2016-2017 Graduate Council
Meeting Agenda: November 16, 2016 | 3:30 p.m.–5:00 p.m. | 102 Kern Graduate Building

1. Minutes of the October 19, 2016, Meeting
2. Unfinished Business
   a) Policy Draft on M.A./M.S. Culminating Experiences and Transcript Notations (Appendix A)
3. Communications to Graduate Council
4. Announcements/Remarks by the Chair – Regina Vasilatos-Younken, Vice Provost for Graduate Education and Dean of the Graduate School
5. Reports of Standing Committees of Graduate Council
   a) Committee on Committees and Procedures – Jennifer Graham-Engeland, Chair
   b) Committee on Programs and Courses – M. Kathleen Heid, Chair
      Informational items:
      1) Graduate Council Curriculum Report, 11/9/2016 (Appendix B)
   b) Committee on Academic Standards – L. Sam Finn, Chair
   c) Committee on Fellowships and Awards – Jennifer Graham-Engeland, Chair
   d) Committee on Graduate Research – Joshua Lambert, Chair
   e) Committee on Graduate Student and Faculty Issues – Sarah Ades, Chair
6. Reports of Special Committees
   a) Graduate School’s Graduate Exhibition Committee – Daniel Morgan, Chair
   b) Special Committee on Outcomes Assessment and Program Enhancement – Michael Verderame, Senior Associate Dean of the Graduate School
7. Special Reports
   a) Graduate and Professional Student Association
8. New Business
9. Comments and Recommendations for the Good of the Graduate Community
2016-2017 Graduate Council
Minutes of the Meeting: October 19, 2016

Graduate Council met on Wednesday, October 19, 2016 at 3:30 p.m. in 102 Kern Graduate Building. Dr. Michael Verderame, Senior Associate Dean of the Graduate School, presided over the meeting in the absence of the chair. The minutes were approved as corrected.

Comments and Recommendations for the Good of the Graduate Community

Dr. Verderame introduced Barbara Masi, Associate Vice Provost for Learning Outcomes and Assessment, and Lance Kennedy-Phillips, Vice Provost for Planning and Assessment, who provided Council with an update on the ongoing efforts focused on assessment of student learning outcomes. Dr. Kennedy-Phillips explained to the Council that although the recent Middle States Commission on Higher Education (MSCHE) evaluation brought attention to this topic, the goal of the Department of Learning Outcomes Assessment is to establish a process that is beneficial to all programs, colleges, and campuses, and results in a systematic approach to improving our educational offerings. Input from programs is integral to meeting this goal and Dr. Masi and her staff have met with college and campus leadership to craft roll-out plans that are specific to the needs of each college and its graduate programs.

Dr. Masi informed Council on the assessment process thus far and the expected steps in the near future as well as the long term. The slides presented by Dr. Masi are attached at the end of the minutes.

Announcements/Remarks by the Chair – Michael Verderame, Senior Associate Dean of the Graduate School

None.

Communications to Graduate Council

Dr. Verderame presented Council with a communication from the Graduate School which outlined the remarks given Dr. Barbara Korner, Dean of the College of Arts and Architecture, at the September 14, 2016 meeting and corresponding remarks from the Graduate School on specific statements made by the dean. A motion was made that the meeting agenda for the October 19 meeting be revised to change the listing of this item from “clarifications by the Graduate School” to “remarks by the Graduate School.” The motion passed.
Reports of Standing Committees of Graduate Council

Committee on Committees and Procedures
Dr. Verderame recognized Dr. Jennifer Graham-Engeland, Chair of the Committee on Committees and Procedures.

Dr. Graham-Engeland indicated the committee had nothing to report.

Committee on Programs and Courses
Dr. Verderame recognized Dr. Kathleen Heid, Chair of the Committee on Programs and Courses.

Dr. Heid presented the Graduate Council Curriculum Report, 10/12/2016 (Appendix B) as an informational item.

Dr. Heid reported that in addition to course and program proposal reviews, the committee discussed revising the current definitions of 500 and 800-level courses to provide more clarity on the distinction. This discussion will continue at the October 20, 2016 Joint Curricular Committee meeting and committee members have been asked to disseminate the proposed definitions within their constituencies and return with feedback. Council members who have not yet seen the proposed revisions should ask their representatives to the Joint Curricular Committee about this ongoing discussion.

Committee on Academic Standards
Dr. Verderame recognized Dr. L. Sam Finn, Chair of the Committee on Academic Standards.

Dr. Finn reported that the committee began an in-depth review of policies related to the research doctorate degree. The committee seeks to compile and formalize policies from information currently found in fragments throughout the Graduate Bulletin. The timeline outlined by the committee at its first meeting of the academic year reflects the goal of presenting this group of approximately eight policies to Council at the December or January meetings. The committee will then continue with similar groupings of policies on the professional doctoral degrees and the research and professional master’s degrees.

Committee on Fellowships and Awards
Dr. Verderame recognized Dr. Jennifer Graham-Engeland, Chair of the Committee on Fellowships and Awards.

Dr. Graham-Engeland reported that the committee met on September 15, 2016 and reviewed the expected work for this semester. There was considerable discussion of the new electronic system that was put in place so that the committee can better review award nominations in December. The
committee will also meet this Friday, October 21, 2016 to extensively review and discuss the University Graduate Fellowships that were awarded last year. The committee will then generate a report on that process which will be sent to the dean of the Graduate School.

Committee on Graduate Research

Dr. Verderame reported on behalf of Dr. Joshua Lambert, Chair of the Committee on Graduate Research.

Dr. Verderame attended the Senate Committee on Research (SCoR) meeting on behalf of Dr. Vasilatos-Younken and reported that the Faculty Senate will soon appoint the Vice Provost for Graduate Education and Dean of the Graduate School as a non-voting member of the SCoR. Dr. Verderame shared with the Committee that while Penn State is highly regarded for interdisciplinary research, there is a challenge in funding interdisciplinary graduate programs because the departmentally-based funding model is still widely used across the University. He suggested on behalf of The Graduate School that both the Graduate Committee on Research and SCoR examine and discuss the potential for sustainable funding models for interdisciplinary programs. SCoR had two other items on its agenda for this academic year which pertain to graduate education: providing more detailed information on the components of fringe benefits rates (including a detailed description of where tuition dollars go) and an examination of graduate student diversity. Dr. Verderame informed SCoR that the Graduate School has an extensive efforts targeted at improving the diversity of the graduate student body that are led by Dr. Stephanie Preston, Senior Director of the Office of Graduate Educational Equity Programs; Dr Preston can provide to SCoR information on the Graduate School’s efforts.

