PURDUE UNIVERSITY
GRADUATE SCHOOL

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

Third Meeting
Room 279
STEW

PRESENT: James L. Mohler, deputy chair, Council Members, Dulcy M. Abraham,
Blake A. Allan, Thomas W. Atkinson, Taylor W. Bailey, Ryan A. Cabot,
Richard H. Grant, Patricia Hart, Michael C. Loui, Samuel P. Midkiff,
John A. Morgan, Melanie Morgan, Paul Salama, Anson Soderbery,
Mitchell L. Springer, Rebecca H. Stankowski,
Candiss B. Vibbert (Provost's Representative), Yoon Yeo, Daoguo Zhou

APOLOGIES FOR ABSENCE RECEIVED FROM: Linda J. Mason, chair, Rita A. Burrell,
Kuan-Chou Chen, David S. Cochran, William (Bart) Collins, Michael J. Connolly,
Marius D. Dadarlat, Brian R. Dineen, Melissa M. Franks, Mary E. Johnson,
Signe E. Kastberg, Maricel A. Lawrence, Paul F. Muzikar, Rhonda G. Phillips,
Manushag (Nush) Powell, David G. Skalnik, Carol S. Sternberger,
Nicole J.Widmar

ABSENCES: Christopher R. Agnew, Janice S. Blum, G. Jonathan Day, Duane D. Dunlap,
Keith B. Gehres, Takashi Hibiki, Susan M. Mendrysa, Xavier M. Trioche,
Kevin Trimble

GUESTS: Jacob Askeroth, Greg Beaver, Christy Daugherty, Debbie Fellure,
James P. Greenan, Julayne Moser, Mark Schuver, Korena Vawter

I.   MINUTES
      The minutes of the October 18, 2018, Graduate Council meeting were approved
      as presented.

II.   DEANS REMARKS AND REPORTS

   a) Dr. James Mohler, Graduate Council Deputy Chair acknowledged that the Office of
      the Registrar is going to be going through all of the 590 and 690 courses that have
      been offered as experimental, variable title, variable credit courses that have been
      offered three times. Units will need to be working towards making those permanent
      courses for those that have been offered three times. This will benefit students when
      looking at the transcript of a student to not have several 590's on the transcript
      and/or plan of study. Dr. Mohler noted that the information will be coming from
      Sandy Schaffer in the Office of the Registrar and asked the council members to vet
      this with their departments.

   b) Dr. James Mohler gave a report on pending degree program proposals in various
      stages of review and approval.

   c) Dr. James Mohler gave a report on pending course proposals in review with the
      Graduate Council area committees, proposals awaiting additional information from
      proposers, course proposals requested by departments for removal, and new course
      proposals received since the previous Graduate Council meeting.

III. AREA COMMITTEE REPORTS (Area Committee Chairs)
     Graduate Council Document 18G, Graduate Council Documents Recommended
     for Approval:

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

     Graduate Council Document 18-37d, CSD 51400, Critical Thinking in Clinical Practice III
     (PFW)
     Graduate Council Document 18-37e, CSD 51500, Critical Thinking in Clinical Practice IV
     (PFW)
     Graduate Council Document 18-37h, CSD 52900, Stuttering: Nature, Diagnosis, and
     Treatment (PFW)
     Graduate Council Document 18-37j, CSD 53200, Voice Disorders (PFW)
     Graduate Council Document 18-37p, CSD 54400, School Based Speech-Language
     Pathology (PFW)
     Graduate Council Document 18-37q, CSD 54500, Licensure (PFW)
     Graduate Council Document 18-37r, CSD 64800, Speech-Language Pathology Education
     Externship (PFW)
     Graduate Council Document 18-73s, CSD 64900, Speech-Language Pathology Education
     Externship (PFW)
     Graduate Council Document 18-24a, PSY 58100, Neuroethics (PWL)

     Due to the absence of Chair Signe Kastberg, Dr. James Greenan presented nine
     courses for consideration. The courses were approved by the council, upon a motion
     by Dr. Greenan.

Graduate Council Document 18-33b, CNIT 53200, IT Enterprise Analysis (PWL)
Graduate Council Document 18-33c, CNIT 53500, Advanced Topics in IT Business Analysis (PWL)
Graduate Council Document 18-33d, CNIT 58000, Advanced Topics in Information Technology Project Management (PWL)
Graduate Council Document 18-33e, CNIT 58200, IT Project Estimating, Control, & Scheduling (PWL)
Graduate Council Document 18-33f, CNIT 58300, IT Program and Portfolio Management (PWL)
Graduate Council Document 18-33g, CNIT 58500, Organizational Change Management for IT Projects (PWL)
Graduate Council Document 18-33h, CNIT 58600, IT Requirements Management (PWL)
Graduate Council Document 18-14d, ECE 69311, Advanced Internship (IUPUI)

Dr. Samuel Midkiff presented eight courses for consideration. The courses were approved by the council, upon a motion by Dr. Midkiff.

