

**PURDUE UNIVERSITY
GRADUATE SCHOOL**

Minutes of the Graduate Council Meeting
January 21, 2016
1:30 p.m.

Fifth Meeting
Room 218AB
STEW

PRESENT: Mark J. T. Smith, chair; Council Members, Thomas W. Atkinson, Richard E. Blanton, Barrett S. Caldwell, Natalie J. Carroll, David S. Cochran, Joy L. Colwell, Lucy M. Flesch, Anne L. Fliotics, Jonathan M. Harbor, C. Kenneth Holford, Michael A. Jenkins, David B. Klenosky, Eric P. Kvam, Mark A. Lipton, Linda J. Mason, Suresh K. Mittal, James L. Mohler, William Novshek, Jerry P. Ross, David G. Skalnik, Carol S. Sternberger, Jon A. Story, Joseph Thomas III, Candiss B. Vibbert (Provost's Representative), Jun Xie, Yan Ping Xin, Howard N. Zelaznik, Andrew K. Zeller

APOLOGIES FOR ABSENCE RECEIVED FROM: Bedrich Benes, Carlos M. Corvalan, James L. Mullins, Kathryn M. Obenchain, Keith E. Schwingendorf, Jane A. Walker

ABSENCES: Alejandro Cuza-Blanco, Jeffrey L. Whitten, Chong Xiang

GUESTS: Sherry Beam, Don Brier, Robin Cunningham, Shawn Donkin, Debbie Fellure, Colleen Gabauer, Cyndi Lynch

I. MINUTES

The minutes of the November, 19, 2015, Graduate Council meeting were approved as presented.

II. DEANS REMARKS AND REPORTS

- a) Dr. Mark Smith discussed how to use the GRE. He noted that we may not be interpreting the GRE correctly. It is important that all of us are using the GRE in the same way. He mentioned the common mistakes to avoid when using GRE scores. 1. Avoid adding scores together. 2. Avoid using an arbitrary cut score. 3. Avoid using only GRE scores. 4. Avoid comparing percentile ranks of different admission tests.
- b) Dr. Smith also noted an additional document was received from the Council of Graduate Schools (CGS) of a study called, *Holistic Review in Graduate Admissions*. By doing a holistic review, you may receive a diverse class of incoming students along with improving the quality of students.

- c) Dr. Smith asked that Tina Payne send the link for both of these documents to the Graduate Council members.
- d) Dr. James Mohler gave a report on pending proposals in various stages of review and approval.

III. NEW BUSINESS

Dr. Joseph Pekny, Professor of Chemical Engineering and Director, Burton D. Morgan Center for Entrepreneurship; and Dr. J. Eric Dietz, Professor of Computer and Information Technology, and Deliberate Innovation for Faculty Director for Military Partnerships, gave a presentation on *The Purdue Military Research Initiative*.

Dr. Pekny explained the purpose of *The Purdue Military Research Initiative (PMRI)*

- As an entrepreneurship function to grow military relationships
- Develop a method for establishing and maintain enduring relationships with the US Military that will lead to new high quality graduate students
- Associations with future military leaders and Department of Defense sponsored research.

Dr. Pekny noted the PMRI program consists of three areas of focus:

- Officer Graduate Scholars
- Cadet and Midshipmen Undergraduate Summer Research
- Faculty Exchange between Military Academies

Dr. Dietz then spoke on the:

PMRI Situation Report (SITREP)

- Recruited 10 officers in 2014 and 3 in 2015
 - 6 PhD students and 7 MS students
 - All Services represented
 - 3 have graduated on schedule
- All Services are supporting PMRI
 - Agreement signed with Army – June 2015
 - Fleet-wide Navy message – July 2015
 - Marines developing policy
 - Air Force – on board from start
- Now recruiting for year 3 – Fall 2016

PMRI Strategic Outputs

- Develop a number of future military technology leaders with Purdue education background
- Establish connections between officers and existing Purdue Department of Defense Research
- Expand the Quality and Quantity of Department of Defense Research at Purdue

