

PURDUE UNIVERSITY GRADUATE SCHOOL

Minutes of the Graduate Council Meeting
April 24, 2014
1:30 p.m.

Seventh Meeting
Room 302
Stewart Center

PRESENT: Mark J. T. Smith, chair; Council Members, Thomas W. Atkinson, Subramanian Balachander, John M. Barron, Lesa K. Beals, Janna L. Beckerman, Barrett S. Caldwell, Joy L. Colwell, Stacey L. Connaughton, Heidi A. Diefes-Dux, Daniel S. Elliott, Frederick S. Gimble, Linda M. Hite, Jessica E. Huber, Kumara Jayasuriya, Michael E. Kreger, Christopher F. Kulesza, Eric P. Kvam, Mark A. Lipton, Linda J. Mason, Suresh K. Mittal, Glenn R. Parker, Phillip E. Pope, Mary A. Sadowski, John H. Schild, Keith E. Schwingendorf, David G. Skalnik, Carol S. Sternberger, Jon A. Story J. Jill Sutor, Joseph Thomas III, Candiss B. Vibbert (Provost's Representative), Jane A. Walker, Jeffrey L. Whitten

APOLOGIES FOR ABSENCE RECEIVED FROM: Frank Blalark, Nancy E. Edwards, Chrystal S. Johnson, Bill V. Mullen, James L. Mullins, H. Holly Wang, Yan Ping Xin, Howard N. Zelaznik

GUESTS: Ken Burbank, Duane Dunlop, Debbie Fellure, Nasser Houshangi, Cyndi Lynch, James Mohler, George Nnanna, Pat Springer, Chenn Zhou

I. MINUTES

The minutes of the March 27, 2014, Graduate Council meeting were approved as distributed.

II. DEANS REMARKS AND REPORTS

- a) Dr. Mark J. T. Smith shared information from the Council of Graduate Schools (CGS). He noted that Debra Stewart would be retiring as the leader of the CGS. Suzanne Ortega will be assuming this position.
- b) Dr. Phil Pope gave a report of the administrative actions that had been taken by the Graduate School since the last council meeting (Appendix A).
- c) Dr. Pope gave a report on pending graduate program proposals in various stages of review/approval.
- d) Graduate School will be updating the current guidelines for proposing a

new degree program. The new guidelines will incorporate the Indiana Commission for Higher Education's policy and guidelines, as well as the Graduate Council/Graduate School's guidelines for the academic portion of the proposal. These new guidelines will be posted on the Graduate Programs Office webpage (www.purdue.edu/gpo).

III. AREA COMMITTEE REPORTS (Area Committee Chairs)

Graduate Council Document 14-C, Graduate Council Documents Recommended for Approval

Area Committee A, Behavioral Sciences (Heidi Diefes-Dux, chair; hdiefes@purdue.edu):

Graduate Council Document 14-4a, **ART 58100 Workshop in Architectural Engineering Technology** (IUPUI)

Graduate Council Document 14-4b, **ART 59800 Directed MS Project** (IUPUI)

Graduate Council Document 14-5a, **CEMT 58100 Workshop in Construction Engineering Management Technology** (IUPUI)

Graduate Council Document 14-5b, **CEMT 59800 Directed MS Project** (IUPUI)

Graduate Council Document 14-3a, **EDCI 62800 Curriculum and Instruction Doctoral Seminar I** (PWL)

Graduate Council Document 14-6a **IET 59800 Directed MS Project** (IUPUI)

Graduate Council Document 14-7a, **INTR 58100 Workshop in Interior Design Technology** (IUPUI)

Graduate Council Document 14-7b, **INTR 59800 Directed MS Project** (IUPUI)

Graduate Council Document 13-16a, **ITS 55200 Digital Forensics Techniques** (PUC)

Graduate Council Document 13-16d, **ITS 55400 Intrusion Detection and Prevention Systems** (PUC)

Graduate Council Document 13-35a, **TLI 53410 Implementation and Advanced Topics of Enterprise Six Sigma**, (PWL)

Graduate Council Document 13-35b, **TLI 62579 Global, Legal, and Ethical Issues in Technology Leadership**, (PWL)

Dr. Heide Diefes-Dux presented twelve courses for consideration. The courses were approved as a block by the council, upon a motion by Dr. Diefes-Dux.

Area Committee B, Special Committee as Needed (Stacey L. Connaughton, chair; sconnaug@purdue.edu):

Graduate Council Document 13-4i, **EDPS 51100 Expressive Arts Professional Project: Healing Through the Arts** (PUC)

Graduate Council Document 13-4j, **EDPS 51200 Expressive Arts: Painting, Poetry and Dreams** (PUC)

Graduate Council Document 13-4k, **EDPS 51300 Expressive Arts: Symbolism in Expressive Arts** (PUC)

Graduate Council Document 13-4l, **EDPS 52300 Human Growth and Development** (PUC)

Graduate Council Document 13-4g, **EDPS 53900 Ethics and Professional Identity for Mental Health Counselors** (PUC)

Dr. Stacey Connaughton presented five courses for consideration. The courses were approved as a block by the council, upon a motion by Dr. Connaughton.