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

Graduate Council Document 18-3b, COM 65000, Communication and Leadership (PWL)

Due to the absence of Chair Nush Powell, Dr. James Mohler presented one course for consideration. The course was approved by the council, upon a motion by Dr. Samuel Midkiff.

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

Graduate Council Document 18-1b, BIOL 55510, Model Organisms in Research (IUPUI)
***Graduate Council Document 18-15a,* BTNY 56000, Survey of Mathematical Biology (PWL) Proposal was pulled for modification of the first person reflections. Thus it was retracted and will be revisited once it has been modified.**
Graduate Council Document 18-15b, BTNY 56200, Plant Hormone Biology (PWL)
Graduate Council Document 18-15c, BTNY 69100, Skill for Success in Grad School (PWL)
Graduate Council Document 18-27a, HSCI 51500, Introduction to Nuclear and Radiological Source Security (PWL)
Graduate Council Document 18-27b, HSCI 51600, Molecular Imaging-NuclearMedicine (PWL) Amendment to the proposal to modify "our" to "the". The modification was approved by the council upon a motion by Dr. Cabot.

Dr. Ryan Cabot presented five courses for consideration. The courses were approved by the council, upon a motion by Dr. Cabot.

DEGREE PROGRAMS:

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

Graduate Council Document 18-41a. M.S. in Speech – Language Pathology, submitted by the Department of Communication Sciences and Disorders, College of Arts & Sciences (PFW)

Due to the absence of Chair, Dr. Signe Kastberg, Dr. James Greenan presented one degree program for consideration. The degree was approved by the council, upon a motion by Dr. Greenan.

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

Graduate Council Document 18-42a, M.S. Degree in Computational Data Science, submitted by the Department of Computer and Information Sciences, School of Science (IUPUI)

Dr. Samuel Midkiff presented one degree for consideration. The degree was approved by the council, upon a motion by Dr. Midkiff.

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

Mr. Taylor Bailey, President of the Purdue Graduate Student Government (PGSG) noted the following items:

- PGSG plan to host the Next Generation Scholars (NGS) for high school students to tour on-campus research for graduate students has been postponed to next year. They were planning to work with Central Catholic High School; however, there may be a discrepancy in scheduling. In that case, they may work with the Polytechnic High School of Indianapolis again. If anyone has a connection with a high school that may be interested in this type of event, please contact Mr. Bailey.

- Graduate Student Bill of Rights and Responsibilities is up for a vote with the University Senate on Monday, November 19, 2018.

- There is a preliminary initiative through the Graduate Student Senate to look at expanding the policies governing student absences specifically related to medical family leave that are not covered in the codified University policy. This is in parallel to an initiative through the University Senate Student Affairs committee to establish some guidelines to be brought to the attention of the council next year.

V. OLD BUSINESS

a) Dr. James Mohler presented GC Report 18-40a, Non-Credit to Credit Pathways for consideration of approval. Dr. Mohler noted the proposed policy guideline for the use of non-credit to credit opportunities presented last month had modifications made with the recommendation of faculty (Appendix B).

Dr. James Mohler presented the Non-Credit to Credit Pathways for consideration. The Non-Credit to Credit Pathways was approved by the council, upon a motion by a voting council member.

VI. <u>NEW BUSINESS</u>

Ashlee Messersmith, Manager Thesis/Dissertation Office presented the *New Thesis/Dissertation Deposit Options*. (Appendix C).

VII. <u>CLOSING REMARKS AND ADJOURNMENT</u>

The council meeting was adjourned by Dr. Mohler at 3:00 p.m.

James L. Mohler, Deputy Chair
Tina L. Payne, Secretary

APPENDIX A

PENDING DOCUMENTS

(November 15, 2018)

BOLDED ITEMS ARE IN REVIEW WITH AN AREA COMMITTEE

Area Committee A, Behavioral Sciences (Signe Kastberg; chair, skastber@purdue.edu):
Graduate Council Document 18-37d, **CSD 51400, Critical Thinking in Clinical Practice III (PFW)**
Graduate Council Document 18-37e, **CSD 51500, Critical Thinking in Clinical Practice IV (PFW)**
Graduate Council Document 18-37h, **CSD 52900, Stuttering: Nature, Diagnosis, and Treatment (PFW)**
Graduate Council Document 18-37j, **CSD 53200, Voice Disorders (PFW)**
Graduate Council Document 18-37p, **CSD 54400, School Based Speech-Language Pathology (PFW)**
Graduate Council Document 18-37q, **CSD 54500, Licensure (PFW)**
Graduate Council Document 18-37r, **CSD 64800, Speech-Language Pathology Education Externship (PFW)**
Graduate Council Document 18-73s, **CSD 64900, Speech-Language Pathology Education Externship (PFW)**
Graduate Council Document 18-24a, **PSY 58100, Neuroethics (PWL)**