Military Officers Background

- Typically 20-30 year military careers
- Graduate school opportunities after 5-15 years professional experience for officers who have proven skills in application of advance military technology

- Field Grade officers typically earn graduate degree (MS) before promotion to Major or Lieutenant Commander
- About 5% are selected for fully funded or resident university attendance for MS and less than 1% for PhDs
 - MS degrees are limited in duration to 24 months or less
 - PhD degrees are limited to MS recipients and 36 months
- Typical PhD officers will be senior leaders at military academies and senior leaders of Department of Defense research and acquisition programs

PMRI Application

- Officers may join research groups, where possible, with existing funded Purdue DoD research programs
 - Specific Service needs for new capabilities are considered
 - Tuition Scholarships does not currently include Purdue's professional graduate degree programs
- Military Officer Graduate Scholars choose potential Faculty Advisors from those working existing funded military/defense related projects
 - Other interested faculty to develop new strategic defense research

Military Officer Graduate Scholars

- Purdue targets selection of 10 officers per year (30 officers total)
 - Begun in 2014
 - PhD focused by MS Considered
 - Divided between Services (Army, Navy, Marines and Air Force)
- Supported at all levels of Purdue leadership including President Daniels
- Application Process
 - Officers Selected by highly competitive Military Service Selection Boards from the nations most promising military leaders
 - Selected Officers apply to appropriate graduate programs like any other students
 - Once accepted by Graduate Committees, Officers receive PMRI Application

Payback

- Envision both long and short term program payback for all involved
- Purdue
 - Faculty research programs intended to support Department of Defense benefit from military officer knowledge of customer and operational perspectives of research
 - Our academic culture and potential provided for a number of officers participating
 - Salary compensation of 30 officers exceeds \$3 million per year
- Military Service and Department of Defense
 - Tuition costs and strategic Purdue relationship
 - New technical capabilities of the officers
- Officers know us and our capabilities well
 - Purdue resident and distance graduate programs
 - Purdue research organization, programs and faculty

Faculty Exchange

- Coordinate a faculty exchange between a Purdue faculty member and a Service Academy faculty member
- This effort is continuing to expand as we develop relationships/partnerships
- A Purdue PhD student in Chemistry studied at West Point in Spring 2014

- In Fall 2015, a Purdue faculty member funded jointly by Purdue and West Point, Dr. Nick Sambaluk
- Exchanged between History Departments, Dr. Randy Roberts now at West Point in Fall 2015/Spring 2016

PMRI Accessions for Fall 2016

- New Applicants Received – 17
 - 2 Army, 5 Navy, and 10 Air Force
 - 8 MS and 9 PhD applicants
- High quality candidates
 - 7 from USAFA faculty, 1 of which was runner-up to attend Oxford
 - 1 each from Naval and AF Academy seniors vying for limited competitive scholarships to grad school upon graduation
 - All are reviewed by their respective service for the promotability and suitability for pursuing graduate degree

Examples of Strategic Success Outputs

- Previous Graduate Experience with Military at Purdue
- Missile Defense Agency
- Advance Research Institute
- The Army University
- Naval Enterprise Partnership Teaming with Universities for National Excellence

In conclusion, Dr. Dietz noted

- Officer Recruiting – proven successful at 10+ per year focusing on PhD's
- Military Relationships – established and successful with all Services
- Faculty Support – established and officers in demand
- Research Growth – initial growth established

IV. AREA COMMITTEE REPORTS (Area Committee Chairs)

Graduate Council Document 16-A, Graduate Council Documents Recommended for Approval:

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

Graduate Council Document 15-24a, **ECE 50863, Computer Network Systems** (PWL)
Graduate Council Document 15-25a, **ME 52950, Theory of Plates and Shells** (PUC)

Dr. Barrett Caldwell presented two courses for consideration. The courses were approved as a block by the council, upon a motion by Dr. Caldwell.

