. SS. Distance. Credit 3.

This course will teach students how to use applied behavior analysis to maximize the potential of an organization. Students will learn the role of a Behavior Analyst in implementing principles of applied behavior analysis to motivate employees, intervene with challenges in the organization, evaluate the program, and collect and deliver ongoing performance feedback. Permission of instructor required.
https://purdue.curriculog.com/proposal:10866/form

Graduate Council Document 20-14b, EDPS 62800, The Behavior Analyst As Supervisor (PWL) Sem. 1 and 2. SS. Distance. Credit 3. Prerequisites: EDPS 61200.

This course will address the provision of supervision of behavior analysis trainees and technicians utilizing principles and procedures of applied behavior analysis. Application of goal development, behavioral skills training, and progress monitoring within a behavioral analytic framework will be explored. Permission of instructor required.
https://purdue.curriculog.com/proposal:10869/form

Graduate Council Document 20-11b, SLHS 57401, Hearing Aids II (PWL) Sem. 1. Lecture 1 time per week for 100 minutes. Credit 2. Prerequisites: SLHS 56400.

The focus of this course is on the evolving technology in hearing aids with an emphasis on the information students will need to make efficacious clinical decisions not only for the hearing aids of today but also for the hearing aids of tomorrow. For each of the hearing aid features that are discussed, we review (1) the need or potential benefit to the patient, (2) the engineering behind the feature, (3) research supporting its efficacy and effectiveness, (4) its limitations, and (5) how to conduct routine clinical measurements to document its functioning.
https://purdue.curriculog.com/proposal:12799/form

13 courses

Area Committee B, Engineering, Sciences, and Technology (Samuel Midkiff; chair, smidkiff@purdue.edu):

Graduate Council Document 19-62a, **CNIT 52300, File Systems Forensics** (PWL) Sem. 1. Lecture 1 time per week for 100 minutes per meeting. Laboratory 1 time per week for 100 minutes per meeting. Credit 3. Prerequisites: CNIT 42000 or CNIT 55600.

The plethora of strategies to store information in different formats continues to expand. This course examines the various media and strategies of storing information and the processes of documenting the collection, imaging, and processing of forensic evidence. Topics include file formats, file systems, hardware, and software involved in forensic investigation. The overall pattern of forensic evidence in file systems will be examine along with the acquisition, analysis, and reporting of evidence artifacts found in file systems.
https://purdue.curriculog.com/proposal:7797/form

Graduate Council Document 19-62b, **CNIT 52500, Mobile and Embedded Device Forensics** (PWL) Sem. 1. Lecture 1 time per week for 100 minutes per meeting. Laboratory 1 time per week for 100 minutes per meeting. Credit 3. Prerequisites: CNIT 55600.

Consumer technologies are rapidly moving forward with items integrating processing, storage, and transmission into their base functionality. The enterprise issues with the trend of "bring your own device" has rapidly expanded requirements on forensics investigators to address a plethora of mobile device types. Whether it is the automobile black box or a home thermostat,

there are various elements of interesting evidence possible to be gained. The embedded and consumer device pantheon is developing as an important area of forensic science. This course explores techniques for conducting forensic analyses on a wide variety of mobile and embedded devices.
https://purdue.curriculog.com/proposal:7762/form

Graduate Council Document 19-64a, **CS 58300, Big Data Analytics in Cloud Computing** (PFW) Sem. 1 and 2. Lecture 1 time per week for 165 minutes per meeting. Credit 3.

This course brings together the principles of large-scale distributed computing and the state of the art for Big Data Analytics in the Cloud. This course will first overview Cloud computing which is a service model for large-scale distributed computing, and the representative platform, Hadoop. Then, the course will introduce MapReduce which is a scalable programming model for processing Big Data on a cluster and have in-depth analysis of various algorithmic design patterns, and go on to explore Big Data Analytics applications on Hadoop MapReduce and Spark. Afterwards, the course will introduce NoSQL systems for Big Data storage. This course will also show how to deal with services from public cloud infrastructures.
https://purdue.curriculog.com/proposal:11157/form

Graduate Council Document 19-38c, **CSCI 52500, Parallel Computing** (IUPUI) Sem. 2. Lecture 2 times per week for 75 minutes per meeting. Credit 3. Prerequisites: CSCI 40200 and some programming experience with C or a similar programming language.