Committee on Graduate Student and Faculty Issues

Dr. Verderame recognized Dr. Sarah Ades, Chair of the Committee on Graduate Student and Faculty Issues.

Dr. Ades reported that Paul Apicella, Penn State’s Title IX Coordinator, joined the committee for its meeting earlier in the day to discuss Title IX’s implications for graduate students and graduate student advisers. The committee also welcomed representatives from a number of graduate student groups to brainstorm ways to raise awareness of Title IX. Some of the ideas raised included orientation sessions for graduate students to educate them on their rights and responsibilities under Title IX, as well as ways of educating graduate program staff and faculty.

Dr. Ades reported that the committee will also examine graduate student mentoring, and will explore the possibility of developing a set of guidelines with the endorsement of Graduate Council for graduate programs to follow.
Reports of Special Committees

Graduate School’s Graduate Exhibition Committee

Dr. Verderame recognized Dr. Daniel Morgan, Chair of the Graduate Exhibition Committee.

Dr. Morgan reported that the committee held its first meeting and discussed some innovative ideas on how to promote student interaction with the exhibition. The major discussion point for the committee involved how to convey the academic importance of the exhibition and the ability to speak broadly about one’s research to a general audience to both students and faculty. Dr. Morgan asked on behalf of the committee for the assistance of Council members in speaking about the academic value of participating in the exhibition with their students and faculty colleagues.

Special Committee on Outcomes, Assessment, and Program Enhancement

Dr. Verderame indicated the special committee had nothing additional to report.

Special Reports

Graduate and Professional Student Association

Dr. Verderame recognized Ms. Brainne Pragg, representing the GPSA.

Ms. Pragg reported that the GPSA recently completed the highest attended Dissertation Boot Camp event yet with almost sixty participants. The Dissertation Boot Camp continues to be the most popular event held by the GPSA, and this year capacity was increased by approximately twenty participants and still had a waiting list. GPSA continues to provide funding for Penn State organizations that bring value to the graduate student community such as State of State, TEDxPSU, Red Cross Club, and others. As a result of a vote on how graduate student representation on the Graduate School Alumni Society Board of Directors should be chosen, GPSA retained its four seats on the Board. The Student Fee Board is meeting this month and will discuss increasing funding for Counseling and Psychological Services (CAPS) from student fee dollars. It is likely the University will match the student fee contribution to hire more counselors in order to reduce the wait time for students to receive service. GPSA is continuing its involvement with the All-In campaign including sponsoring and planning a Diversity Speaks community spotlight event in the HUB and moderating a student town hall with Penn State trustees on diversity and inclusion.

Unfinished Business

Policy Draft on M.A./M.S. Culminating Experiences and Transcript Notations

Dr. Verderame reminded Council that the Committee on Programs and Courses presented a policy draft in the May 2016 Graduate Council meeting which would allow for a new type of culminating experience for research master’s degrees (M.A. and M.S.). In addition to the two currently approved culminating experiences (a thesis based upon original research in the field, or a scholarly paper or essay that is
research-oriented) the committee proposed accepting a capstone course that includes a work product that demonstrates evidence of analytical thinking and synthesis of knowledge in the field of study. The policy draft also proposes that an accompanying notation would be displayed on the transcript to indicate “Thesis Completed” for the thesis alternative or “No Thesis Requirement” for the scholarly paper/essay or capstone course alternatives. Dr. Verderame then opened the floor to continue the discussion from last meeting. After some discussion, a motion was made to postpone further discussion to the next meeting, and to order the agenda so discussion on this issue occurs early in the meeting. The motion passed. Council members were asked to further discuss the policy draft amongst their constituencies and return with feedback to continue the discussion at the November Graduate Council meeting.

**Discussion of the Graduate Faculty Policy**

A motion was made to refer the Graduate Faculty Membership Policy to the Academic Standards Committee. It was noted by the Council representatives from the College of Arts and Architecture that a Council representative from their college is a member of the Committee and will represent their interests. The motion passed.

**New Business**

None.

**Next meeting:**

Wednesday, November 16, 3:30 p.m. – 5:00 p.m., 102 Kern Graduate Building
Penn State University
Graduate Degree and Certificate Assessment

SCOAPE Update
September 12, 2016

Barbara Masi
Department of Learning Outcomes Assessment

Graduate degree assessment: update

- **Written assessment preparation documents**
  - Part 1: Elements of a degree assessment plan
  - Part 2: Getting started in developing degree assessment plan
  - Assessment plan and report templates
  - Tailored examples by discipline domain
  - LOA graduate degree rubric library

- **College BOX folders contain all documents**
  - ADs and program heads/directors/admins added to BOX
  - Colleges will submit plans to BOX in December, 2016

- **Face to face workshop format**
  - Workshop materials tailored to each college
  - Summer-Fall 2016 schedule includes all colleges

- **Online workshop format and Fall 2016 schedule**
Assessment plan template

- Approved by Graduate School, June 2016

- **Template Elements**
  - Program learning objectives (PLO)
  - Align with Graduate Council Scholarly and Professional Goals
  - Curriculum (master’s) or milestone (doctoral) map with PLOs
    - Indicate phases of graduate education: I,P,D
    - Table or prose formats permitted
  - Indirect measure map with PLOs
  - Assessment plan description for AY 2016-2017
  - Additional documentation can be submitted with plan

- **Due December 2016**

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Assessment report template

- **Template Elements**
  - Restate PLO and assessment measure
  - Findings summary
  - Plan for change if indicated
  - Additional documentation can be submitted with report

- **Due June, 2017**
Assessment planning: guidelines and workshop topics

- **Part 1: Elements of a graduate degree assessment plan**
  - Clear definitions of terms
  - Precise, brief explanations and rationale of template elements
  - Examples tailored to diversity of disciplines
  - Allow for range of submission formats: table, prose
  - How to review, choose and describe current students assessments to measure PLOs
  - Ideas for developing effective degree assessment plan
  - Explain how to use rubrics in student direct assessment measures
    - Articulate faculty expectations for assessment
    - Sample rubrics that can be modified
  - Encourage use of indirect measures to gather student and alumni input

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Assessment planning: guidelines and workshop topics

- **Part 2: Getting started**

  - Review graduate degree documents
    - Handbooks, program reviews, current student evaluation processes, current course assignment rubrics or other student evaluation forms

  - Dig deeper: Doctoral or master’s degree study questions (Maki)
    - First year: Student background and foundation knowledge assessments
    - Student progress through graduate education phases
    - Career path interests, student expectations
College Action Plans