Area Committee D, Humanities and Social Sciences (Glenn Parker, chair; parker6@purdue.edu):

Graduate Council Document 14-9a, SPAN 56401, Spanish Sociolinguistics, (PWL)

Dr. Glenn Parker presented one course for consideration. The course was approved by the council.

Area Committee A, Behavioral Sciences:

Graduate Council Document 13-13a, Proposal for an M.S. degree in Engineering Technology, submitted by the Department of Engineering Technology, College of Technology, PWL.

Representatives from the College of Technology were present to respond to questions. On behalf of the committee, Dr. Diefes-Dux made a motion to recommend approval of the proposal for a Master of Science degree in Engineering Technology, to be offered in the College of Technology at the West Lafayette campus. The motion was seconded, and it carried. The recommendation for approval will be forwarded to the president, via the provost, for approval by the Board of Trustees, with final approval required by the Indiana Commission for Higher Education.

Area Committee C: Engineering, Chemistry, and Physical Sciences:

Graduate Council Document 11-21a, M.S. in Mechanical Engineering, PUC

Graduate Council Document 11-9b, M.S. in Electrical and Computer Engineering, PUC.

Both proposals were pulled from consideration in 2012 by the Calumet campus Chancellor and resubmitted in 2014.

Dr. Michael Kreger, chair of Area Committee C, discussed the history of these proposals. He noted that when the proposals were submitted, they had been revised with updated information, which was included to satisfy the new Indiana Commission for Higher Education (ICHE) requirements. Because of this, some of the material was dated, which resulted in inconsistencies in the documents. In addition, the committee felt that the documents did not contain information that demonstrated that the faculty had been working with students in completing master's thesis. This information would have been required by the Graduate School in their administrative review. He also noted that the two proposals were identical to each other in a lot of aspects. These comments had been forwarded to the Calumet campus and within the last two days the area committee had received supporting documentation. This included updated faculty information, information about their research, grants, and courses that would be a part of these programs. Dr. Kreger stated that the area committee members had been given this information, but he did not feel that enough time had been given to them to do a thorough review at this time.

Dr. Joy Colwell, Director of Graduate Studies for the Calumet campus, noted that there were representatives present from the Mechanical Engineering, and Electrical and Computer Engineering areas and they would be available for questions. Dr. Colwell noted that concentrations were approved for ME and ECE which had evolved over the years. These concentration areas are developing into full program areas. Members of the council

asked that additional information regarding faculty mentoring be added to the proposals. Dr. Kreger asked that he be able to amend the motion to include a timeframe for the Calumet campus to respond with additional information for the proposals.

Dr. Glenn Parker made a motion to table the proposals until the additional information could be gathered. He felt that the council would benefit from a more formal discussion once the new information was received and reviewed by the area committee.

Dr. Candiss Vibbert, representative from the Office of the Provost, stated that the ICHE requirements were very specific, and all areas needed to be addressed. However, the Graduate Council was charged with reviewing the proposal for the academic information and requesting information as needed. The Graduate School plans to incorporate the ICHE guidelines and the needed academic information into one document that may be used for future proposals. Since this was not what the Calumet campus used as a guide in creating their proposals, it was felt that more time should be given to them to submit this information. Dr. Smith felt that holding up the proposals until the fall term would not be beneficial and supported the motion to allow the proposals to be considered, subject to the review and approval of the additional academic information that had been requested by the Graduate School and the area committee chair.

Dr. Chenn Zhou stated that she would be in favor of giving the Calumet campus two weeks to submit the additional information to the Graduate Council area committee chair.

Dr. Pope asked the members of the area committee if they would be available to review the additional information and they stated that they would be available for the next two weeks.

Dr. Smith asked for a second to Dr. Glenn Parker's motion to table the proposals. It was seconded. He asked for discussion. By a show of hands, the motion was defeated.

On behalf of the committee, Dr. Michael Kreger made a motion to recommend approval of the proposal for a Master of Science in Mechanical Engineering, to be offered by the Department of Mechanical Engineering, PUC; and a Master of Science in Electrical and Computer Engineering degree, to be offered by the Department of Electrical and Computer Engineering, PUC, subject to review and approval of the additional supporting information that had been requested by the committee. The information should be received by the area committee chair within two weeks. The motion was seconded, and it carried. Once the additional information is reviewed and approved, recommendation for approval of both proposals will be forwarded to the president, via the provost, for approval by the Board of Trustees, with final approval required by the Indiana Commission for Higher Education.

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

Mr. Christopher Kulesza, President of the Purdue Graduate Student Government (PGSG) for the 2014-2015 academic year, reported on the recent activities of the PGSG since the last council meeting.

V. NEW BUSINESS

- a) Diane Beaudoin, Director of Assessment in the Office of the Provost, gave a presentation on the Higher Learning Commission (HLC). Dr. Beaudoin discussed the role of the HLC and changes that are taking place in the accreditation process. She stated that the HLC is our regional accrediting association, previously called the North Central Association.