Area Committee E, Life Sciences (Jane Walker, chair; walkerj@purduecal.edu):

Graduate Council Document 15-9d, **BIOL 55110, Proteins: Structure and Function** (PFW)
Graduate Council Document 15-9e, **BIOL 57710, Emerging Infectious Diseases** (PFW)

Dr. Carol Sternberger presented two courses for consideration. The courses were approved by the council, upon a motion by Dr. Sternberger.

Area Committee F, Management Sciences (Jun Xie, Chair; junxie@purdue.edu
Graduate Council Document 15-27a, MGMT 68200, Digital Business and Information
Strategies (PWL)

Graduate Council Document 15-27b, MGMT 68700, Design for Instincts: Social Networks
and Engagements (PWL)

Dr. Jun Xie presented two courses for consideration. The courses were approved by the council, upon a motion by Dr. Xie.

V. TASK FORCE REPORT

Graduate Council Report 15-J, Final Report and Recommendation from the Graduate Council Task Force on Graduate Program Majors.

Dr. Shawn Donkin, co-chair of the task force, presented the final report from the task force at the November Graduate Council meeting. The task force committee was charged to review the policy regarding graduate program majors. Dr. Smith noted a revision in language on page three from “degree program” to “major”. He asked for a motion to make the revision a part of the final document that the members would vote on. The revision was approved. The council accepted *Graduate Council Report 15-J, Final Report and Recommendation from the Graduate Council Task Force on Graduate Program Majors* and it was approved by the full council, upon a motion by Dr. Donkin. (Appendix A)

VI. PURDUE GRADUATE STUDENT GOVERNMENT – PRESIDENT’S REPORT

Mr. Andrew Zeller, President of the Purdue Graduate Student Government (PGSG) provided information regarding:

- Teaching Assistant stipend updates
- Graduate School e-mail clearinghouse

VII. CLOSING REMARKS AND ADJOURNMENT

The council meeting was adjourned by Dr. Smith at 2:30 p.m.

Mark J. T. Smith, Chair

Tina L. Payne, Secretary

APPENDIX A

Graduate Council Report 15-J
Approved by the Graduate Council on January 21, 2016

Final Report and Recommendations
Graduate Council Task Force
on
Graduate Program Majors

Presented for Review to the Graduate Council on
November 19, 2015 and January 21, 2016

Members of the Task Force:

Ragu Athinarayanan, Purdue PolyTech/Co-chair
Shawn Donkin, Agriculture/Co-chair
Barrett Caldwell, Engineering
Suresh Chand, Management
Stacey Connaughton, Communications
Jessica Huber, Health and Human Sciences

Ex-Officio:

Phil Pope, Graduate School
James Mohler, Graduate School

Consultants:

Lesa Beals, Registrar
Chris Pass, Registrar
Jon Story, Graduate School
Tina Payne, Graduate School
Don Brier, Graduate School
Debbie Fellure, Graduate School

Preamble

Current Model for Graduate degree programs limits a graduate degree to a single major. The major is linked to a degree and is identified by the name of the department/school which in turn defines the name of the major. For a department/school to offer an additional major, the academic unit is required to have an additional new degree approved by the university and the Indiana Commission for Higher Education (ICHE). The named new degree becomes the name of the new major.

On June 30, 2015, the Graduate Council Task Force on Graduate Majors was constituted with the following charge:

‘Consider creating a policy to allow multiple majors for a graduate degree program. Such a policy would permit a single discipline degree program, both master’s and Ph.D., to offer one or more majors. Such a policy would expand the academic program offerings of currently existing degrees and any new degrees.’

The task force was instructed to consider pros and cons including develop a policy document for adapting majors at the graduate level Purdue University. The Task Force convened for five meetings.