- Met with all UP college graduate associate deans and Harrisburg AD
- Developed College Action Plans for graduate degree assessment roll-out
  - Colleges added most recent professional accreditation self-studies to BOX for LOA staff review and ensure no redundant work for accredited degrees
  - LOA added tailored assessment preparation materials to each college BOX folder
  - LOA / colleges added all program heads to BOX folders to access materials, submit plans
  - Schedule 1 hour degree assessment workshops in each college with all program heads

College Program Head Meetings and Workshops: Update

- Workshops done
  - Liberal Arts, HHD, Engineering
- Workshops scheduled for Sept./Oct.
  - EMS, Ag, Arts and Architecture, Harrisburg
- Meetings this week to schedule remaining college workshops
  - Education, Eberly Science
- Degree-level workshops
  - Done: HHD RPTM, Ag Forest Mgmt., Ag Plant Biology
  - Others currently being scheduled
  - Online workshops every other week

- Smeal, Nursing, Comm leadership meetings: 2 hour meetings in August/ Sept. with graduate degree leadership in each college to review guidelines and templates. Sufficient to prepare team to meet December deadline.
Graduate certificates

- **College ADs post certificate lists with faculty contact to BOX**
  - Include World Campus certificates

- **Action Plan: start with World Campus certificates**
  - Work with college instructional designers and faculty contact
  - Faculty contact to write certificate learning objectives, review with college
  - Instructional designer to gather World Campus course learning objectives for certificate courses
  - Faculty contact to align certificate objectives with course objectives
  - Faculty contact to work with World Campus faculty to gather selection of course assessments, performance expectations, and student performance data that align with certificate objectives
Graduate Council Committee on Programs and Courses

Policy Draft on M.A. and M.S. Degree Culminating Experiences and Transcript Notations

For the research master’s degrees, the Master of Science (M.S.) and Master of Arts (M.A.), the alternatives for the culminating experience are:

1) a thesis based upon original research in the field;

2) a scholarly paper or essay that is research-oriented; or

3) a capstone course that includes a work product which demonstrates evidence of analytical thinking and synthesis of knowledge in the field of study.

In the case of the thesis-based alternative, a transcript notation will be applied that states “Thesis Completed.”

In the case of the scholarly paper/essay or capstone course alternatives, a transcript notation will be applied that states “No Thesis Requirement.”
Graduate Council Curriculum Report

The Graduate Council Curriculum Report (GCCR), which includes all graduate curricular proposals approved through the Graduate Council curricular review process, is published 12 times each calendar year.

Questions/comments regarding the GCCR or its contents may be directed to the Director of Graduate Education Administration.

November 9, 2016

Graduate Degree Programs

CHANGE

Criminal Justice – change in degree requirements (Penn State Harrisburg), page 9

Homeland Security – change in degree requirements (Penn State Harrisburg), page 27

Materials Science and Engineering – add a non-thesis track for the M.S. degree (College of Earth and Mineral Sciences), page 59

Nursing – adopt dual-title degree in Clinical and Translational Sciences (College of Nursing), page 73

Graduate Courses

ADD

BMS 562
Principles of Immunology C: Dysfunction and Manipulation of the Immune System
IMMUNE SYS DYSFXN (1)
Investigation of diseases associated with immune system dysfunction and the manipulation of this system to prevent and treat disease.
PROPOSED START: SP2017

BMS 566
Viral Oncogenesis
VIRAL ONCOGENESIS (1)
This course will provide an understanding of the role of viruses in the development of cancer in humans and the molecular mechanisms involved. The course will build on an understanding of normal growth control of cellular proliferation to determine the molecular mechanism through which oncogenic viruses exert their effects on cellular proliferation and survival. Students will gain an understanding of the contribution of an underlying human immunodeficiency virus infection and will be able to apply this knowledge to an understanding of the cooperative effect of HIV and other viruses.
PROPOSED START: SP2017
CIPA 501
Criminal Justice Institutions
CI INSTITUTIONS (3)
This course provides a broad understanding of the social science study of criminal justice institutions and their decision-making processes.
PROPOSED START: SP2017

CIPA 803
Applied Research Methods
APPL RES METHODS (3)
This course provides a survey of social research methods tailored to the field of criminal justice.
PROPOSED START: SP2017

ENGL 556
Reading Film
READING FILM (3)
A practical and historical approach to film theory and analysis.
PROPOSED START: SP2017

GEOG 550
Wetlands Ecology and Management
WETLANDS ECOLOGY (3)
This course explores the diversity, complexity, ecological functions, conservation, and cultural values of freshwater and coastal wetlands through interdisciplinary discussions, readings, projects, and field trips.
PROPOSED START: SP2017

GER 532
Holocaust and Visual Culture
HOLOCAUST VIS CULT (3)
This seminar studies visual representations of the Holocaust, examining aesthetic and philosophical questions involved in any attempt to depict genocide.
PROPOSED START: SP2017

HLS 811
Fundamentals of Homeland Security
FUND OF HLS (3)
Fundamentals of Homeland Security provides foundational knowledge about homeland security policy, strategy, organization, and legal issues in the U.S. context.
PROPOSED START: SP2017

IN SC 846
Network and Predictive Analytics for Socio-Technical Systems
SOC NET ANALYTICS (3)
This course will study the inter-relatedness of cyber-social and cyber-technical aspects of an organization or society as a whole.
PROPOSED START: SP2017
PHS 531
Perspectives on Women’s Health
WOMEN’S HEALTH (3)
The Perspectives in Women’s Health Seminar uses a seminar format and class discussion to address the public health issues facing women today. The course will start with an overview of women’s health as a construct, and will then challenge students to consider how public health programs, health care delivery organizations, and public policy can respond to emerging needs in women’s health. The course will examine women’s health across the lifecourse, focusing on key issues that affect women domestically and internationally, including health problems that exhibit a gender disparity. The aims of this course include the education of public health leaders in women’s health, including the sociocultural and historical factors contributing to conceptions of women’s health in the U.S. and worldwide. Students will understand how public health perspectives on women’s health are changing, and key issues that are debated in the context of that change. Students will be able to identify key health problems facing women across the lifespan, and be able to identify key biological, psychosocial, and cultural factors that influence women’s health.
PROPOSED START: SP2017

PHS 565
Statistical Models for Tobacco Research
STAT TOBACCO RES (1)
Provide statistical analytical methods in estimating potential or empirical effects of regulation of tobacco.
PROPOSED START: SP2017