Dr. Beaudoin stated that the Higher Learning Commission accredits the University. Previously, the University would write a self-study every ten years and there would be a campus visit. Purdue University went through our last accreditation visit in 2010. There is now a new assurance system that should get updated each year. There is now a campus-wide quality initiative during years six through nine, with a proposal due in year five. This will be 2014-2015 for Purdue. There is also an assurance review in year four with a small self-study. A comprehensive review is done in year ten with a larger self-study and a campus visit.

The following require Higher Learning Commission prior approval:

- Addition of academic programs at a new degree level
 - Addition of academic programs that represent a significant departure from what the institution had previously been offering
 - Addition of programs that require substantial financial investment or resources
 - Substantial increase or decrease in credit hours of a program or change in clock or credit hours
 - Establishment of an additional campus or campus location
 - Establishment of a course location at either an international location or a location outside the institution's home state at which you offer five or more courses per year
 - If 25-50% of any educational program is outsourced to another party that is not accredited by U.S. Department of Education accreditor
 - If more than 50% of any educational program is provided by another U.S. accredited institution
- b) A presentation was given by Rebecca Logsdon, a Purdue University Ph.D. candidate in Agricultural and Biological Engineering and a participant in the Interdisciplinary Ecological Sciences and Engineering program; and Matt Bartolowits, Ph.D. candidate in Medicinal Chemistry and Molecular Pharmacology.

Ms. Logsdon stated that they had recently attended the Catalyzing Advocacy in Science and Engineering (CASE) Workshop in Washington, D.C. presented by the American Association for the Advancement of Science (AAAS). This was a three-day workshop for graduate students. The goal was to educate students in how congress works and how budgeting and structure works at this level. Of particular interest was how science funding fits into that structure. They also discussed how to communicate about science and engineering to non-science audiences. They met with some of the congressional offices, including AAAS, and the Library of Congress. Ms. Logsdon stated that there were several featured speakers who gave very interesting presentations.

Mr. Bartolowits noted that the workshop was well represented with 33 universities. He discussed the composition of the proposed fiscal year 2015 budget. He noted that the total outlays were \$3.9 trillion. Mr. Bartolowits noted that science funding had fallen in the recent years. There is a lot of support for more science funding, however, there is also push-back. Ms. Logsdon and Mr. Bartolowits both noted that this experience was very beneficial.

For a detailed breakdown of the budget and spending, a list of our Indiana representatives and their districts, and a list of opportunities for Purdue students, please see Appendix B.

VI. OLD BUSINESS

- a) Dr. Tom Atkinson, Graduate School Associate Dean, reported on *Graduate Council Document No. 14-8a*, Approval for Awarding Satisfactory (“S”) Grades When Final Examinations have been Passed and Theses/Dissertations Submitted.

Dr. Atkinson stated that the topic of awarding “S” grades when final exams have been passed and theses/dissertations have been submitted was presented to the Graduate Council members at a previous meeting. He noted that the Graduate School had received a request from the Office of the Registrar, to look into this practice. They had concerns with awarding the degree before the satisfactory grade was actually on the academic record.

Dr. Atkinson worked with University Registrar, Frank Blalark, to create a resolution. Please see Appendix C, *Graduate Council Document No. 14-8a*. Dr. Atkinson presented the resolution to the council members at the March 27, 2014, meeting. Dean Mark Smith stated that the council members had reviewed the document for one month and asked if anyone had any comments or concerns. Council members discussed the need to add an amendment to the resolution to include 59000 courses. A motion was made and seconded. The motion failed to pass. After a discussion by the council members regarding the awarding of a grade by the Registrar’s Office rather than the major professor, University Registrar Blalark noted that this had been taken into account when the resolution was written. The following statement was placed at the end of the document, “That the Office of the Registrar’s action shall happen automatically without direction from a major professor or other faculty member provided that a statement shall be added to the Final Examination Form stating, *Upon passing the final examination and submitting a thesis/dissertation, this student shall be awarded a grade of Satisfactory (“S”) in his/her research registration.*”

After additional discussion by the council members, the resolution was tabled until the September 18, 2014 council meeting.

- b) Dr. Phil Pope gave an update on the Technical Assistance Program (TAP) review of the graduate program and course approval processes. A committee, consisting of members of the Graduate Programs Office staff, Graduate

School deans, Heads, Chairs, and/or Contacts from several disciplines from all campuses, met to discuss ways to improve the process of approval for new degree proposals and graduate level course requests. Dr. Pope noted that the facilitators from TAP met with the Graduate Programs Office staff over the summer to incorporate suggestions from the committee into a new approval process for degree proposals and courses requests. The TAP committee will be providing a final report by the beginning of the fall term. He noted that the Graduate Programs Office was encouraged by the outcome of the TAP review and the result should be a much more efficient process than what we have had in the past.

- c) Dr. Linda Mason gave a brief update on The Three Minute Thesis (3MT™). This is a research communication competition developed by The University of Queensland.

The competition develops academic, presentation, and research communication skills and supports the development of students' capacities to effectively explain their research in language appropriate to an intelligent but non-specialist audience.