The value of graduate majors to Purdue University

To guide its work, the Task Force first examined the value of graduate majors. Insight to the value of a change from current processes was provided in the following background rationale from Phil Pope, Senior Associate Dean for the Graduate School: ‘Current Model for Graduate degree programs limits a

graduate degree to a single major. The major is linked to a degree and is identified by the name of the department/school which in turn defines the name of the major. For a department/school to offer an additional major, the academic unit is required to have an additional new degree approved by the university and the Indiana Commission for Higher Education (ICHE). The named new degree becomes the name of the new major.’ Creating a new policy giving a graduate degree granting program the option to offer multiple majors to currently existing degrees, and any future degrees, would expand the recognized academic offerings in graduate education at the University.

In assessing the impact of adaption of graduate majors the task force examined the current Purdue structure for undergraduate majors at Purdue University and where information was available the use of graduate majors at other peers. As an overarching guide to developing further rationale for the value of graduate majors the task force developed working definitions of a graduate major for the Graduate School at Purdue University.

Definitions

The Task Force used the following definitions of graduate program, graduate major, and graduate concentration to guide evaluation of the value of adaption of Graduate Program Majors by the Purdue University Graduate School.

Graduate Program – An academic program of study leading to a graduate degree, approved by the Purdue University Graduate Council, the Board of Trustees, and the Indiana Commission for Higher Education.

Graduate Major – An academic field of study within an approved graduate degree program, approved by the Graduate School of Purdue University.

Graduate Concentration – An academic area of study (requiring a minimum of 9 credit hours) within an approved graduate major, administratively approved by the Graduate School.

It should be noted that a graduate program can have one or more graduate major. Likewise more than one graduate concentration can exist under a graduate major.

Graduate majors will have the following features:

1. Specialization in an academic field of study within a graduate degree program

2. For MS degree programs a major is defined by a minimum of 60% of the credit hours required for the degree (see Table 1 for examples).
3. For PhD programs a major is defined by a minimum of 18 credit hours of graded course credits required for the degree.

Table 1. Number of course credits that define a graduate major

Minimum Credit Hours for the Master's Degree Program	Required Minimum Number of Graded Credit Hours Required for a Major
30-39	18
40-49	24
50+	30

Implementation

The task force is currently exploring an implementation strategy for graduate majors but it is not part of this report. Completion of this effort is pending the outcome of the action of Graduate School Council in response to the current document.

Recommendation

The task force on Graduate Program Majors recommends that the Purdue University Graduate School move to: a) accept the definitions and features of graduate majors as outlined in this report, b) accept, as a general principle, the option of offering graduate majors within current graduate programs at Purdue University and c) to require submission of an implementation plan from the task force on Graduate Program Majors and approval by the Purdue University Graduate Council before the option for graduate majors can be engaged within graduate programs.

APPENDIX B

PENDING DOCUMENTS

(February 18, 2016)

BOLDED ITEMS ARE IN REVIEW WITH AN AREA COMMITTEE

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

Graduate Council Document 15-28a, CGT 57200, Special Topics in Human-Centered Design and Development (PWL)

Graduate Council Document 15-23a, CIT 51600, Database Security (IUPUI)

Graduate Council Document 15-23e, CIT 53200, Wireless Security and Technology (IUPUI)

Graduate Council Document 15-23h, CIT 55510, Network Security (IUPUI)

Graduate Council Document 15-23i, CIT 56200, Mobile and Network Forensics (IUPUI)

Graduate Council Document 13-9c, ECET 55800 Mechatronics System Design, Modeling & Integration, (PUC) Pending; additional information

Graduate Council Document 14-21a, MET 55000, Mechanical System Design and Integration for Mechatronics (PUC) Pending; additional documents

Graduate Council Document 15-29a, TECH 53300, Design Theory and Technology (PWL)

Graduate Council Document 15-30b, TLI 52000, Foundations of Innovations Studies (PWL)

Graduate Council Document 15-30b, TLI 52600, Digital Innovation & Transformation (PWL)

Graduate Council Document 15-30c, TLI 52700, Behavioral Analytics (PWL) Sem. 1 and 2. SS.