PHS 804
Integrating Systems Thinking in Global Health
SYS THINK GBL HLTH (3)
In this course, students will engage in case studies of global health programs and initiatives. A systems thinking framework will be applied to the cases and students will use the framework to anticipate unintended consequences related to international field work and to propose possible solutions. Cases will illustrate the complexity of global health work and the importance and implications related to the interconnectedness and complementary roles of critical public health systems. The cases used in this course will include a spectrum of small to large scale programs and short-term to long-term response efforts. The framework can be applied domestically and the course will consider domestic health issues. Cases will cover the major topics of the public health system, biosocial context, chronic disease, infectious disease, and systems failures.
PROPOSED START: SP2017

SOILS 504
Unsaturated Zone Hyrdology and Chemical Transport
UNSAT ZONE HYDROL (3)
This course provides the theoretical basis for and mathematical description of the transport of water and chemicals through the unsaturated zone between the soil surface and the regional water table. This zone is frequently referred to as the vadose zone. In particular, the course investigates the solutions to problems involving the transport of water and chemicals through the vadose zone, such as might be the case when attempting to predict direction and rate of a
contaminant spill, or to determine the length of time required for contaminant remediation, or to protect buried waste from infiltrating water. Students will recognize parameters required in order to develop solutions to identified problems, will identify means to obtain values of the needed parameters, and will develop model solutions in order to gain insight into expected outcomes of proposed solutions.
PROPOSED START: SP2017

VSTUD 555
Visualizing Gender
VISUALIZING GENDER (3)
This course analyzes how gender identities relate to the creation, use, and analysis of visual artifacts and bodily practices.
PROPOSED START: SP2017

CHANGE

OLD
ANTH 560
History of Anthropological Theory
HIST ANTH THEORY (3)
Survey of origin and development of anthropology in the nineteenth century and trends during the twentieth century.
APPROVED START: SP2015

NEW
ANTH 560
Ecology, Evolution, and Human Behavior
ECOL EVOL HUM BEH (3)
This course provides fundamental theory to understand the nature of the dynamic relationship between human decision-making and the natural and social environment. We focus on ecological anthropological theory operating at multiple scales, from the individual to the population, to the community. We will learn how such theory has been applied in the development of a wide range of questions in ecological anthropology, with a focus on key empirical studies of resource use and reproduction, population growth, subsistence and social intensification, disturbance dynamics, niche construction, and cooperation.
PROPOSED START: SP2017

OLD
PNG 550
Reactive Transport in the Subsurface
REACTIVE TRANSPORT (3)
This course teaches principles of flow, transport, and reaction processes in the natural subsurface.

NEW
CE 574
Reactive Transport Processes in Porous Media

REACTIVE TRANSPORT (3)
This course teaches principles and modeling of flow, transport, and reaction processes in the natural and built environment. The course targets students from a range of disciplines where water-mineral-microbe interactions play a key role. This includes, but not limited to, environmental engineering, water resources, geosciences, petroleum and natural gas engineering, agricultural engineering, civil engineering, chemical engineering, and applied mathematics. The course teaches fundamental concepts, mathematical formulation, and quantitative representation, and applications of multi-component reactive transport processes. The learning outcomes are to 1) understand fundamental concepts of biogeochemical reactions, flow, and solute transport; 2) understand reactive transport equations and concepts of numerical solution; 3) develop computational skills using a reactive transport modeling code. The students will grasp reactive transport concepts, as well as skills to set up reactive transport models, interpret data, and predict subsurface physical flow and geochemical and microbiological process coupling.

PROPOSED START: SP2017

OLD
ESC 520
Engineering at the Nano-scale
ENGR AT NANO-SCALE (3)
APPROVED START: FA2016

NEW
ESC 520
Engineering at the Nano-scale
ENGR AT NANO-SCALE (3)
CROSS-LISTED COURSES: NANO 520
PROPOSED START: SP2017

OLD
ESC 521
Pattern Transfer at the Nano-scale
NANO PATTERN TRANS (3)
APPROVED START: SP2016

NEW
ESC 521
Pattern Transfer at the Nano-scale
NANO PATTERN TRANS (3)
CROSS-LISTED COURSES: NANO 521
PROPOSED START: SP2017

OLD
ESC 522
Fabrication and Characterization for Top-down Nano-manufacturing
TOP-DOWN NANO-MFG (3)
APPROVED START: FA2016
NEW
ESC 522
Fabrication and Characterization for Top-down Nano-manufacturing
TOP-DOWN NANO-MFG (3)
CROSS-LISTED COURSES: NANO 522
PROPOSED START: SP2017

OLD
ESC 523
Fabrication and Characterization for Bottom-up Nano-manufacturing
BOTTOM-UP NANO-MFG (3)
APPROVED START: FA2016

NEW
ESC 523
Fabrication and Characterization for Bottom-up Nano-manufacturing
BOTTOM-UP NANO-MFG (3)
CROSS-LISTED COURSES: NANO 523
PROPOSED START: SP2017

OLD
HIST 543
Antebellum America 1789-1860
ANTEBELLUM US (3)
Social, intellectual, and cultural developments from the period after the nation's founding until the start of the Civil War.
APPROVED START: FA2013

NEW
HIST 543
United States History to 1877
US HISTORY TO 1877 (3)
Primarily a reading seminar, this course focuses on United States history from the 17th century to 1877, emphasizing the profound ways that the British American colonies and then the United States changed through numerous social, cultural, economic, and political revolutions. In particular, the course investigates transitions from the colonial period through the road to the Revolution, the Early National period, the Jacksonian Era, the sectional conflict, and the Civil War and Reconstruction. Students will examine the growth and impact of the institution of slavery; territorial expansion; cross-cultural encounters; social, cultural, economic, and political revolutions; the consolidation of capitalism; and the impact of reform movements on the colonies and nation.
PROPOSED START: SP2017

OLD
MICRO 553
Science of Virology
SCI OF VIROLOGY (4)
Replication of viruses and effects on host cells, including oncogenic properties of viruses and cellular growth and survival pathways disrupted.

APPROVED START: FA2011

NEW

BMS 564
Concepts in Virology
CONCEPTS VIROLOGY (2)
The objective of the Concepts in Virology course is to describe the lifecycle of representative RNA and DNA viruses and the relationship between the virus and the host at the molecular level. Emphasis is placed on developing an understanding of the experimental systems used to elucidate individual steps in virus lifecycles and interactions with the host cells. Host cell-virus interactions leading to the production of progeny virus and interactions involved in establishing and maintaining long term interactions, such as latency and effects on cell growth, are discussed in detail. While some didactic lectures are provided, reading and discussion of the primary scientific literature is an integral component of the course. Students will gain a comprehensive view of the interaction between a virus and its host at the molecular level. In addition, students will gain an understanding of the experimental systems used to elucidate steps in the virus lifecycle.