Graduate students have three minutes to present a compelling discussion on their research topic, and its significance and relevance to the general public. 3MT™ is not an exercise in trivializing or 'dumbing-down' research but forces competitors to consolidate their ideas and crystalize their research discoveries. It is a celebration of the discoveries made by graduate students and will allow the broader community to learn about on-going research at Purdue.

The 2014 competition was held in Fowler Hall on April 16, 2014. The winners this year were: 1st place, Pritish Kamat, Chemical Engineering; 2nd place, Ninger Zhou, Education; and People's Choice, Ian Klein, Science.

VII. CLOSING REMARKS AND ADJOURNMENT

Dr. Smith stated that the next council meeting will be on September 18, 2014, at 1:30 p.m. in Stewart Center, room 214 CD. The council meeting was adjourned by Dr. Smith at 3:40 p.m.

Mark J. T. Smith, Chair

Tina L. Payne, Secretary

APPENDIX A

REPORT OF ADMINISTRATIVE ACTIONS

April 24, 2014

1. Requisites and Attributes (e.g., prerequisite and corequisite deletions and changes; restrictions; instructor permission; course registration limitation by college/school, majors, programs, degrees, student levels, classifications)
 - BCM 52000 (PWL)
 - BCM 52500 (PWL)
 - BCM 53000 (PWL)
 - BCM 53500 (PWL)
 - BCM 54000 (PWL)
 - BCM 54500 (PWL)
 - BCM 55000 (PWL)
 - BCM 55500 (PWL)
 - BCM 56000 (PWL)
 - BCM 56500 (PWL)
 - BIOL 56400 (course description also changed) (IUPUI)
 - CS 53600 (PWL)
 - IE 53500 (PWL)
 - IE 53700 (semesters offered also changed) (PWL)
 - IE 53800 (semesters offered also changed) (PWL)
 - IE 55900 (PWL)
 - IE 58100 (PWL)
 - MGMT 54500 (PWL)
 - MGMT 54700 (PUC and PWL)
 - PHYS 59500 (course title and description also changed) (PWL)
 - STAT 59700 (course credit also changed) (PNC and PWL)

2. Changes in Course Credit
 - FIS 59700 (course title, description and semesters offered also changed) (IUPUI)
 - IPPH 56200 (schedule type changed also) (PWL)
 - NUR 50300 (PFW, PUC, PWL)

3. Change in instructional hours
 - AAE 55300 - "Adding Distance" (PWL)
 - CS 50500 - "Adding Distance" (PWL)
 - CS 52600 - "Adding Distance" (PWL)
 - CS 54100 - "Adding Distance" (PWL)
 - CS 55500 - "Adding Distance" (PWL)
 - CS 57300 - "Adding Distance" (PWL)
 - ECON 57400 - "Adding Distance" (PWL)
 - EDPS 66300 - "Adding Distance" (PUC and PWL)
 - EDST 66300 - "Adding Distance" (PWL)
 - HK 56700 - "Adding Distance" (PWL)

4. Existing Course Added at Other Campuses
MGMT 50600 (PNC)
MGMT 60800 (PNC)
OLS 54000 (PNC)
OLS 58700 (PNC)
5. Change in Course Attributes
FS 56400 (course title and description also changed) (PWL)
6. Downgrading of Course Level
EDPS 66000 to 56010 (adding distance and course requisite changed also) (PWL)
EDPS 66500 to 56510 (PWL)
7. Course Deletions
BCHM 57200 (PWL)
BCHM 59300 (PWL)
BCHM 64500 (PWL)
BCHM 65900 (PWL)
BCHM 66000 (PWL)
BCHM 66400 (PWL)
BCHM 66500 (PWL)
BCHM 66700 (PWL)
BCHM 66800 (PWL)
BCHM 69100 (PWL)
BCHM 69200 (PWL)
BCHM 69400 (PWL)
BCHM 69600 (PWL)
NUTR 52000 (PWL)
NUTR 52500 (PWL)
NUTR 58000 (PWL)
8. Course Cross-Listed with an Existing Course
BCHM 64000 (with HORT 64000) (PWL)
9. New Concentrations:

West Lafayette:
Aviation Technology (MSAAM)
 Sustainable Aviation Operations

Biological Sciences (MS)
 Computational Science

Chemistry (MS)
 Computational Science

Industrial and Physical Pharmacy (MS)
 Computational Science

Interdisciplinary Engineering (MS & MSE)
Mechanical Engineering & Management

Interdisciplinary Engineering (MS & MSE)
Mechanical Engineering & Management with Professional Practice

Mathematics (PHD)
Computational Science

Mechanical Engineering (PHD)
Interdisciplinary Ecological Science and Engineering

Technology (PUC) (MS)
Computer & Information Technology

10. New Titles of Concentrations:

Interdisciplinary Engineering

Professional Engineering to Engineering Management

Aeronautics and Astronautics for Professionals to Aeronautics and Astronautics with
Management

APPENDIX B

(PowerPoint of Rebecca Logsdon's Presentation on the CASE Workshop)