Parallel computing for science and engineering applications: parallel programming and performance evaluation, parallel libraries and problem-solving environments, models of parallel computing and run-time support systems, and selected applications.
https://purdue.curriculog.com/proposal:11202/form

Graduate Council Document 19-38d, **CSCI 57500, Computer Systems Security** (IUPUI) Sem. 1. Lecture 2 times per week for 75 minutes per meeting. Credit 3.

This course aims at explaining how to build systems to remain dependable in the face of malice, error, or mischance. The course focuses on the tools, processes, and methods needed to design, implement, and test complete systems, and to adapt existing systems as their environment evolves. The course builds on students' prior foundation from studies in computer security, networks, operating systems and computer architecture. Material covered in the class will include some concepts from several textbooks and research papers. The course is highly interactive, based on class discussions. An important part of the course will be dedicated to improving research skills, such as writing papers and preparing presentations.
https://purdue.curriculog.com/proposal:11203/form

Graduate Council Document 19-15f, **ECE 52500, Introduction To Computer Graphics** (PNW) Sem. 1 and 2. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: MA26500 or equivalent, and good C/C++ programming skills.

This course introduces techniques for 2D and 3D computer graphics, including modeling and representation, rendering, illumination and shading, texturing, and 3D programming techniques with modern OpenGL as the industry standard and GLSL for high performance graphics. The

student will learn fundamental algorithms and techniques and gain the knowledge necessary to understand and augment the latest innovations in computer graphics.
https://purdue.curriculog.com/proposal:9426/form

Graduate Council Document 19-15g, **ECE 56810, Design with Embedded Systems** (IUPUI) Sem. 1 and 2. SS. Lecture 2 times per week for 75 minutes per meeting. Credit 3. Prerequisites: ECE 36200 Microprocessor Systems and Interfacing, Prerequisite by topic: Basic knowledge of digital systems equivalent to a course in digital logic and microprocessor architecture. Familiarity with C language.

This course provides an overview of the architectures, design considerations, features and applications of embedded processors with digital signal processing capabilities. The course emphasizes design consideration for embedded systems. Different applications such as Internet of Things, Voiceover IP, Machine to Machine, Wearable Devices, Smart Homes, Medical Devices, Drones and Wireless Systems, are considered.
https://purdue.curriculog.com/proposal:9733/form

Graduate Council Document 19-15a, **ECE 61020 Operation of Modern Power Systems** (PWL) Sem. 2. Lecture 3 times per week for 50 minutes. Credit 3.

Introduction to modern power system operations. Economic dispatch of assets as a constrained optimization problem, and solution methods. The unit commitment problem formulation, and solution methods. Power flow solution methods. Security-constrained economic dispatch and unit commitment. The optimal power flow. Automatic generation control. Operation of power markets.
https://purdue.curriculog.com/proposal:5818/form

Graduate Council Document 19-61a, **ENGT 58300, Applied Engineering Statistics for Industry** (PWL) (PFW) Sem. 1 and 2. SS. Individual Study and Distance. Credit 3.

The purpose of this course is to teach the practitioner how to use and make better informed decisions as a manager for making optimum process, business, or personnel decisions. Emphasis will be placed on Verification, Validation in R&D, Manufacturing, QA/QC, basic probability, Summarizing Data, Basic Tools (flowcharts, fishbone diagrams, Pareto charts), Process Capability - Cp/Cpk. Upper and lower control limits/charts, Use of Control Charts for Continual Improvement, Six Sigma, Design of Experiments, Taguchi Methodology and Data Analytics will also be covered. https://purdue.curriculog.com/proposal:4266/form

Graduate Council Document 19-17d, **ME 59100, Mechanical Engineering Project** (IUPUI) Sem. 1 and 2. SS. Individual Study 1 time per week for 50 – 150 minutes per meeting. Variable Credit 1 to 3. Prerequisites: Graduate standing.