PROPOSED START: SP2017

OLD

MICRO 560
Concepts in Immunology
CONCEPTS IMMUNOL (4)
Selected lectures/readings in advanced immunological concepts; emphasis on lymphocyte function and applications to anti-viral/tumor immunity.

APPROVED START: SP2012

NEW

MICRO 560
Concepts in Immunology
CONCEPTS IMMUNOL (2)
Concepts in Immunology is designed to instruct students in immunological topics that are typically not covered in depth in lower-level classes in microbiology and/or immunology. These topics usually represent emerging areas in immunology and the specific interests of the teaching faculty and students registered for the course. This course is team-taught and is offered primarily to graduate students. Most students enrolled in this course are either graduate students in the Virology and Immunology Option (VIRIM) of the Biomedical Sciences (BMS) Program or students in other options of the BMS Program but who are conducting thesis research in laboratories of faculty who are in the Department of Microbiology and Immunology. One major objective of this course is to reinforce the students' knowledge in the fundamentals of immunology and to provide a substantially deeper base of knowledge in selected fundamental areas. Another major objective is to broaden the students' scope of immunological concepts through the teaching of interdisciplinary topics in immunology. In the past, such topics have included neuroimmunology, immunological aspects of aging, immunology of atherosclerosis, regulation of the maternal immune response during pregnancy, and pathogenesis of rheumatoid arthritis. Achieving these objectives is accomplished though a combination of didactic lectures and
readings/discussion of both primary and review literature. This course is typically offered in the Spring semester of each year and class enrollment usually ranges between three and six students.

PROPOSED START: SP2017

OLD

PHSIO 572
Animal Physiology
ANIMAL PHYSIOL (3)
Mammalian nervous, endocrine, metabolic, and reproductive systems.
APPROVED START: SU1985

NEW

PHSIO 572
Integrative and Cellular Mammalian Physiology II Endocrine Physiology
ENDOCR PHYSIOL (3)
The course in Cellular and Integrative Mammalian Physiology II covers all major aspects of endocrine physiology. A special emphasis will be placed on how cellular aspects of physiology are integrated with organ and systems physiology. This course is designed for graduate students in the Physiology or Animal Science graduate programs, or students who are interested in integrating physiology concepts into their work in another program. Although there are no prerequisites for the course, prior courses in physiology, endocrinology, and/or biochemistry are beneficial. The course will include the following topics: gastrointestinal physiology, pancreatic hormones and integrated metabolism, hypothalamic pituitary function, thyroid, parathyroid and bone, as well as physiology of growth and lactation. Additional topics will encompass adrenal function, sexual differentiation, male and female reproduction, embryo and adult derived stem cells, aging, obesity, and metabolic syndrome.
PROPOSED START: SP2017
Graduate Council
Program, Option, or Minor Proposal Form

Submit 1 original, signed Graduate Council proposal form and 2 hardcopies of the graduate program proposal document, with a copy of the signed proposal form attached to each proposal copy, to the Curriculum Coordinator, University Faculty Senate, 101 Kern Graduate Building, University Park. The proposals will be transmitted to the Office of the Dean of the Graduate School for entry into the Graduate Council curricular review process; for more information about the process, see the Overview of the Graduate Council Curricular Review Process.

The Program Proposal Procedures provide guidance for the development of a graduate program proposal. If you have questions regarding the preparation of a graduate program proposal or how to complete this Graduate Council proposal form, contact the Office of the Dean of the Graduate School.

College/School: Penn State Harrisburg
Department or Instructional Area: School of Public Affairs

New Graduate Program, Option, or Minor: 

Designation of new graduate program:
Classification of Instructional Programs (CIP) Code:
Designation of new graduate option:
Designation of new graduate minor:

Indicate effective semester:

☐ First semester following approval
☐ Second semester following approval

Existing Graduate Program Option, or Minor: 

Change
Drop

Current designation of graduate program: Masters of Arts in Criminal Justice
Current designation of graduate option:
Current designation of graduate minor:

New designation of existing graduate program (if changing):
New designation of existing graduate option (if changing):
New designation of existing graduate minor (if changing):

Brief description of the change (if not noted above):

Indicate effective semester:

☐ First semester following approval
☐ Second semester following approval

Submitted by Graduate Program Head

Dr. Patricia de Lancer Julnes
Printed name
Signature
Date: 12/11/15

Noted by College/School Representative to Graduate Council Subcommittee on New and Revised Programs and Courses:

Dr. Janet Duck
Printed name
Signature
Date: 12/15/15

Approved by College/School Dean/Chancellor (or Designee):

Dr. Peter Idowu
Printed name
Signature
Date: Dec 17, 2015
Recommended by Chair, Graduate Council Subcommittee on New and Revised Programs and Courses:

On Behalf of C. Andrew Cole
Printed name: Valter Knutt
Signature: 
Date: 11/9/2016

Recommended by Chair, Graduate Council Committee on Programs and Courses:

On Behalf of M. Kathleen Heid
Printed name: Valter Knutt
Signature: 
Date: 11/9/2016

Noted by Dean of the Graduate School:

On Behalf of Regina Vasilatos-Younken
Printed name: Valter Knutt
Signature: 
Date: 11/9/2016
PROPOSED PROGRAM CHANGES TO THE MASTER OF ARTS IN CRIMINAL JUSTICE (MACJ) DEGREE

School of Public Affairs
Penn State Harrisburg

Summary of Changes

The Criminal Justice program proposes three fundamental changes to its residential MACJ program that will formally incorporate collateral areas of study that have taken on greater importance since the degree was created over 15 years ago and will strengthen the program overall. The changes are:

1. **Reduce the overall number of credits required for completion of the M.A. degree from 36 to 30.**

2. **Replace existing comprehensive exams as a capstone option and replace with the Master’s Paper option.**

3. **Require students to complete a 9 credit concentration.**

Rationale for Changes

1. **Reduction in credits required for completion of the M.A. degree from 36 to 30.**

When the MACJ was created at Penn State Harrisburg roughly 15 years ago, similar programs offering the master’s degree in criminal justice/criminology typically required either 36 or 30 credits total for degree completion. The faculty at that time opted for the greater number of credits, which requires students to complete 9 credits of graduate-level course work each semester for a two-year period. This model served the program rather well in earlier years, but it is inevitable that a graduate program focused on a prominent social issue would need revision after a decade and a half, and lead the faculty to reconsider existing requirements.