APPENDIX C

Resolution

Graduate Council Document No. 14-8a

Title: Approval for Awarding Satisfactory (“S”) Grades When Final Examinations have been Passed and Theses/Dissertations Submitted
Authors: Thomas W. Atkinson, Associate Dean of the Graduate School and Frank J. Blalark, University Registrar
Date: March 4, 2014

Graduate Council,

Whereas

For many years, the Graduate School’s Office of Graduate Student Records has cleared candidates for degrees, sometimes before Satisfactory (“S”) grades in research registrations have been posted on their University transcripts;

Observing

That there has never been a known error inappropriately awarding a degree to a graduate student who has successfully defended *and* submitted a thesis or dissertation;

Realizing

That the academic calendar would normally prevent research registration (699900/69800) grades from being posted before commencement celebrations in the Summer Session and Fall Semester, potentially resulting in many graduate students unable to receive their diplomas at these ceremonies;

And Further Realizing

That although research registration (69900/69800) grades would be available two, three, or four days prior to Spring Semester commencement ceremonies, the sheer volume of degree candidates during this Session would be potentially burdensome for the Graduate Student Records/Office of Registrar staff to review and clear if these staff members are required to wait for posting of research registration grades before clearing degree candidates;

Recognizing

The legitimate concern of the Office of the Registrar that degrees should not be awarded and diplomas should not be distributed until Satisfactory (“S”) grades are posted for Ph.D./Master’s research in the final session of enrollment;

Hearing

Support and endorsement for this idea from the West Lafayette associate college deans for graduate education, Office of the Registrar, and Graduate School;

Therefore, Be It Resolved

That the Graduate Council approves the Office of the Registrar to grant Satisfactory (“S”) grades in research (69900 and 69800 registrations) to all graduate degree candidates who have passed final examinations and have submitted a thesis or dissertation.

Be It Further Resolved

That the Office of the Registrar's action shall happen automatically without direction from a major professor or other faculty member provided that a statement shall be added to the Final Examination Form stating, *Upon passing the final examination and submitting a thesis/dissertation, this student shall be awarded a grade of Satisfactory ("S") in his/her research registration.*

APPENDIX D

PENDING DOCUMENTS

(September 18, 2014)

Area Committee A, Behavioral Sciences (Jeffery L. Whitten, jwhitten@purdue.edu):

*Graduate Council Document 13-9c, **ECET 55800 Mechatronics System Design, Modeling & Integration**, (PUC)*

*Graduate Council Document 13-5a, **EDCI 53800 Human Issues in Instructional Technology** (PUC)*

*Graduate Council Document 14-3b, **EDCI 63800 Curriculum and Instruction Doctoral Seminar II** (PWL)*

*Graduate Council Document 13-6b, **EDFA 53900 School Administration: The Effective School Executive** (PUC)*

*Graduate Council Document 13-6a, **EDFA 61700 Legal Aspects in American Education II** (PUC)*

*Graduate Council Document 13-4m, **EDPS 52600 Integrating Students with Special Needs: A Civil Rights Movement** (PUC)*

*Graduate Council Document 13-4n, **EDPS 52800 Research in Counseling** (PUC)*

*Graduate Council Document 13-4o, **EDPS 54600 Addictions Practicum** (PUC)*

*Graduate Council Document 13-16b, **ITS 52000 Web Applications**, (PUC)*

*Graduate Council Document 13-16c, **ITS 55100 Principles of Information Assurance**, (PUC)*

*Graduate Council Document 13-16d, **ITS 57000 Principles of Computer Networks and Communications**, (PUC)*

*Graduate Council Document 11-7m, **Graduate Certificate in Sustainability**, College of Technology (PWL) Pending additional information from department.*

*Graduate Council Document 12-21a, **Graduate Certificate in Sustainable Energy Technology**, School of Technology (PUC)*

Area Committee C, Engineering, Chemistry, and Physical Sciences (Barrett S. Caldwell, chair; bscaldwell@purdue.edu):

*Graduate Council Document 13-26a, **CHE 55100 Principles of Pharmaceutical Engineering** (PWL) Pending; additional information.*

*Graduate Council Document 13-26b, **CHE 55300 Pharmaceutical Process, Development and Design** (PWL) Pending; additional information.*

*Graduate Council Document 14-10a, **SE 55000 Advanced Manufacturing Systems and Processes**, (PFW)*

Area Committee D, Humanities & Social Sciences (Glenn R. Parker, chair; parker6@purdue.edu):

*Graduate Council Document 12-2a, **Graduate Certificate in Professional Selling and Customer Relationship Management**, Dept. of CSR, PWL*

Area Committee E: Life Sciences (Frederick S. Gimble, chair; edwardsn@purdue.edu):

*Graduate Council Document 13-23a, **HSCI 57100 Molecular Imaging** (PWL)*

APPENDIX E

NEW DOCUMENTS RECEIVED

(After the April 24, 2014 Graduate Council Meeting)

Area Committee C, Engineering, Chemistry, and Physical Sciences (Barrett S. Caldwell, chair; bscaldwell@purdue.edu):

Graduate Council Document 14-13a, CE 51600 Advanced Selected Topics in Civil Engineering (PFW) Sem. 1. and 2. Lecture 2 times per week for 75 minutes. Variable Credit 1 to 3. Prerequisites: Graduate standing, Senior in Engineering, or permission from instructor.