Individual advanced study in various fields of mechanical engineering. May be repeated for up to 6 credit hours. Students registered for this course must have weekly meeting with the instructor for at least an hour.
https://purdue.curriculog.com/proposal:10498/form

Graduate Council Document 19-65a, **MSTE 57200, Vehicle Dynamics,** (IUPUI)
Sem. 1. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: Graduate standing or MSTE 21000 and ME 27000.

Vehicle dynamics is the study of behavior of vehicles in motion. The study is one of the most important activities in the Vehicle design and development cycle to design vehicles which drive well and are comfortable to ride in. The course focuses on the development of advanced mathematical engineering models that represent the behavior of automotive vehicles and vehicle subsystems. Topical emphasis is focused on rectilinear performance, steady state handling behavior, tire models and suspension models.
https://purdue.curriculog.com/proposal:8875/form

Graduate Council Document 19-65b, **MSTE 57400, Advanced Vehicle Dynamics,** (IUPUI) Sem. 2. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: MSTE 57200.

An investigation into advanced topics in the field of vehicle dynamics. This course covers the principles and applications of vehicle handling dynamics from an advanced perspective in depth. The methods required to analyze and optimize vehicle handling dynamics are presented, including tire compound dynamics, vehicle planar dynamics, vehicle roll dynamics, full vehicle dynamics, and in-wheel motor vehicle dynamics. The provided vehicle dynamic model is capable of investigating drift, sliding, and other over-limit vehicle maneuvers. This is an ideal course for postgraduate and research students and engineers in motorsports, mechanical, automotive, transportation, and ground vehicle engineering.
https://purdue.curriculog.com/proposal:8876/form

Graduate Council Document 19-65c, **MSTE 58200, Motorsports Aerodynamics,** (IUPUI) Sem. 1. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: Graduate standing or ME 31000 (Fluids), ME 20000 (Thermo), and MSTE 35000 (Advanced CAD).

The study and adaptation of fluid flow and aerodynamics as applied to motorsports design and performance optimization. This course is designed to reinforce student's understanding of aerodynamics as it pertains to a race car. This course breaks down the differences between actual air flow while driving / racing versus air flow within a wind tunnel, and how these flows are different. It discusses how to evaluate those flows, and determine if they need to be improved. It discusses ways to improve the aero on race cars.
https://purdue.curriculog.com/proposal:9014/form

2 courses

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

Graduate Council Document 19-2k, **ENGL 55702, Modern and Contemporary American Poetry** (PFW) Sem. 1 and 2. SS. Lecture 3 times per week for 50 minutes. Credit 3.

This course focuses on an intensive study of modern and contemporary American poetry, considers several of its most important movements (Imagism, Black Mountain School, Deep Imagism, Women-Centered Poetry, Regionalism, Beat Poetry, etc.), and focuses on several key poetic figures. Students will read a lot of twentieth-century American poetry, learn how to analyze and discuss it, and consider it in light of form, technique, theme, and cultural considerations. We will read to understand and analyze but also to learn how to deepen

enjoyment and appreciation. In the process, the course will introduce you to a variety of forms and techniques of contemporary American poetry, developing your critical skills in understanding and responding to poetic texts.
https://purdue.curriculog.com/proposal:11141/form

Graduate Council Document 19-L, **ENGL 64401, Designing A Poetry Course – Using Poetry for the People** (PFW) Sem. 1 and 2. SS. Lecture 2 times per week for 75 minutes. Credit 3.

In this class, we will study how to design a course for teaching poetry by using *June Jordan's Poetry for the People: A Revolutionary Blueprint.* You will create a viable syllabus, create guidelines for workshops, modeling poetic forms, develop cultural literacies by using writers from different races, classes, sexual orientations, genders, etc., and do this as a cooperative so that the finished tasks reveal and showcase a community for teaching—rescuing the canon, and giving power to our voices, and the people.
https://purdue.curriculog.com/proposal:10719/form

CERTIFICATES:

Area Committee A, Behavioral Sciences (Signe Kastberg; chair, skastber@purdue.edu):

Graduate Council Document 20-26a, Graduate Certificate in Advanced Methodologies in Behavioral, Social, and Health Sciences submitted by the Graduate School Administration (PWL)
https://purdue.curriculog.com/proposal:11090/form