Area Committee B, Engineering, Sciences, and Technology (Samuel Midkiff; chair, smidkiff@purdue.edu):
Graduate Council Document 18-33b, **CNIT 53200, IT Enterprise Analysis (PWL)**
Graduate Council Document 18-33c, **CNIT 53500, Advanced Topics in IT Business Analysis (PWL)**
Graduate Council Document 18-33d, **CNIT 58000, Advanced Topics in Information Technology Project Management (PWL)**
Graduate Council Document 18-33e, **CNIT 58200, IT Project Estimating, Control, & Scheduling (PWL)**
Graduate Council Document 18-33f, **CNIT 58300, IT Program and Portfolio Management (PWL)**
Graduate Council Document 18-33g, **CNIT 58500, Organizational Change Management for IT Projects (PWL)**
Graduate Council Document 18-33h, **CNIT 58600, IT Requirements Management (PWL)**
Graduate Council Document 18-14d, **ECE 69311, Advanced Internship (IUPUI)**
Graduate Council Document 18-22a, **IE 68500, Competitive Strategy (PWL)**

Area Committee D, Humanities and Social Sciences (Manushag (Nush) Powell, chair; mnpowell@purdue.edu):
Graduate Council Document 18-3b, **COM 65000, Communication and Leadership (PWL)**

Area Committee E: Life Sciences, Ryan Cabot, chair; rcabot@purdue.edu):
Graduate Council Document 18-1b, **BIOL 55510, Model Organisms in Research (IUPUI)**
Graduate Council Document 18-15a, **BTNY 56000, Survey of Mathematical Biology (PWL)**
Graduate Council Document 18-15b, **BTNY 56200, Plant Hormone Biology (PWL)**
Graduate Council Document 18-15c, **BTNY 69100, Skill for Success in Grad School (PWL)**
Graduate Council Document 18-27a, **HSCI 51500, Introduction to Nuclear and Radiological Source Security (PWL)**
Graduate Council Document 18-27b, **HSCI 51600, Molecular Imaging-Nuclear Medicine (PWL)**

Area Committee F, Management Sciences (Nicole J. Widmar, chair; nwidmar@purdue.edu)
Graduate Council Document 17-11a, **ECON 63300, Macroeconomics with Heterogeneous**
Agents (PWL)
Graduate Council Document 17-11b, **ECON 64100, Computational Economics/Numerical Methods (PWL)**
Graduate Council Document 17-11c, **ECON 65300, Economics of Early Childhood and Skill Formation (PWL)**
Graduate Council Document 17-11d, **ECON 68100, Bayesian Econometrics I (PWL)**
Graduate Council Document 17-11e, **ECON 68200, Bayesian Econometrics II (PWL)**
Graduate Council Document 18-9f, **MGMT 58600, Python Programming (PWL)**

APPENDIX B

Non-credit to Credit Policy and Guidelines for Graduate Degrees at Purdue University

Presented to the Graduate Council on

October 18, 2018 (review)

and
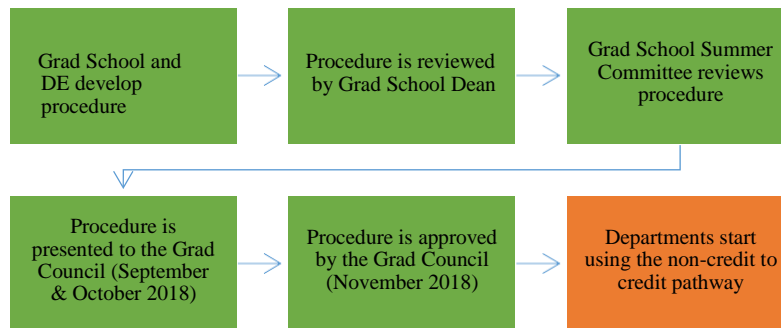
November 15, 2018 (vote)

Non-Credit to Credit (NC-CR) Pathways at Purdue University

Possible non-credit to credit pathways (existing University Regulations):

- **Directed Credit** *(credit awarded on bases other than a student's enrollment in and satisfactory completion of a course)*
  - Credit by Exam: based on a Purdue dept. proficiency exam
  - Department Credit: Credit for a course based on substantially equivalent experience. Granted by Head or designee of dept.
  - Achievement Credit: Credit based on demonstrated achievement in a nationally administered college-level exam
- **Advanced Standing** means that an entering student has credit for or exemption from one or more courses

Non-Credit to Credit (NC-CR) Pathways Procedure

The process to get NC-CR pathways approved under the Directed Credit – Department Credit Policy is show in the following figure.

```
Grad School and          Procedure is reviewed        Grad School Summer
DE develop          →    by Grad School Dean     →    Committee reviews
procedure                                             procedure

Procedure is             Procedure is approved        Departments start
presented to the Grad →  by the Grad Council     →    using the non-credit to
Council (September       (November 2018)               credit pathway
& October 2018)
```