Formal classroom or individualized instruction on topics of current interest or contemporary issues. May be repeated for credit. Professor Ashur.

Graduate Council Document 14-13b, CE 51700 Advanced Water Treatment Processes (PFW) Sem. 1. and 2. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: CE 36500 or equivalent or permission from instructor.

Advanced water treatment mechanisms and processes, including physical chemical and microbiological processes, fate and transport of environmental contaminants, process fundamentals, reaction kinetics, partitioning and volatilization of environmental contaminants. Professor Chen.

Graduate Council Document 14-13d, CE 51900 Advanced Soil Mechanics (PFW) Sem. 1. and 2. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: CE 38000 and Ce 38100 or equivalent or permission from instructor.

This course presents an advanced treatment of soil mechanics with emphasis on the following topics: nature of soil; effective stress principle; permeability and seepage; stress-strain-strength behavior of coarse- and fined- grained soils; consolidation theory and settlement analysis; and laboratory and field methods for evaluation of soil properties in design practice. Concepts in course are reinforced by laboratory experiments.

Graduate Council Document 14-18a, ECE 53301 Wireless and Multimedia Computing (IUPUI) Sem. 1. and 2. SS. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: ECE 30100 and ECE 36500.

A treatment of Voice and Video over IP and wireless communication algorithms, protocols, standards and implementation using multicore digital signal processors and communications processor modules. Discussion of voice over IP and wireless communication algorithms, protocols and standards, and advanced wireless and voice over IP applications. Professor El-Sharkawy.

Graduate Council Document 14-18b, ECE 56401 Computer Security (IUPUI) Sem. 1. and 2. SS. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: ECE 40800 and ECE 36500.

In this course the discussion will include the following topics: (not necessarily in this order) security policies, confidential policies, integrity policies, security models, security design, access control, cryptography, key management, authentication, program and software, security, malicious logic, intrusion detection, network security, security attacks and countermeasures, operation system security, smartcard tamper-resistant devices, phishing, legal and ethical issues in computer security, and selected topics. Professor King.

Graduate Council Document 14-17a, FIS 50800 Forensic Science Laboratory Management (IUPUI) Sem. SS. Lecture 1 time per week for 100 minutes. Credit 2. Prerequisites: This course requires students to be admitted into the MS FIS Program. Any other graduate student wishing to take this course will require permission of the instructor.

This course will focus on the management of forensic science laboratories to include various organizational models, budgeting, and common laboratory policies. Other issues that may be discussed include differences in the management style (if any) that are needed for public and private sector laboratories, strategies for employee recruitment, training and retention, managing workflow and maintaining compliance with accreditation bodies such as ASCLD-LAB and ISO. Professor Goodpaster.

Graduate Council Document 14-17b, FIS 53000 Population Genetics (IUPUI) Sem. 2. Lecture 2 times per week for 75 minutes. Credit 3.

This course will serve as an introduction to the principles of population genetics. The course will cover the theory behind population genetics that includes a historical perspective to the current accepted models of population theory; examine the relationships between allele and genotype frequencies, and the fundamentals of molecular evolutionary genetics. Professor Picard.

Graduate Council Document 14-14a, ME 60101 Turbulence and Computational Modeling (IUPUI) Sem. 1 and 2. Lecture 2 times per week for 150 minutes. Credit 3. Prerequisites: Intermediate Fluid Mechanics (ME509) or Consent of Instructor.

This course consists of three parts: (i) turbulence principles including turbulence concepts, statistical description, and Kolmogorov hypothesis; (ii) major modeling concepts and formulations such as direct numerical simulation (DNS), large eddy numerical simulation (LES), and Reynolds averaged Navier-stokes simulation (RANS); (iii) Projects related to DNS/LES/RANS of turbulence with applications in environment, industry, and biomechanics. Professor Yu.

Graduate Council Document 14-14b, ME 65100 Advanced Finite Element Method for Solids (IUPUI) Sem. 2. Lecture 2 times per week for 150 minutes. Credit 3. Prerequisites: ME 55100 and ME 58100, Graduate Standing.

This course is designed to teach students advanced finite element techniques for solid mechanics stress and heat transfer analysis. Those include: techniques for modeling beams, plates and 2D/3D continua with material non-linearity, material plasticity and geometric non-linearity; heat transfer; modeling thermo-mechanical systems; frequency domain, time domain and quasi-static solutions; modeling of frictional contact; modeling rigid-bodies. Applications of the modeling techniques taught in this course will be introduced, including: modal analysis; stress-analysis with material and geometric non-linearity; structural dynamics with material and geometric non-linearity; frictional contact problems; metal forming and crash analysis. Professor Wasfy.