Area Committee B, Engineering, Sciences, and Technology (Samuel Midkiff; chair, smidkiff@purdue.edu):

Graduate Council Document 20-3a, Graduate Certificate in Cybersecurity submitted by the Department of Computer Information Technology and Graphics (PNW)
https://purdue.curriculog.com/proposal:9357/form

MAJORS:

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

Graduate Council Document 20-17a, Major in Corporate Training and Communication Leadership submitted by the Graduate School Administration (PWL)
https://purdue.curriculog.com/proposal:12279/form

Area Committee E: Life Sciences, (Ryan A. Cabot, chair; rcabot@purdue.edu):

Graduate Council Document 20-16a, Major in Health Physics submitted by the School of Health Physics (PWL)
https://purdue.curriculog.com/proposal:12378/form

DEGREES:

Area Committee B, Engineering, Sciences, and Technology (Samuel Midkiff; chair, smidkiff@purdue.edu):

Graduate Council Document 20-27a, Ph.D. in Biomedical Engineering (Site Only) submitted by the Department of Biomedical Engineering, IUPUI
https://purdue.curriculog.com/proposal:10878/form

NEW DOCUMENTS RECEIVED
(After the March 26, 2020 Graduate Council Meeting)

Area Committee A, Behavioral Sciences (Signe Kastberg; chair, skastber@purdue.edu):

Graduate Council Document 20-13c, **EDCI 52301, Foundations Of Bilingual Education** (PWL) Sem.1 and 2. SS. Lecture 3 times per week for 100 minutes for 8 weeks. Distance. Credit 3. Prerequisites: C- is the lowest passing grade.

This course builds foundational and practical knowledge of children's bilingual development and the sociocultural, cognitive, philosophical, and educational basis for high-quality dual language and other bilingual education programs. It focuses on research and current issues related to the bilingual development of emergent bilinguals in K-12 contexts. It is designed for pre-service and in-service bilingual teachers and administrators, in addition to other teachers of English language learners and researchers interested in high-quality and equitable educational programs for bilingual students.

Graduate Council Document 20-13d, **EDCI 52401, Teaching Methods In Bilingual Education** (PWL) Sem.1 and 2. SS. Lecture 3 times per week for 100 minutes for 8 weeks. Distance. Credit 3. Prerequisites: C- is the lowest passing grade.

Application of theory, research, and guiding principles to providing high-quality instruction in dual language and other bilingual education programs in K-12 education. This course includes a specific focus on both program-level design of effective dual language programs, and effective language and literacy instruction for emergent bilingual students leading to high levels of bilingualism, biliteracy, and academic achievement. This course is designed for pre-service and in-service bilingual teachers and administrators, in addition to other teachers of English language

learners and researchers interested in high-quality and equitable educational programs for bilingual students.

Graduate Council Document 20-38a, **HK 50000, Introduction To Athletic Training Practice** (PWL) Sem.1. Lecture 1 time per week for 50 minutes. Laboratory 2 times per week for 100 minutes. Credit 3. Prerequisites: Admission to Professional Athletic Training Program.

This course covering the roles and responsibilities of an athletic trainer as well as the history, governance structure, and regulation of the athletic training profession. Instruction and practical application of taping, wrapping, bracing techniques, and protective equipment is also included. Permission of department required.

Graduate Council Document 20-38b, **HK 50600, Evidence Based Practice In Athletic Training** (PWL) Sem.1. Lecture 1 time per week for 50 minutes. Laboratory 1 time per week for 100 minutes. Credit 2. Prerequisites: Admission to Professional Athletic Training Program.

Introduction to research methodology, and qualitative and quantitative data analysis as related to evidence based practice of athletic training. The course addresses formulating clinical questions; searching, reading and appraising research; understanding levels of evidence; and citing and referencing works to become consumers of and designers of evidence. The course introduces students to the selection, application, and interpretation of basic descriptive, correlational, and interferential statistics. Permission of department required.

Graduate Council Document 20-38c, **HK 51500, Emergency Medical Management In Athletic Training** (PWL) Sem.1. Lecture 2 times per week for 50 minutes. Laboratory 2 time per week for 100 minutes. Credit 4. Prerequisites: Admission to Professional Athletic Training Program.