Policies Governing NC-CR Pathways

- All decisions concerning the availability and/or acceptability of non-credit to credit pathways is left to the discretion of the degree granting entity. While some units may choose to utilize non-credit to credit mechanisms, others may not.
- Non-credit offerings may be designed and developed by Purdue West Lafayette, Purdue Northwest, Purdue Fort Wayne, or IUPUI degree programs and offered through one of several mechanisms (e.g., EdX, FutureLearn, Udemy, etc.).
  - Exceptions can be made for non-credit offerings developed by other institutions or for offerings based on professional certifications that are regionally, nationally or internationally recognized (e.g., corporate, product or profession).
  - Such proposals may be subject to review and approval by the Graduate School Council.
- Departments define the non-credit/credit equivalency using the following:

- o If using an exam to assess the student's understanding of the non-credit offerings, students will take an exam proctored online or face to face as defined by the department.
- o If using an exam to assess the student's understanding of the non-credit offerings, students must pass the exam with a score of 80% or better.
- o If using other methods of examination, this method must be described in a form that defines the non-credit/credit equivalency. This form will be used by the Graduate School Records Office to evaluate this equivalency.
- Records of the non-credit offerings, their credit conversions, and any associated grades will be stored at the Graduate School Records Office.
- Non-Credit grades will not be factored into the student's index (GPA), but the courses could be counted toward degree completion.
- A maximum of 12 credit can be awarded for the non-credit offerings taken and assessed after the student has been admitted into a Purdue's graduate program. Students cannot use more than 12 credits accrued from non-traditional sources (undergraduate excess, shared credits from combined or dual degrees, transfer credits from other institutions, or non-credit to credit conversions).
- This procedure applies to all graduate level degrees but at the discretion of the degree granting unit.
- All programs wishing to provide this opportunity to their non-credit students must complete Appendix A. If the program meets these requirements, the Graduate School will administratively approve the request.

Non-Credit to Credit Process (once Procedure is approved)
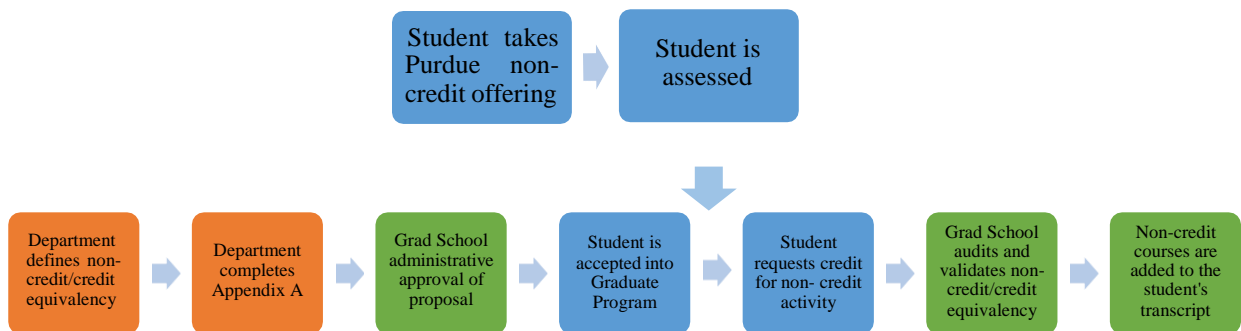
Appendix A

Non-Credit to Credit
Proposal

Proposer Information:
    a. Name
    b. Department, College
    c. Email
    d. Phone Number

Characteristics of the Non-Credit Offering:

    e. Campus(es) Offering Program
    f. Mode of Delivery (Classroom, Blended, or Online)
    g. Type of Offering (Blackboard course, MOOC, other)
    h. Academic Unit Offering Program

Non-Credit Curriculum:
    a. Course(s) Title(s):
    b. Assessment type (online proctored exam, project based assessment, etc).
        a. Please submit example

Graduate Program information (non-credit students would have been accepted into this program(s) to receive credit for a non-credit offering):
    a. Name of the Graduate Program
    b. Total number of credits accepted from non-credit offering (max 12 credits are allowed)*

For Credit equivalency:

Non-Credit Course	Graduate Course Equivalency	Number of Credits	Minimum Non-Credit Grade

Approvals:

Faculty

Signature
Department Head signature
Dean's Signature

Grad School Approval

* Students cannot use more than 12 credits accrued from non-traditional sources (undergraduate excess, shared credits from combined or dual degrees, transfer credits from other institutions, or non-credit to credit conversions).

THESIS OFFICE UPDATES

Pre-2016 Thesis Formatting Requirements:

- Attach Form 30 to front of document
- Margins:
  - 2" top margins on chapter/major heading pages
  - 1" top margins on all other pages
  - 1.5" left margins, 1.25" bottom margin, 1" right margin
- Pagination requirements:
  - Roman numerals through front matter, arabic numerals beginning with Chapter 1
- Mini-headers in Table of Contents, List of Figures, List of Tables
- Cover pages for Appendix, References, Vita, and Publications sections
  - No page numbers on these pages

Note:

This set of format requirements resulted in approximately 2.9 format revisions per student that came at deposit time.

With approximately 410 submissions per term, the TDO staff members would view approximately 1189 documents; most came within the last 2 weeks of the deposit deadline.