The MACJ offered at Penn State Harrisburg is a rigorous, high-quality degree program with a track record of facilitating student success. The faculty feels that all of the core requirements should remain intact, yet also believes the curriculum needs a tighter focus than the generalist orientation of the program when it was created. Trends and issues in the discipline have changed and societal concerns have transitioned. Some of this is reflected in the evolution of the School of Public Affairs (e.g., the addition of Homeland Security programming; emphasis
on crime as a public health concern) and we believe modifications are necessary to keep the program relevant and attractive to potential students.

A 30 credit MACJ makes the degree more comparable with a majority of other master’s offerings in CRIMJ/Criminology at colleges and universities within a 2-3 hour radius of Penn State Harrisburg (see Appendix 1). The credit reduction would also pave the way for the Criminal Justice program to implement an Integrated B.S./M.A. program that would more reasonably allow students to complete both degrees in 5 calendar years, as opposed to the minimum of 6 years it normally takes students who complete both the B.S. and M.A. in Criminal Justice at present. While a potential IUG program is a significant contributing factor for the proposed changes, the faculty also feels it is necessary to make this credit reduction to attract students who completed their undergraduate education outside Penn State by making the program more comparable to other options available for students. Further, the 6 credit reduction, proposed requirement that students complete a 9 credit concentration (see #3 below), and replacement of comprehensive exams with a master’s paper requirement (see #2 below) streamlines the curriculum, focuses it more substantially on content specific to the discipline, and eliminates student uncertainty relative to the completion of requirements.

2. Replace existing comprehensive exams as a capstone option and replace with the Master’s Paper option. Because comprehensive exams no longer qualify as an acceptable capstone experience for the MA at Penn State, this option will be eliminated, and all MACJ students will be required to complete either a master’s thesis or a master’s paper. Guidelines for the master’s paper in CRIMJ are based on established master’s paper requirements from other MA/MS degree-granting units within the University (see Appendix 2).

3. Require students to complete a 9 credit concentration. Currently, all MACJ students complete 15 credits of core requirements (CRIMJ 500, CRIMJ 501, CRIMJ 502, CRIMJ 503, and CRIMJ 504). Students opting for the thesis track must complete 6 credits of CRIMJ 600, while students choosing the comprehensive examination track are free to select 21 credits of 400- (6 credits maximum) and 500-level course work in ANY discipline. Theoretically, a student could earn 21 of the 36 required credits for the MACJ outside of criminal justice. While this is certainly not the norm --- most students take as many CRIMJ credits as possible--- it is a loophole the program would like to close so that MACJ students are taking the vast majority of their course work in CRIMJ or a related discipline within the School of Public Affairs or another unit within the College. By creating specific concentrations within SPA, the curriculum is better focused,
and all but eliminates student uncertainty in planning and scheduling which has been problematic for some MACJ students.

At the same time, flexibility for the student to pursue interests in fields associated with CRIMJ (e.g., American Studies, Applied Behavior Analysis, Community Psychology and Social Change) is preserved as students will create, in consultation with their faculty advisor and approved by the MACJ program coordinator, a concentration most suitable to their interests. Thesis-track students, then, will complete the 15 credit core, a 9 credit concentration, and 6 credits of CRIMJ 600. Master’s paper option students will complete the 15 credit core, a 9 credit concentration, 3 credits of CRIMJ 594, and 3 credits of elective coursework. Example/suggested concentrations, and plans for study appear in Appendix 3.

### MACJ Program Changes at a Glance

<table>
<thead>
<tr>
<th>Current Program – 36 Credits Total</th>
<th>Proposed Program – 30 credits Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>The thesis track requires 36 credits. Six of the credits will be for the thesis.</td>
<td>The thesis track requires 30 credits. Six of the credits will be for the thesis (CRIMJ 600).</td>
</tr>
<tr>
<td>The non-thesis track will require 36 credits plus successful completion of the comprehensive essays, for which a student will register for one credit of CRIMJ 594.</td>
<td>The master’s paper track will require 30 credits. Three of these credits will be awarded for successful completion of a master’s paper, for which a student will register for three credits of CRIMJ 594.</td>
</tr>
<tr>
<td>These credits must be at the 400 level or above with a minimum of 30 credits at the 500 level or above.</td>
<td>These credits must be at the 400 level or above with a minimum of 24 credits at the 500 level or above.</td>
</tr>
<tr>
<td>A minimum grade-point average of a 3.0 must be earned for course work taken as a graduate student.</td>
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</tr>
<tr>
<td>Students are required to take the following courses: CRIMJ 500, CRIMJ 501, CRIMJ 502, CRIMJ 503, and CRIMJ 504. CRIMJ 501 and CRIMJ 503 are to be taken concurrently.</td>
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<tr>
<td>Students who believe they have completed a course substantially similar to one of the specific course requirements may apply to</td>
<td>Students who believe they have completed a course substantially similar to one of the specific course requirements</td>
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<tr>
<td></td>
<td>Students are required to complete a concentration of nine additional credits.</td>
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</tbody>
</table>
have their previous work evaluated for the purposes of exemption to that requirement. If approved, another course will be taken in place of that requirement.

may apply to have their previous work evaluated for the purposes of exemption to that requirement. If approved, another course will be taken in place of that requirement.

A maximum of 6 credits of completed graduate work may be transferred in from another accredited institution.

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Existing Bulletin Copy

Criminal Justice (CRIMJ)

Program Home Page

SHAUN GABBIDON, Program Chair
Penn State Harrisburg
777 W. Harrisburg Pike
Middletown, PA 17057-4898

717-948-6322 (administrative assistant)
717-948-6484 (fax)

Degree Conferred:

M.A.

The Graduate Faculty

The Program

The program reflects the numerous complexities of the discipline. It provides academic leadership for students to work within corrections, institutionalized and non-institutionalized settings, victim services, adult and juvenile services, policing and law enforcement, private security, courts, and other human service
organizations serving the clients of these institutions. It also helps develop research acumen for those students who may wish to consider doctoral studies.

Strong ties developed in state, local, and federal level law enforcement, corrections, drug treatment, victimization, and crime control policy organizations provide research and learning opportunities for interested students.

The degree may be earned by full- or part-time study. Most courses will be offered in the evening, although some will be offered during the day or on weekends.