This course is designed to teach management concepts and skills used by athletic trainers in emergency situations. Topics addressing prevention, recognition, and management of lifethreatening and/or severe injury and illness are included. Application of skills that include the environment, CPR/AED, airway management, immobilization, bleeding control and sudden illness management are also addressed. Students will become certified in CPR/AED. Permission of department required.

Graduate Council Document 20-38a, **HK 52000, Evaluation And Management Of The Lower Quarter** (PWL) Sem.1. Lecture 1 time per week for 50 minutes. Laboratory 2 times per week for 100 minutes. Credit 3.

Course covering an in-depth study of the normal anatomical structures in the lower extremities, including joint structure and musculoskeletal/nervous systems. Also discussed are common risk factors and causes of injuries as identified by contemporary epidemiological studies, common injuries to each body part, typical symptoms, and common clinical signs associated with injuries and illnesses with the physically active. A lab covering the assessment and management techniques for injuries commonly seen will be included. Permission of department required.

Graduate Council Document 20-38e, **HK 53000, Evaluation And Management Of The Upper Quarter** (PWL) Sem.1. Lecture 1 time per week for 50 minutes. Laboratory 2 times per week for 100 minutes. Credit 3.

Course covering an in-depth study of the normal anatomical structures in the upper extremities, including joint structure and musculoskeletal/nervous systems. Also discussed are common risk factors and causes of injuries as identified by contemporary epidemiological studies, common injuries to each body part, typical symptoms, and common clinical signs associated with injuries and illnesses with the physically active. A lab covering the assessment and management techniques for injuries commonly seen will be included. Permission of department required.

Graduate Council Document 20-38f, **HK 53500, Athletic Training Interventions** (PWL) Sem. 2. Lecture 1 time per week for 50 minutes. Laboratory 2 times per week for 100 minutes. Credit 3. Prerequisites: Completion of HK 50000 with a grade of B- or better.

This course is designed to provide the student with the foundational theory and techniques related to injury and illness intervention. Included are topics addressing tissue healing, theories of pain and pain control, concepts of kinetic chain stability and mobility, as well as principles related to the use of therapeutic medications. Students will discover how to plan and implement a comprehensive reconditioning program for injuries and conditions sustained by physically active individuals. Permission of department required.

Graduate Council Document 20-38g, **HK 54000, Evaluation And Management Of The Spine And Head** (PWL) Sem. 2. Lecture 1 time per week for 50 minutes. Laboratory 2 times per week for 100 minutes. Credit 3. Prerequisites: Completion of HK 52000 and HK 53000 with a grade of B- or better.

Course covering an in-depth study of the normal anatomical structures in the spine and head, including joint structure and musculoskeletal/nervous systems. Also discussed are common risk factors and causes of injuries as identified by contemporary epidemiological studies, common injuries to each body part, typical symptoms, and common clinical signs associated with injuries and illnesses with the physically active. A lab covering the assessment and management techniques for injuries commonly seen will be included. Permission of department required.

Graduate Council Document 20-38h, **HK 54100, Athletic Training Practicum I** (PWL) Sem. 1. Experiential 16 weeks. Credit 2. Prerequisites: Admission into the Professional Athletic Training Program.

Fieldwork experiences designed to integrate acquired knowledge and skills through live or scenario based applications. Students will gain clinical experiences under the direct supervision of an athletic training preceptor either on or off campus. Emphasis will be placed on professional and ethical conduct, patient centered care, interprofessional collaborative practice, evidence-based practice, quality improvement, and health care informatics. Permission of department required.

Graduate Council Document 20-38i, **HK 54200, Athletic Training Practicum II** (PWL) Sem. 2. Experiential 16 weeks. Credit 2. Prerequisites: Successful Completion of HK 54100.

Fieldwork experiences designed to integrate acquired knowledge and skills through live or scenario based applications. Students will gain clinical experiences under the direct supervision

of an athletic training preceptor either on or off campus. Emphasis will be placed on professional and ethical conduct, patient centered care, interprofessional collaborative practice, evidence-based practice, quality improvement, and health care informatics. Permission of department required.