Pre-2016 Deposit Process:

1. Schedule in-person or online deposit appointment
2. Complete paper Forms 9, 32, and 15 (only confidential)
3. Submit electronic thesis deposit (ETD) to ProQuest and provide a hard copy for departmental library (some departments)
4. Check email for formatting corrections
5. Come to deposit appointment OR be available for online communication
6. Pay the deposit fee
II.   *Note:*

Formatting consultations were not offered or recommended due to the extensive format check that was conducted at deposit time.

Survey Results

- After surveying students for 2 years (2014-2015), the pre-2016 formatting requirements and deposit process proved difficult, to some varying degree, for approximatley 45% students.
  - Using templates to format/created own templates
  - Lack of MS Word and LaTeX help
  - Deposit process confusion - what are deposit appointments? Why are they needed?
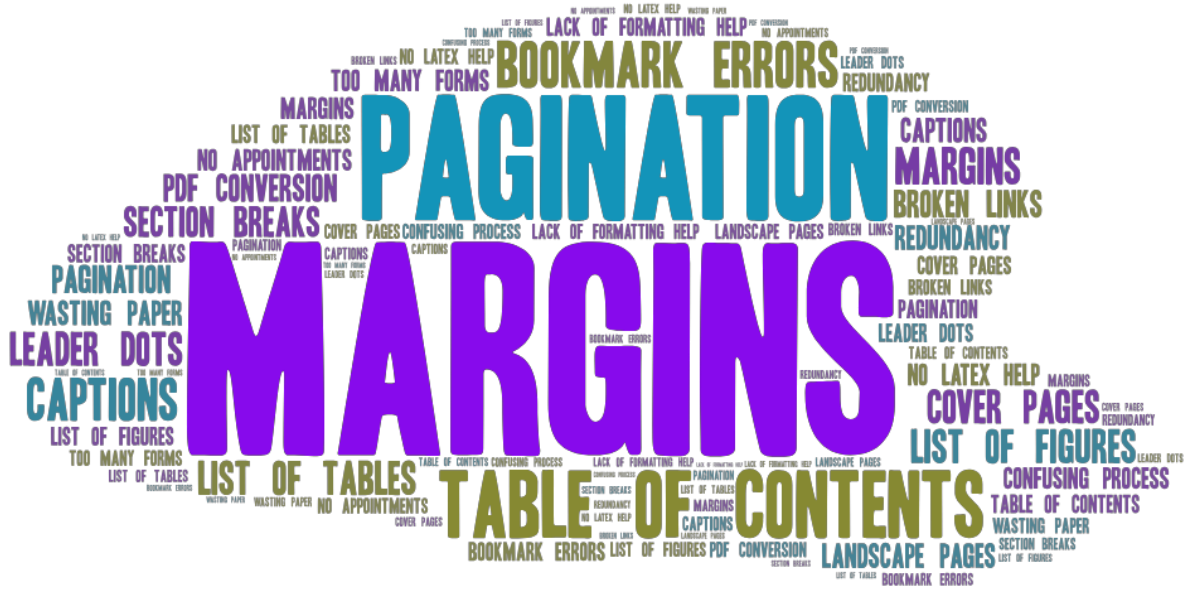
1 - Word Cloud: common deposit and formatting issues pre-2016.

TIME TO CHANGE

Formatting Changes:

- New MS Word templates including:
    - Simple format instructions, tips, and automated functions (list of tables, list of figures, table of contents)
    - Uniform 1" margins
    - New title page, including University Griffin
    - No cover pages
    - Arabic numerals through entire manuscript
- New LaTeX templates
    - New CNIT template supported by CNIT developers
    - New SoET LaTeX template: modified *puthesis* template for CNIT, edited and supported by TDO
    - *puthesis 2.0* coming soon
        - Currently discussing 2.1 - template updated with accessibility programming
        - *puthesis* template with old formatting standards still used and accepted

Note:

This set of format requirements has reduced the amount of requested format revisions to approximately 0.87 revisions per student - a reduction of over 2 revions per student!

With approximated 475 submissions per term, the TDO staff members now request approximately 413 revisions - a reduction of approximately 776 documents per semester!

Deposit Process Changes:

1. Initiate Electronic Thesis Acceptance Form [ETAF 9] (post-defense) and complete required survey(s)
2. Submit ETD to Hammer Research Repository (HammerRR) at least 24 hours in advance of deposit deadline
3. Pay the deposit fee

Added Services

- Formatting Consultations
  - The TDO staff now offer formatting consultations throughout the semester and recommend that students utilize the service BEFORE they defend. This allows the student to focus on post-defense content edits rather than having to focus on formatting.
- TDO staff offering some LaTeX support, host Intro and Advanced LaTeX workshops with HKN
- Overleaf (Online LaTeX platform) with LaTeX support

NEW RESEARCH REPOSITORY

To achieve 5 goals set by the TDO, the Graduate School researched new repositories to manage and publish the research outputs for Graduate Students:

1. Participate in the Open Access Movement
2. Evolve thesis types
3. Single repository with Digital Object Identifier [DOI] association
4. Combine thesis & dataset publishing locations
5. Faster degree clearance & thesis publishing

Solution: Figshare for Institutions

The Graduate School has partnered with Digital Science to bring Figshare for Institutions to Purdue. The Graduate School has named the repository Hammer Research Repository (HammerRR) or 'Hammer' for short.