Graduate Council Document 15-30d, TLI 62500, Research in Open Innovation I (PWL)

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

Graduate Council Document 15-31a, CS 50010, Foundational Principles of Information Security (PWL)

Graduate Council Document 15-31b, CS 50011, Introduction to Systems for Information Security (PWL)

Graduate Council Document 15-31c, CS 52700, Software Security (PWL)

Graduate Council Document 15-31d, CS 52800, Network Security (PWL)

Graduate Council Document 14-29a, EAPS 51800, Soil Biogeochemistry (PWL)

Graduate Council Document 14-29b, EAPS 52700, Principles of Terrestrial Ecosystem Ecology (PWL)

Graduate Council Document 15-24b, ECE 60614, Reliability Physics of Nanoelectronic Transistors (PWL)

Graduate Council Document 15-24c, ECE 69200, Introduction to Graduate Research (PWL)

Graduate Council Document 14-17a, FIS 50800 Forensic Science Laboratory Management (IUPUI)

Area Committee D, Humanities and Social Sciences (Richard Blanton, chair; blantonr@purdue.edu):

Graduate Council Document 15-32a, ENGL 69200, Scholarly Writing and Publishing (PWL)

Graduate Council Document 15-11b, HIST 50900, Reading Seminar in Colonial America: 17th and 18th Century American History (PNC)

Area Committee E, Life Sciences (Jane Walker, chair; walkerj@purduecal.edu):

Graduate Council Document 15-9e, BIOL 57810, Biology of Plant and Animal Disease Vectors (PFW)

Graduate Council Document 14-15j, BIOL 58610, Sensory Ecology (PWL)
Graduate Council Document 13-23a, HSCI 57100 Molecular Imaging (PWL)
Graduate Council Document 15-1n, NUR 66300, Assessment and Measurement in Nursing Education (PUC)
Graduate Council Document 15-1o, NUR 67600, Knowledge Translation for Transforming Healthcare (PUC)
Graduate Council Document 15-33a, NUTR 62600, Advanced Presentation Skills (PWL)
Graduate Council Document 15-33b, NUTR 62700, Scientific Writing (PWL)

Area Committee F, Management Sciences (Jun Xie, chair; junxie@purdue.edu):
Graduate Council Document 15-13b, OLS 53010 Mixed Methods Research (IUPUI)

NEW DOCUMENTS RECEIVED

(After the January 21, 2016 Graduate Council Meeting)

Area Committee A, Behavioral Sciences (Jeffrey Whitten, chair; jwhitten@purdue.edu):

Graduate Council Document 16-5a, CDFS 64300, Children in Family Therapy (PUC) Sem. SS.
Lecture 2 times per week for 150 minutes for 8 weeks. Credit 3.

This course introduces the graduate student to the professional clinical skills and techniques utilized when working with children and adolescents in the context of family therapy. Graduate student status. Professor Hecker.

Graduate Council Document 16-5b, CDFS 64400, Trauma and Recovery in Family Therapy (PUC) Sem. SS. Lecture 2 times per week for 150 minutes for 8 weeks. Credit 3

In this course graduate students will critically examine theories and research on the manifestations of trauma on the individual and the family. Systemic and relational influences on recovery from trauma will be highlighted. Family therapy interventions for trauma treatment will be presented. Graduate student status. Professor Hecker.

Graduate Council Document 16-1a, TECH 50801, Quality and Productivity in Industry and Technology (IUPUI) Sem. 1 and 2. SS. Lecture 2 times per week for 75 minutes. Distance. Credit 3. Prerequisites: TECH 50700 or consent of instructor.

Examines the contemporary issues of continuous improvement in quality and productivity in manufacturing and service industries. Includes a close examination of the evolving philosophies bearing on the scope, improvement, and costs of quality assurance programs in industry and technology. Professor Rennels.

Area Committee E, Life Sciences (Jane Walker, chair; walkerj@purduecal.edu)

Graduate Council Document 16-4a, AGRY 51400, Environmental Stress Management for Turfgrass (PWL) Sem. 1. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: HORT 51400

Designed for students who desire an understanding of how environmental stresses influence turfgrass growth and how they can be managed with cultural practices. The course covers current research findings in stress management and integrates turfgrass environmental physiology with turfgrass management. Professor Jiang.