Graduate Council Document 20-38j, **HK 54300, Athletic Training Practicum III** (PWL) Sem. SS. Experiential 8 weeks. Credit 2. Prerequisites: Successful Completion of HK 54200.

Fieldwork experiences designed to integrate acquired knowledge and skills through live or scenario based applications. Students will gain clinical experiences under the direct supervision of an athletic training preceptor either on or off campus. Emphasis will be placed on professional and ethical conduct, patient centered care, interprofessional collaborative practice, evidence-based practice, quality improvement, and health care informatics. Permission of department required.

Graduate Council Document 20-38k, **HK 54500, Therapeutic Modalities** (PWL) Sem. 2. Lecture 1 time per week for 50 minutes. Laboratory 2 times per week for 100 minutes Credit 3. Prerequisites: Completion of HK 50000 with a grade of B- or better.

Course covering the physiological effects, indications, contraindications, and precautions of contemporary therapeutic modalities. Students will design and plan therapeutic interventions. Focus will be on the application of therapeutic modalities according to evidence based protocols. Included in this course will be the role of equipment safety and maintenance of therapeutic modalities. Permission of department required.

Graduate Council Document 20-38L, **HK 55000, Evaluation And Management Of Medical Conditions** (PWL) Sem. 2. Lecture 1 time per week for 50 minutes. Laboratory 2 times per week for 100 minutes Credit 3. Prerequisites: Completion of HK 52000 and HK 53000 with a grade of B- or better.

Course covering an in-depth study of the normal anatomical structures in the thorax and abdomen, including the cardiovascular, digestive, urinary, reproductive, endocrine, and lymphatic systems. Also discussed are common risk factors and causes of injuries as identified by contemporary epidemiological studies, common injuries to each body part, typical symptoms, and common clinical signs associated with injuries and illnesses with the physically active. A lab covering injury assessment techniques of common illnesses and disease most often encountered by allied healthcare professionals will be included. Permission of department required.

Graduate Council Document 20-38m, **HK 55500, Principles Of Manual Medicine** (PWL) Sem. SS. Lecture 1 time per week for 50 minutes. Laboratory 1 time per week for 100 minutes Credit 2. Prerequisites: Completion of HK 53500 with a grade of B- or better.

This course will provide students with the theory, skills, and clinical application of manual medicine. The emphasis will be placed on passive and dynamic joint mobilizations, connective tissue massage, deep friction massage, lymphatic massage, myofascial release, passive range of motion exercises, muscle energy techniques, and nerve mobilization. All skills will be introduced through onsite demonstration and hands-on practice. Permission of department required.

Graduate Council Document 20-38n, **HK 56000, Advanced Procedures In Athletic Training** (PWL) Sem. SS. Lecture 1 time per week for 50 minutes. Laboratory 1 time per week for 100 minutes. Credit 2. Prerequisites: Completion of HK 50000 with a grade of B- or better.

This course aims to provide students with advanced psychomotor skills in athletic training, such as wound closure, orthopedic casting, orthotic fabrication, biometrics and other emerging techniques and technologies. Skill integration into practice will be considered and practice act concerns will be discussed. Permission of department required.

Graduate Council Document 20-38o, **HK 58300, Patient Care Simulation In Athletic Training I** (PWL) Sem. 2. Laboratory 1 time per week for 250 minutes. Credit 2. Prerequisites: Completion of HK 50600 with a grade of B- or better.

This course is designed to refine psychomotor skills and apply specific athletic training proficiencies integrating cognitive concepts and skills into progressively higher-level practical application. Skill integration will be achieved through successful completion and evaluation of patient care scenarios with emphasis placed on clinical reasoning skills of the student while making point of care decisions. Permission of department required.

Graduate Council Document 20-38p, **HK 63000, Administration Of Athletic Training Programs** (PWL) Sem. 1. Lecture 2 times per week for 50 minutes. Credit 2. Prerequisites: Completion of HK 50000 with a grade of B- or better.

Course covering management and supervision of personnel, financial resources, as well as the preparation in planning, designing, developing, organizing, implementing, directing, and evaluating an athletic training health care program and facility. Legal concerns, risk management, insurance, and reimbursement will be discussed. Permission of department required.