Hammer provides:

- Free Open Access for all Graduate Students to publish datasets, theses, and other articles
- Web viewing of multiple file types: friendly for non-traditional theses (i.e., videos, GIS maps, 3D models, etc.)
- Files are located in one central repository which assigns a DOI for future or currently published files
- Students will be able to publish their datasets alongside their theses using the same repository
- After degrees have been conferred, theses and dissertations are immediately published. This reduces a minimum 4 month publication delay, and potential 2 year Open Access publication delay through the libraries e-Pubs
- The institution will remain in control of thesis files in the event of a vendor change

- Publications will be managed by the Graduate School, eliminating 3rd party control of publishing, maintenance, and removal
- Low subscription cost for the Graduate School

THE FUTURE OF THE DISSERTATION AT PURDUE

The Graduate School is prepared to accept the following thesis types (not an exhaustive list):

- Podcasts (Katie Shelly, *At Your Service*)
- Websites (Digital Dissertation by Amanda Visconti, Maryland Institute for Technology in the Humanities, *Infinite Ulysses*)
- Comic (Nick Sousanis, Columbia University, *Unflattening*)
- Music (A.D. Carson, Clemson University, *Owning My Masters: The Rhetorics of Rhymes & Revolutions*)
- Board Games (Erica Damman, University of Iowa, *untitled [Work in Progress]*)
- Born Digital Projects (BDP) - written thesis with a creative component
    - 3D PDF
    - PDF with Data Connect integration
    - PDF with embedded videos
    - PDF with accompanying 3D models, GIS maps, etc.

The possibilities are endless!

Future collection and publishing of all Graduate Student research projects, directed projects, capstone projects, etc.

- Central database to find research outputs for all departments
- Metadata Only publishing option available for proprietary projects
- Embargo options will be available
- Voluntary participation
- Testing Fort Wayne campus beginning Fall 2018

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

Graduate Council Document 18-60a, **CGT 53400, Automation of Digital Product Development Processes** (PWL) Sem. 1 and 2. Lecture 1 time per week for 180 minutes. Credit 3.

   This course introduces students to advanced computer programming techniques in the context of Computer-Aided Design and Manufacturing by focusing on automation and customization procedures of 3D solid modeling, design, and management tasks. The courses emphasizes problem-solving skills and creative thinking by developing solutions to manipulate CAD applications, files and PDM systems programmatically.

  By the end of the semester, students should be able to identify characteristics and common patterns in tasks that lend themselves to automation and select and evaluate the most appropriate mechanisms to implement different levels of automation.

Graduate Council Document 19-1a, **CGT 54500, Game Development I** (PWL) Sem. 1 and 2. SS. Lecture 3 times per week for 50 minutes. Credit 3.

   In both research and industry, game engines are the foundation for nearly all graphics-intensive interactive applications. A thorough understanding of how game engines work is therefore a requisite element of the game development process and lever for research in most domains involving interactive simulations and games. As game engine development, research, and application is a large and complex topic, the course is split into two semesters of study. The two courses are structured similarly but cover different aspects of development on and within game engines.

   This course introduces students to the fundamental technologies and skills required to develop video games using a modern game engine. Students are taught using a student-led, active-learning pedagogy in which students co-develop and present lectures, demonstrations, and assignments for their peers, with facilitation by the course instructor. The focus of this course is primarily on the technical, functional, and theoretical dimensions of game development, prioritizing technical soundness over design and creativity (which are covered more explicitly in a separate course). As research in this field continues to rapidly iterate, the latest findings are incorporated into each new offering of the course, refreshing its content as the technology evolves in its implementation and theoretical underpinnings. Production of original research focused upon an aspect of game development or game engine design is required.

Graduate Council Document 19-1b, **CGT 55500, Game Development I** (PWL) Sem. 1 and 2. SS. Lecture 3 times per week for 50 minutes. Credit 3.

   This course introduces students to the advanced concepts, technologies, skills that enable the creation of sophisticated video games, simulations, and game systems. Students are taught using student-led, active-learning pedagogy in which students co-develop and present lectures, demonstrations, and assignments for their peers, with the facilitation of the course instructor. A thorough understanding of how game engines work is therefore a requisite element of the game development process and lever for research in most domains involving interactive simulations and games. As game engine development, research, and application is a large and complex topic, the course material is distributed across two semesters. In addition to the continuation of technical topics this course also emphasizes the experiential, conceptual, and aesthetic dimensions of game

development, prioritizing implementation completeness with creative, aesthetically-pleasing implementations that are informed by current research. As research in this field continues to rapidly iterate, the latest findings are incorporated into each new offering of the course, refreshing its content as the technology evolves in its implementation and theoretical underpinnings. Production of original research focused upon an aspect of game development or game engine design is required.