Graduate Council Document 14-16a, NUCL 58001 Essential Communication Skills for Nuclear Engineers (PWL) Sem. 1. Lecture 3 times per week for 50 minutes. Credit 3. Prerequisites: Admission to the graduate program in Nuclear Engineering

Essential communications skills for engineers with emphasis on communicating subject matter specific to the nuclear engineering field. Includes instruction, practice, and detailed feedback on written, oral, and graphical communications. Students learn to access, evaluate, and synthesize technical literature and practice skills necessary to prepare a literature review. Ethics and professional responsibilities, along with contemporary global economic, social and political issues are among the topics discussed. Professor Fentiman.

Area Committee D, Humanities & Social Sciences (Glenn R.Parker, chair: parker6@purdue.edu):

Graduate Council Document 14-19a, POL 60800 Qualitative Methods in Political Science (PWL) Sem. 1. and 2. Lecture 1 time per week for 150 minutes. Credit 3. Prerequisites: POL 50100.

This course is an introduction to the use of qualitative methods in political science. In addition to a detailed consideration of several leading qualitative approaches to political research, the course will also consider the distinctive issues of research design for qualitative research as well as the relationship of qualitative and quantitative methods. Professor Clark.

Area Committee E, Life Sciences (Frederick S. Gimble, chair: fgimble@purdue.edu):

Graduate Council Document 14-15b, BIOL 51601 Food Microbiology (PUC) Sem. 1 and 2. SS. Lecture 2 times per week for 80 minutes. Laboratory. Prerequisites: BIOL 31600 or equivalent.

An advanced microbiology course that covers food safety (foodborne diseases), food fermentation/production, spoilage, food preservation, and regulations. The laboratory teaches conventional as well as molecular methods for enumeration and detection of foodborne pathogens and food spoilage microbes in various types of food samples. Graduate student standing, or senior standing with consent of instructor. Professor Ting.

Graduate Council Document 14-15c, BIOL 51605 Environmental Microbiology (PUC) Sem. 1 and 2. SS. Lecture 1 time per week for 150 minutes. Laboratory. Prerequisites: BIOL 31600 and/or CHM 25600.

A dual level course for both graduate and senior undergraduate students who are interested in learning the diversity and characteristics of microbes in the environment (water, soil, and air); their roles in the environment such as recycling important elements, remediation of organic and metal pollutants; and their impacts on industry, agriculture as well as human health. Topics such as pathogens in the environment, waste water and drinking water treatments, and bioterrorism are also discussed. Laboratory activities provide students hand-on experience with testing and analyzing environmental samples for microbial activities and contaminations. Professor Ting.

Graduate Council Document 14-15d, BIOL 51801 Biology Ethical Frontiers (PUC) Sem. 1 and 2. SS. Lecture 2 times per week for 80 minutes. Prerequisites: BIOL 24400 and 244L and/or BIOL 24300 and/or BIOL 33300 is recommended. Additional undergraduate coursework should enrich student discussions and papers.

Advances in technology have produced many drugs, devices and scientific manipulations that can intervene in and alter human life at various levels. Advances in technology have also affected ecosystems, with serious implications for humans and other organisms. Questions have been raised about the ethics of these interventions at all levels. This course will review the science behind biological issues with ethical implications, using textbook material and primary scientific literature. Students will integrate this information and use it to explore and analyze scientific data, they will then formulate and justify ethical viewpoints on topics discussed. This course is for upper level undergraduates and graduate students. Professor Mania-Farnell.

Graduate Council Document 14-15e, BIOL 54401 Epigenetics (PUC) Sem. 1 and 2. SS. Lecture 2 times per week for 80 minutes. Prerequisites: BIOL 24400 and 244L and/or BIOL 24300. Courses related to molecular biology.

Epigenetics is the study of chemical reactions and factors that influence cell phenotype. All cells in a multicellular organism have the same set of genetic instructions, however cells have different phenotypes genetically identical twins are not completely identical. Developmental and

environmental cues impact gene expression, understanding these interventions is the basis of epi-(above) genetics. The proposed course will examine mechanisms associated with epigenetic changes, including histone modifications and variants, DNA methylation, and transcriptional silencing; and the role these modifications play in dosage compensation, genomic imprinting, nuclear reprogramming and normal and disease states. This course is for upper level undergraduates and graduate students. Professor Mania-Farnell.

Graduate Council Document 14-15a, BIOL 57850 Epigenetics (IUPUI) Sem. 1. Lecture 2 times per week for 45 minutes. Presentation 2 times per week for 30 minutes. Credit 3.

Prerequisites: Undergraduate course in biochemistry and/or molecular biology or consent of instructor.

Epigenetics refers to heritable patterns of gene expression and phenotype that occur without altered DNA sequence. The molecular basis for many epigenetic phenomena resides at the level of chromatin structure. Originally thought to provide primarily a packaging function, the assembly of DNA with proteins to form chromatin is now known to be a dynamic process that is essential for proper regulation of gene expression. It is now appreciated that perturbed epigenetic regulation is associated with a variety of human diseases, such as cancer, and that a better understanding of this biology may reveal novel therapeutic approaches to treat these disorders. This course will introduce students to epigenetic phenomena in various organisms, ranging from yeast to humans, and explore the fundamental molecular biology that controls this level of gene regulation. Students will be exposed to the primary scientific literature and gain experience in presenting original research finding to their peers. Professor Skalnik.