Graduate Council Document 20-38q, **HK 63500, Injury Prevention And Health Promotion** (PWL) Sem. 1. Lecture 3 times per week for 50 minutes. Credit 3. Prerequisites: Completion of HK 53500 with a grade of B- or better.

This course emphasizes theory and strategies for behavioral change relating to healthy lifestyles and specific health conditions. Analyses of major injury problems affecting patients in the workplace, community, at home, and in activity along with basic principles of nutrition and exercise as they pertain to individual health and activity are included. Permission of department required.

Graduate Council Document 20-38r, **HK 64000, Leadership In Athletic Training** (PWL) Sem. 2. Lecture 2 times per week for 50 minutes. Credit 2. Prerequisites: Completion of HK 63000 with a grade of B- or better.

This course is designed to prepare students to embark on paths of personal leadership development. The course will examine leadership theory and research and emphasize the development of leadership and interpersonal skills. Understanding various methods of bringing about change will be provided and researched by learners, and then discussed in our time together. Students in this course will apply foundational business concepts in athletic training through self-assessment case studies and professional experiential exercises. Pemission of department required.

Graduate Council Document 20-38s, **HK 64100, Athletic Training Practicum IV** (PWL) Sem. 1. Experiential for 16 weeks. Credit 8. Prerequisites: Successful completion of HK 54300.

Fieldwork experiences designed to integrate acquired knowledge and skills through live or scenario based applications. Students will gain clinical experiences under the direct supervision of an athletic training preceptor either on or off campus. Emphasis will be placed on professional and ethical conduct, patient centered care, interprofessional collaborative practice, evidence-based practice, quality improvement, and health care informatics. Permission of department required.

Graduate Council Document 20-38t, **HK 64200, Athletic Training Practicum V** (PWL) Sem. 2. Experiential for 16 weeks. Credit 6. Prerequisites: Successful Completion of HK 64100.

Fieldwork experiences designed to integrate acquired knowledge and skills through live or scenario based applications. Students will gain clinical experiences under the direct supervision of an athletic training preceptor either on or off campus. Emphasis will be placed on professional and ethical conduct, patient centered care, interprofessional collaborative practice, evidence-based practice, quality improvement, and health care informatics. Permission of department required.

Graduate Council Document 20-38u, **HK 64500, Psychosocial Interventions In Athletic Training** (PWL) Sem. 1. Lecture 1 time per week for 50 minutes. Laboratory 1 time per week for 100 minutes. Credit 2. Prerequisites: Completion of HK 53500 with a grade of B- or better.

The focus of this course is on identification, referral, and treatment options for patients with organic and non-organic mental health conditions commonly seen in athletic training. The course will also address cultural competence in patient care and the role of various mental healthcare providers that comprise the mental health referral network. Permission of department required.

Graduate Council Document 20-38v, **HK 65000, Seminar In Athletic Training** (PWL) Sem. 2. Lecture 3 times per week for 50 minutes. Credit 3. Prerequisites: Completion of HK 63000 with a grade of B- or better.

This course is a culminating experience in athletic training that will provide the student with a comprehensive review of athletic training foundational and specific knowledge regarding the Domains of Athletic Training. This course will help the student to prepare for athletic training practice. Permission of department required.

Graduate Council Document 20-38w, **HK 66000, Diagnostic Imaging In Athletic Training** (PWL) Sem. 2. Lecture 1 time per week for 50 minutes. Credit 1. Prerequisites: Completion of HK 58000 with a B- or better.

This course provides students with an intensive study of radiology. Students will understand the types of diagnostic images commonly used in sports medicine, as well as basic interpretive techniques used in radiology. The course will emphasize the systematic approach for diagnostic images and interpretation of various diagnostic reports. Permission of department required.

Graduate Council Document 20-38x, **HK 68300, Patient Care Simulation In Athletic Training II** PWL) Sem. 2. Laboratory 1 time per week for 250 minutes (66%). Lab Prep1 time per week for 100 minutes (33%). Credit 3. Prerequisites: Completion of HK 56300 with a grade of B- or better.