**Admission Requirements**

- A completed application form with the application fee.
- Two official transcripts of all colleges and universities attended.
- Graduation from a regionally accredited college or university.
- Three letters of recommendation.
- A brief (two-page) statement of purpose or a writing sample.
- Minimum GPA of a 3.0 for the last 60 credits of undergraduate study. Satisfactory scores on the Graduate Record Examination (GRE), Graduate Management Admissions Test (GMAT), or Law School Admissions Test (LSAT) are required if the GPA is less than 3.0. *Note: All students who seek funding must take one of these standardized tests, preferably the GRE.*
- The language of instruction at Penn State is English. All international applicants whose first language is not English or who have not received a baccalaureate or master's degree from an institution in which the language of instruction is English must take the TOEFL (Test of English as a Foreign Language) or the IELTS (International English Language Testing System) and submit the results of that test with the application for admission. A TOEFL score of 550 on the paper test, a score of 213 on the computer-based test, or 80 points on the new Internet-based test with a minimum of 20 points on the speaking portion; or the IELTS module with a minimum composite score of 6.5 is required for admission.
- Some foundational course work may be required for those students who did not major in criminal justice as an undergraduate. This decision will be made by the MACJ Program Coordinator after a close review of the undergraduate transcript.
- In exceptional cases, the program may also approve admission by reason of special backgrounds, abilities, and interests.
- Students must submit admission materials for fall by February 15.

**Degree Requirements**

1. The thesis track requires 36 credits. Six of the credits will be for the thesis.
2. The non-thesis track will require 36 credits plus successful completion of the comprehensive essays, for which a student will register for one credit of CRIMJ 594.
3. These credits must be at the 400 level or above with a minimum of 30 credits at the 500 level or above.
4. A minimum grade-point average of a 3.0 must be earned for course work taken as a graduate student.
5. Students are required to take the following courses: CRIMJ 500, CRIMJ 501, CRIMJ 502, CRIMJ 503, and CRIMJ 504. CRIMJ 501 and CRIMJ 503 are to be taken concurrently.
6. Students who believe they have completed a course substantially similar to one of the specific course requirements may apply to have their previous work evaluated for the purposes of exemption to that requirement. If approved, another course will be taken in place of that requirement.
7. A maximum of 6 credits of completed graduate work may be transferred in from another accredited institution.
Courses

Graduate courses carry numbers from 500 to 599 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

CRIMINAL JUSTICE (CRIMJ) course list

Last Revised by the Department: Spring Semester 2009

Blue Sheet Item #: 37-03-043

Review Date: 11/18/08

Faculty linked: 8/14/14

Proposed Bulletin Copy

Criminal Justice (CRIMJ)

Program Home Page

SHAUN GABBIDON, Program Chair
Penn State Harrisburg
777 W. Harrisburg Pike
Middletown, PA 17057-4898

717-948-6322 (administrative assistant)
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Strong ties developed in state, local, and federal level law enforcement, corrections, drug treatment, victimization, and crime control policy organizations provide research and learning opportunities for interested students.

The degree may be earned by full- or part-time study. Most courses will be offered in the evening, although some will be offered during the day or on weekends.

Admission Requirements

Admission requirements listed here are in addition to requirements stated in the GENERAL INFORMATION section of the Graduate Bulletin.

- A completed Graduate School application for admission with the application fee.
- Official transcripts from all post-secondary institutions attended.
- Three letters of recommendation.
- A brief (two-page) statement of purpose or a writing sample.
- Minimum GPA of a 3.0 for the last 60 credits of undergraduate study. Satisfactory scores on the Graduate Record Examination (GRE), Graduate Management Admissions Test (GMAT), or law School Admissions Test (LSAT) are required if the GPA is less than 3.0. Note: All students who seek funding must take one of these standardized tests, preferably the GRE.
- The language of instruction at Penn State is English. English proficiency test scores (TOEFL/IELTS) may be required for international applicants. Consult the English Proficiency section of the Graduate Bulletin Application and Admission Procedures page for more information.
- Some foundational course work may be required for those students who did not major in criminal justice as an undergraduate. This decision will be made by the MACJ Program Coordinator after a close review of the undergraduate transcript.
- In exceptional cases, the program may also approve admission by reason of special backgrounds, abilities, and interests.

Degree Requirements

Requirements listed here are in addition to requirements stated in the DEGREE REQUIREMENTS section of the Graduate Bulletin.

1. The thesis track requires 30 credits. Six of the credits (CRIMJ 600) will be for the thesis.
2. The master’s paper track requires 30 credits. Three of these credits will be awarded for successful completion of a master’s paper, for which a student will register for three credits of CRIMJ 594.
3. All credits must be at the 400, 500, 600, or 800 level, with a minimum of 18 credits at the 500 or 600 level. A minimum of 24 credits must be at the 500, 600, or 800 level.
4. A minimum grade-point average of a 3.0 must be earned for course work taken as a graduate student.
5. Students are required to take the following courses: CRIMJ 500, CRIMJ 501, CRIMJ 502, CRIMJ 503, and CRIMJ 504
6. Students must complete a 9 credit concentration. Students in the non-thesis track will also be required to complete an additional 3-credit elective. A list of courses required for each concentration and additional approved elective courses is maintained by the graduate program office.
7. Students who believe they have completed a course substantially similar to one of the specific course requirements may apply to have their previous work evaluated for the purposes of exemption to that requirement. If approved, another course will be taken in place of that requirement.
8. A maximum of 10 credits of completed graduate work may be transferred in from another accredited institution, subject to restrictions outlined in the Transfer Courses section of the Graduate Bulletin.
**Student Aid**

Graduate assistantships available to students in this program and other forms of student aid are described in the Student Aid section of the Graduate Bulletin. Students on graduate assistantships must adhere to the course load limits set forth in the Graduate Bulletin.

**Courses**

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

**CRIMINAL JUSTICE (CRIMJ) course list**

Last Revised by the Department: Spring Semester 2009

Blue Sheet Item #: 37-03-043

Review Date: 11/18/08

Faculty linked: 8/14/14

**Written Evidence of Disciplinary Consultation**

Graduate study in Criminal Justice/Administration of Justice/Criminology is presently offered only at Harrisburg and University Park. Relevant administrators at Penn State as well as Department Heads in the Criminology M.A./Ph.D. program at University Park were included for consultation.