Graduate Council Document 14-12a, CPB 63000 Advanced Veterinary Avian Pathology (PWL) Sem. 1 and 2. SS. Experiential. Variable Credit 0 to 8. Prerequisites: At least one statistics course must be taken before or during the non-thesis MS/residency graduate program. See list of courses. Stat courses: CPB 61900; CPB 62500; STAT 50300; STAT 51200; STAT 51400; STAT 52400. A DVM degree is required to enroll in the non-thesis MS residency grad program.

Comparative gross and microscopic pathology in the diagnosis of avian diseases. Professor Wakenell.

Graduate Council Document 14-12b, CPB 63100 Avian Immunology (PWL) Sem. 1. Lecture 1 time per week for 100 minutes. Credit 2. Prerequisites: At least one graduate or undergraduate course in biology or poultry science. A DVM degree is required to enroll in this non-thesis MS/residency graduate program.

The avian immune system is significantly different than the mammalian immune system. This course compares and contrasts mammalian and avian immune systems. Professor Wakenell.

Graduate Council Document 14-12c, CPB 63200 Avian Medicine (PWL) Sem. 1. Lecture 1 time per week for 100 minutes. Credit 2.

This disease-based course is designed to introduce students to poultry medicine. It covers all the major diseases and conditions that affect poultry. No requisites or restrictions. Professor Wakenell.

Graduate Council Document 14-12d, CPB 63300 Preventive Avian Medicine Practice (PWL) Sem. 2. Lecture 1 time per week for 50 minutes. Credit 1.

The course introduces students to issues/practices in commercial poultry production. Brief discussions will relate how these practices influence poultry health. No requisites or restrictions. Professor Wakenell.

Graduate Council Document 14-2c, **NUR 53100 Theoretical and Ethical Reasoning in Advanced Practice Nursing** (PUC) Sem. 2. SS. Distance. Credit 3. Prerequisites: NUR 50100 or corequisite for this course.

This course examines the integration of theory/conceptual relationships, ethical frameworks and decision making in the development of advanced practice. The course is underpinned with the Ways of Knowing framework. Students hone reasoning skills through exploration of historical, theoretical, contextual, and practical aspects of theoretical and ethical nursing practice. Students examine the relationship of theoretical constructs to research and praxis through concept analysis, theory evaluation, ethical dilemmas analysis, and discussion of the application of theory to practice. Ways in which theoretical and ethical thought is imbedded in evidence-based nursing practice is discussed. Professors Block and Rittenmeyer.

Area Committee F, Management Sciences (John M. Barron, chair: barron@purdue.edu):

Graduate Council Document 14-11a, **HTM 59001 Graduate Industry Practicum** (PWL) Sem. 1 and 2. SS. Experiential, Individual Study, Practicum/Observation. Credit 1.

The Graduate Industry Practicum allows graduate students to gain valuable experience through paid employment with a company in the hospitality and tourism industry or a related industry. In addition, each student will research an issue and provide a potential solution to a problem faced by the employer. This course is not repeatable without special permission from the HTM Graduate Policy Committee and is only open to HTM graduate students who have completed a minimum of two semesters and 16 hours of graduate coursework in HTM. Credit is not allowed for both HTM 59001 and HTM 59002. Permission from Graduate Industry Practicum Coordinator is required to enroll in this course. Professor Nelson.

Graduate Council Document 14-11b, **HTM 59002 Graduate Industry Research Practicum** (PWL). Sem. 1 and 2. SS. Presentation, Experiential, Individual Study, Practicum/Observation. Credit 3.

The Graduate Industry Research Practicum allows graduate students to gain valuable experience through research and paid employment with a company in the hospitality and tourism industry or a related industry. The primary emphasis of this course is research. This course is not repeatable without special permission from the HTM Graduate Policy Committee and is only open to HTM graduate students who have completed a minimum of two semesters and 16 credit hours of graduate coursework in HTM. Credit is not allowed for both HTM 59001 and HTM 59002. Permission from the instructor and Graduate Industry Practicum Coordinator is required to enroll in this course. Professor Nelson.

Graduate Council Document 14-20a **MGMT 59010 MS INTERNSHIP** (PWL). Sem. 1 and 2. SS. Distance. Experiential, Credit 0.

This course is required as part of the US student visa regulation for international masters students who are doing an internship in the U.S. and want to use Curricular Practical Training (CPT). Even if a student is not being paid, they must sign up for the class unless the organization where the internship is being done is a non-profit. Students will be required to receive the necessary CPT permissions prior to enrolling in the courses as well as complete paperwork from the MBA and MS Programs Office Rawls Hall 2021. Course can also be taken by students that wish to have an internship transcribed. This course does not apply toward graduation. Students will submit an assessment of their internship experience as part of the course requirements. Does not count toward graduation.