Graduate Council Document 16-4b, **AGRY 51800, Soil Biogeochemistry** (PWL) Sem. 1. Lecture 3 times per week for 50 minutes. Credit 3. Prerequisites: Alternate courses are listed in parentheses. CHM 11000-11200 (CHM 11500 and 11600); BIOL 11000 and 11100 or BTNY 11000 (BIOL 12100/13100); MA 16010 and 16020; AGRY 25500 or equivalent general soils course; EAPS 10900 or equivalent Earth system science course.

This is an interdisciplinary graduate-level or senior undergraduate level course. This course will provide an introduction to the physical and microbial processes governing the cycling of photosynthetically-produced organic matter on land and in streams and rivers. Professor Filley and Johnston.

Graduate Council Document 16-4c, **AGRY 62400, Plant Ecophysiology** (PWL) Sem. 1. Lecture 3 times per week for 50 minutes. Credit 3. Prerequisites: Undergraduate or graduate level of Plant Physiology (HORT 30100 or AGRY 52500 or HORT 55100 or FNR 43400 or equivalent).

This course will explore the influence of the environment on growth and development, reproduction, adaptation, survival and evolution of plants. The fundamental study of physiological mechanisms underlying adaptive strategies and their ecological consequences will be included. Professor Jiang.

Graduate Council Document 16-2a, **ENTM 50800, Integrative Insect Taxonomy** (PWL) Sem. 1. Lecture 2 times per week for 50 minutes. Laboratory 2 times per week for 100 minutes. Credit 4. Prerequisites: Completion of college biology or an introductory course in entomology is recommended.

The advanced course takes a multisource approach to understanding insect taxonomy and phylogenetic systematics. We will compare traditional classification schemes with new hypotheses of insect evolutionary relationships based on an array of data sources. Students in this class will also learn the importance of natural history collections and how to prepare insect specimens for permanent storage. We will explore insect diversity through hands-on laboratory exercises, molecular methodology and a field trip to the Great Smoky Mountains National Park, Tennessee. Professor Zaspel.

Graduate Council Document 16-2b, **ENTM 64200, Analysis of Ecological Data** (PWL) Sem. 2. Lecture 2 times per week for 50 minutes. Laboratory 1 time per week for 100 minutes. Credit 3. Prerequisites: A previous graduate-level course in statistics is required. Working knowledge of ANOVA, t-tests, linear regression, and assumptions and distributions of test statistics for these is assumed. Prior experience with programming g is not required. Students will require a laptop for the lab sessions.

Intermediate course in analysis options for biological and ecological data. Topics include: univariate, multivariate, parametric and non-parametric analysis and their basis; advanced graphical techniques; basic mapping with and without geographical information systems; simulation modeling; associated coding for open source platforms. Professor Holland.

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

Graduate Council Document 16-3a, **AGEC 52800, Global Change and the Challenge of Sustainably Feeding a Growing Planet** (PWL) Sem. 2. Lecture 1 time per week for 90 minutes. Recitation 1 time per week for 45 minutes. Presentation 2 times per week for 90 minutes. Laboratory 1 time per week for 45 minutes. Credit 3. Prerequisites: One year of Calculus.

This course investigates the major drivers of global agricultural and environmental change associated with the global farm and food system. This includes demography, income growth,

biofuels, climate change, environmental and ecosystem services, livestock consumption, food waste and land use change. Weekly modules include a guest lecture, student led discussion of readings and discussion of lab assignments undertaken using the SIMPLE model of global agriculture, environment and food security. The class culminates with a course project which is presented to the class and written up in a term paper. Professor Hertel.

GRADUATE CERTIFICATE(S):

Area Committee D, Humanities and Social Sciences (Richard Blanton, chair; blantonr@purdue.edu):

Graduate Council Document 16-6a, Graduate Certificate in African-American Studies
(Interdisciplinary) (PWL)