This course is designed to refine psychomotor skills and apply specific athletic training proficiencies integrating cognitive concepts and skills into progressively higher-level practical application. Skill integration will be achieved through successful completion and evaluation of patient care scenarios with emphasis placed on clinical reasoning skills of the student while making point of care decisions. Permission of department required.

Area Committee B, Engineering, Sciences, and Technology (Samuel Midkiff; chair, smidkiff@purdue.edu):

Graduate Council Document 20-32a, **AAE 52100, Plasma Laboratory** (PWL) Sem.2. Lecture 1 time per week for 50 minutes. Laboratory 1 time per week for 150 minutes. Credit 3. Prerequisites: AAE 53400 or graduate status.

The laboratory course will include lab prep lectures, practical classes and mini-projects. Lab prep lectures will briefly cover topics of the basic plasma physics and diagnostics relevant to the subsequent practical classes. In addition, details of the corresponding lab procedure, instructions and lab report assignment will be discussed. Practical classes will involve students in practical creation and operation of various plasma sources and plasma diagnostics. Specifically, students will operate DC high voltage breakdown facility, electrostatic accelerator (ion thruster), cross-field accelerator (Hall thruster), Atmospheric-Pressure Plasma Jet facility, and will conduct measurements of plasma parameters using Langmuir probes, microwave interferometer and optical spectrometer.

Graduate Council Document 20-32b, **AAE 53400, Spacecraft Electric Propulsion** (PWL) Sem.1. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: AAE 33400 or equivalent; PHYS 24100 or equivalent; or graduate status.

Spacecraft electric propulsion systems are intended to provide thrust for propelling spacecrafts in interplanetary missions, orbital maneuvers, and attitude control. The course will start with reviewing material on the mechanics and thermodynamics of propulsion, and identifying the niche occupied by the electric propulsion systems. The course will cover elements of plasma physics and electromagnetic theory essential for studying the electric propulsion systems. The core of the course will focus on studying various electric propulsion concepts which utilize electric power produced on-board to generate thrust. Mechanisms of the utilization of the electric power to accelerate gas or plasma and produce thrust will be considered, including electrothermal, electrostatic, electromagnetic, and gasdynamic acceleration mechanisms.

Area Committee C: Chemistry, Engineering, and Physical Sciences, John Morgan; chair, jamorgan@purdue.edu):

Graduate Council Document 20-35a, **ABE 53000, Plant Phenotyping Technologies** (PWL) Sem.1. Lecture 2 times per week for 50 minutes. Laboratory 1 time per week for 110 minutes. Credit 3.

Introducing concepts, models, algorithms, and tools in plant phenotyping development and application projects. Class topics include high-throughput phenotyping in greenhouse, field phenotyping platforms, Ag remote sensing, plant sensors (hyperspectral, 3D thermal, florescent,

X-ray, etc.), plant image processing technologies, statistical modeling, big data, database requirement, artificial intelligence algorithms, and hybridizations of the above techniques applied in plant phenotyping. Permission of instructor required.

Graduate Council Document 20-35b, **ABE 58500, Soil Microbiology** (PWL) Sem.2. Lecture 3 times per week for 50 minutes. Credit 3. [BIOL 22100 AND (AGRY 25500 or NRES 25500) AND (BCHM 30700 or CHM 33300)].

The soil microbial population and its role in the soil ecosystem; microbial transformations of inorganic and organic compounds; decomposition of residues; and dynamics of soil organic matter.

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

Graduate Council Document 20-33a, **MGMT 63350, Accounting Data Analytics** (PWL) Sem.1 and 2. SS. Lecture (2 credits) 2 times per week for 90 minutes for 8 weeks. Lecture (3 credits) 3 times per week for 90 minutes for 8 weeks Credit 2 or 3. Distance. Distance/Lecture.

The skillset that accountants have needed to perform math and to keep order has evolved from pencil and paper, to calculators, and then to spreadsheets and accounting software. A new skillset that is becoming more important for nearly every aspect of business is that of big data analytics: managing large amounts of data in the database, analyzing them and finding actionable insights and visualizing the results. This course is designed to help accounting students develop an analytical mindset and prepare them to use data analytic programming languages and softwares like python, SQL, and Tableau.