Graduate Council Document 19-1c, **CGT 64500, Game Research** (PWL) Sem. 1 and 2. SS. Lecture 3 times per week for 50 minutes. Credit 3.

This course instructs students in current methods of conducting research on digital games, ludology, and the game development process. The most current or impactful research in the field is presented, analyzed, and extrapolated upon. The course surveys a wide variety of specific topics that shift as new research findings are published. Previous topics have included: biofeedback, user experience evaluation in games, gameplay measurement and analysis, development pipelines, mathematical modeling of game design, publication strategies and methodologies, scientific document preparation, and simulation. Quantitative and qualitative approaches to conducting research in the field of digital and traditional games. Production of original research focused upon an aspect of games, ludology, game development, or simulation is required.

Area Committee C: Chemistry, Engineering, and Physical Sciences, Chair to be determined):

Graduate Council Document 18-4d, **BME 50100, Multivariate Analyses in Biostatistics** (PWL) Sem. 1 and 2. Lecture 2 times per week for 75 minutes. Credit 3. Prerequisites: Graduate Level OR STAT 35000 OR STAT 51100 OR IE 330.

This course focuses on fundamental principles of multivariate statistical analyses in biostatistics, including multiple linear regression, multiple logistic regression, analysis of variance, and basic epidemiology. The fundamental theories are applied to analyze various biomedical applications ranging from laboratory data to large-scale epidemiological data.

Graduate Council Document 18-59a, **EAPS 60200, New Graduate Student Seminar** (PWL) Sem. 1. Lecture 1 time per week for 50 minutes. Credit 1.

This course will provide students with the tools to succeed as a graduate student in the Department of Earth, Atmospheric, and Planetary Sciences, which include good communication with their advisors, graduate fellowship proposal writing, giving good talks and posters, review of regulations and graduate timelines, formulating a plan of study, and resources available to help graduate students succeed.

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

Graduate Council Document 18-35b, **AMST 60500, Theory and American Culture** (PWL) Sem. 1 and 2. Lecture 1 time per week for 150 minutes. Credit 3.

This course provides an overview of key foundational texts in social and cultural theory, with a focus on theories of import to scholars in American Studies and related fields. We will explore the various types of theory, examining its internal logic, implications, and critiques. Consider this a brief introduction, meant to give you a general feel for the range and sophistication of available theories in American Studies. Moreover, as the "Cultural Politics" website observes, "Recent theory has reminded us that origin stories are powerful determining forces, and thus these tales of the growth

and development of the discipline should be read both for what they say and for what they may leave out, read both for their truths and their partialities." Similarly, the course syllabus itself creates a particular narrative regarding the development of the discipline. As such, students are encouraged to consider the syllabus through this perspective.

Graduate Council Document 19-2a, **ENGL 60111, Introduction To Scientific, Technical, Medical, And Healthcare Communication** (PWL) Sem. 1 and 2. SS. Lecture 200 minutes per meeting/1 online meeting per week/8 weeks per term and Recitation 100 minutes per meeting/1 online meeting per week/8 weeks per term. Credit 3.

Introduction to Scientific, Technical, Medical, and Healthcare Writing offers an overview of the genres, conventions, and strategies that these professional fields have in common. This course is the gateway course into the online Professional Certificate and Masters in Scientific, Technical, and Medical Communication.

Graduate Council Document 19-2b, **ENGL 60211, Science Writing** (PWL) Sem. 1 and 2. SS. Lecture 200 minutes per meeting/1 online meeting per week/8 weeks per term and Recitation 100 minutes per meeting/1 online meeting per week/8 weeks per term. Prerequisites: B-. Credit 3.

This course teaches students how to use the various writing styles and rhetorical strategies that are common in popular science and the scientific workplace. More specifically, they learn how to analyze, prepare, and edit technical and professional documents needed to effectively communicate within scientific professions, with specialized focus on reporting science news, conducting interviews with scientists, and identifying and explaining current debates in science.

Graduate Council Document 19-2c, **ENGL 60311, Medical and Healthcare Writing** (PWL) Sem. 1 and 2. SS. Lecture 200 minutes per meeting/1 online meeting per week/8 weeks per term and Recitation 100 minutes per meeting/1 online meeting per week/8 weeks per term. Credit 3.

This course help students master various genres, writing styles, and rhetorical strategies common in medical and healthcare contexts. More specifically, you will learn how to analyze, prepare, and edit documents that are used to communicate within and about the healthcare industry (i.e. protocols, patient educational materials, and proposals).

Graduate Council Document 19-2d, **ENGL 60411, Writing Proposals and Grants** (PWL) Sem. 1 and 2. SS. Lecture 200 minutes per meeting/1 online meeting per week/8 weeks per term and Recitation 100 minutes per meeting/1 online meeting per week/8 weeks per term. Credit 3.

Writing Proposals and Grants teaches students how to analyze requests for proposals, analyze problems, devise project plans, and write proposals for for-profit corporations and non-profit organizations.

Graduate Council Document 18-58a, **LING 55000, Corpus Linguistics** (PFW) Sem. 1 and 2. SS. Lecture 2 times per week for 75 minutes. Credit 3.

This course equips language teachers to use corpus linguistics to inform their teaching and/or bring corpus linguistics into the second/foreign language classroom. Non-TENL students are welcome and the course can be adjusted to fit their needs, as well. (Namely, an alternative to the mini-lesson requirement can be offered, and the corpus of such students can consist of any text or transcribed speech in any language). No experience with corpus linguistics, programming or statistics is assumed. The first half is an overview of corpus linguistics (history, tools, methods, corpora). The second half covers the relevance of corpus methods for language teaching and linguistics research in general. You will walk away with from this class with your own mini-corpus that you may build on in the future.

Graduate students read primary sources (in addition to the course readings) and are expected to be especially mindful of theoretical and methodological considerations behind corpus-building and corpus linguistics (in the readings and regarding their own corpus), and to express their understanding of these considerations orally and in writing.

Graduate Council Document 19-3a, **PHIL 55300, Mathematical Logic** (PWL) Sem. 1 and 2. Lecture 3 times per week for 50 minutes. Credit 3.

This class is an introduction to various logical foundations of mathematics as well as the basics of logical metatheory.

Graduate Council Document 19-3b, **PHIL 56100, Reading Philosophy: Skills And Strategies** (PWL) Sem. 1 and 2. SS. Lecture 2 times per week for 75 minutes. Credit 3.
Co-Requisites: PHIL 56100 will be taken in conjunction with PHIL 57100.

Academic philosophy demands both the ability to read large amounts of texts fluently and the ability to read texts carefully and closely. Furthermore, the abstract nature of philosophical discourse places a large cognitive demand upon readers. This course prepares philosophy students for these intensive reading demands. The course has three major learning areas: (1) the *language skills* that students need to *read fluently* (i.e., the efficient processing of language for general comprehension of meaning); (2) *reading strategies* that students can use to improve comprehension and learning; and (3) *communication about readings*, as the close reading of texts is essential to communicating one's ideas both orally and in writing.

Graduate Council Document 19-3c, **PHIL 56200, Reading To Argue** (PWL) Sem. 1 and 2. SS. Lecture 2 times per week for 75 minutes. Credit 3. Co-Requisites: PHIL 56200 will be taken in conjunction with PHIL 57200.

Closely and critically reading philosophical arguments is the first step to composing your own arguments in philosophy. In addition, developing these skills will help you to orally discuss philosophical ideas, both in classroom discussions as well as when giving presentations. This class aims to prepare students for these tasks by developing the skills of close and critical reading in philosophical discourse.

Graduate Council Document 19-3d, **PHIL 56400, Walk-Along Language Lab** (PWL) Sem. 1 and 2. SS. Lecture 1 time per week for 50 minutes. Credit 1. Co-Requisites: PHIL 56400 will be taken with a co-current 500-level philosophy course.

This course is a co-requisite, language-focused class linked to a philosophy seminar. Walk-along courses provide opportunities to shift focus from content to language form and use. Activities and projects for the course are designed to complement tasks and projects required for the seminar. Thus, the purpose of the walk-along course is to help you develop linguistic abilities required to succeed in your coursework. In addition, because of the centrality of writing for philosophy, walk-along courses will predominantly focus on developing your writing skills.

Graduate Council Document 19-3e, **PHIL 57100, Writing To Learn** (PWL) Sem. 1 and 2. SS. Lecture 2 times per week for 75 minutes. Credit 3. Co-requisites: PHIL 57100 should be taken in conjunction with PHIL 56100.

Writing fulfills a double function in philosophy: On one hand, writing is used to communicate ideas to an audience. On the other hand, writing is also a means by which ideas are developed, clarified, and come to be understood by the writer. In other words, writing is not just a tool of

communication but it is also a tool that can be used for learning. Focusing on both purposes of writing, this course aims to develop the ability of students to use writing as a means of learning and developing ideas as well as communicating ideas, particularly through expository-based writing assignments. Students will also learn writing processes that will aid their ability to effectively compose in English, including outlining, drafting, and editing.

Graduate Council Document 19-3f, **PHIL 57200, Writing To Argue** (PWL) Sem. 1 and 2. SS. Lecture 2 times per week for 75 minutes. Credit 3. Co-requisites: PHIL 57200 should be taken in conjunction with PHIL 56200.

Writing is a primary mode of communication in philosophy, perhaps *the* primary mode. This course aims to prepare students for the writing demands of philosophy by having students develop their ability to analyze, interpret, and critique philosophical arguments through written works and, in the process, construct their own philosophical arguments. Students will also learn writing processes that will aid their ability to effectively and clearly compose philosophical arguments, including outlining, drafting, and editing. Finally, the class will also pay attention to genre and rhetorical features of philosophical discourse, such as how philosophers enact criticism and write introductions to research papers. Students can use their course paper as a draft of a writing sample for PhD programs.