<table>
<thead>
<tr>
<th>Name and Affiliation</th>
<th>Date Received</th>
<th>Approved</th>
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</thead>
<tbody>
<tr>
<td>Madlyn Hanes, Vice President for Commonwealth Campuses of Penn State</td>
<td></td>
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</tr>
<tr>
<td>Regina Vasilatos-Younken, Vice Provost for Graduate Education and Dean of the Graduate School (Review and comments submitted by Vicki Hewitt)</td>
<td>10-8-15</td>
<td>Yes</td>
</tr>
<tr>
<td>Peter B. Idowu, Assistant Dean for Graduate Studies, Penn State Harrisburg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>John Iceland, Department Head, Department of Sociology and Criminology</td>
<td>10-12-15</td>
<td>Yes</td>
</tr>
</tbody>
</table>
From: "DONALD CHARLES HUMMER II" <dch18@psu.edu>
To: "MADLYN HANES" <mqh3@psu.edu>, "REGINA VASILATOS-YOUNKEN" <rxv@psu.edu>,
"PETER IDOWU" <pbi1@psu.edu>, "JOHN DAVID ICELAND" <jdi10@psu.edu>,
"JEFFERY TODD ULMER" <jtu100@psu.edu>, "PATRIA D DE LANCER JULNES" <pdd10@psu.edu>,
"Shaun Gabbidon" <slg13@psu.edu>
Sent: Tuesday, October 6, 2015 4:15:30 PM
Subject: Program Changes to the Master of Arts in Criminal Justice

Hello,

Attached are proposed changes to the Master of Arts in Criminal Justice program at Harrisburg. I would ask you to please review and comment as part of the program change consultation process by the end of October if at all possible. If you have any specific questions from the proposal, please do not hesitate to contact me.

Thank you all very much,

Don Hummer

--
Associate Professor of Criminal Justice
Penn State Harrisburg
School of Public Affairs
W160 Olmsted Building
777 W. Harrisburg Pike
Middletown, PA 17057
717-948-6615

Hello Don,

I have looked over this, and I have no issues to raise or questions. Best of luck with your program revisions.
Dear Don,

I do not have any concerns with the proposed changes.

Best,
John

---

John Iceland
Head, Department of Sociology and Criminology
Professor of Sociology and Demography
Penn State University
203 Oswald Tower
University Park, PA 16802

jdi10@psu.edu
Phone: 814-867-2821
http://sociology.la.psu.edu/people/jdi10

Don,
Jean forwarded me your program change proposal, as one of my responsibilities is to review all curricular proposals on behalf of the Dean of the Graduate School. I’ve attached my comments with tracked changes. I have one concern, also noted in the proposal:

- The proposal says that MACJ students must either complete a thesis or "successfully complete comprehensive examinations." The Graduate Council degree requirements for the M.A. state that students who are not required to write a thesis must present a suitable scholarly essay or paper. Please clarify the nature of the comprehensive examinations.

Please let me know if you have any questions, and feel free to contact me for additional consultation as the proposal moves forward.

Thanks,

Vicki

--
Vicki L. Hewitt, Ed.D.
Director of Graduate Education Administration
The Graduate School
Office of the Dean
210A Kern Graduate Building
The Pennsylvania State University
University Park, PA 16802
814-865-2518
vlh16@psu.edu

RESPONSE:

Hi Vicki,

Sure -- the comprehensive exams we've required of non-thesis track option MACJ students are a day-long, closed book set of questions whereby students must produce multiple substantial essays on questions from four core areas of the curriculum (theory, research methods, policy, and organization/management). Students are given a University laptop that does not have internet access and they respond to 2 questions in the morning, break an hour for lunch, then respond to 2 more questions in the afternoon. Each response averages around 8 typed, double-spaced pages. Students register for one credit of CRIMJ 594, in the semester they sit for comps, which is graded Pass/No Pass.

Please let me know if I can provide further clarification,

Don
Hi Don,

I agree with all the changes.

Regards,

Shaun

--
Shaun L. Gabbidon, Ph.D.
Distinguished Professor of Criminal Justice
Penn State Harrisburg
777 W. Harrisburg Pike
Middletown, PA 17057
(717) 948-6054
(717) 948-6320 (fax)

Appendix 1 – Graduate Programs in Criminal Justice within a 2-3 Hour Radius of PS Harrisburg and Corresponding Credit Requirements

Pennsylvania
California University – 30
DeSales University – 30
Holy Family University – 30
Marywood University – 36
Penn State, University Park – n/a
Saint Joseph’s University – 30
Shippensburg University – 36
Slippery Rock University – 30
Temple University – 30
West Chester University – 30
Widener University – 30

Delaware
University of Delaware – 30

Maryland
University of Baltimore – 39
University of Maryland – 30

New Jersey
Appendix 2 – MACJ Master’s Paper Guidelines

Timing
Ordinarily, you must complete the core curriculum before beginning work on the master’s paper.

Getting Started
Students wishing to complete a Master’s Paper as their Capstone experience should first review the following student expectations:

- Carefully review the Master’s Paper Guidelines
- Determine your research area/topic
- Conduct initial research and identify a possible angle for original research. It is suggested that a significant amount of preliminary investigation occur before approaching your proposed faculty paper adviser.
- Schedule a meeting with your potential SIA faculty paper adviser
- Draft a prospectus (see below) which will describe your topic, list keywords to the project, list of sources, and state any deadlines agreed upon between you and your paper adviser.
- Request that your faculty paper adviser, your faculty advisor, AND the MACJ Program Coordinator sign a Capstone Registration Form.

Registration
You will register for 3 credits of CRIMJ 594 no later than the drop/add deadline in the semester you intend for your paper to be graded, but not later than the semester in which you intend to graduate. You may identify a master’s paper advisor and begin other background work at any time. For registration purposes, the plan for how your 3 master’s paper credits will be assigned must be recorded during the capstone planning phase, on the Capstone Registration Form, and forwarded to the CRIMJ staff assistant.

Assessment
The Master’s Paper must demonstrate critical thinking, field literacy, and competency in independent research. The Master’s Paper is assessed by your paper
advisor and a second reader. The second reader is usually the MACJ Program Coordinator, but may be a designee.

**Grading**
The master’s paper will be graded with an “R” for research. “R” denotes the work was completed satisfactorily, and that the minimum criteria in the assessment rubric have been met. Your paper advisor is responsible for recording your grade. The “R” grade is not calculated into your GPA; the credits will be counted toward fulfilling degree requirements and will show in your total credits earned.

**Paper Advisor**
A School of International Affairs faculty member will supervise your master’s paper. The paper advisor should be someone whose disciplinary background matches your field of interest. Your assigned faculty advisor must approve your choice of paper advisor and can help you to identify an appropriate person. Your paper advisor must approve your topic and agree to work with you.

When a student wishes to work with an external faculty member as their primary faculty paper adviser, the student is responsible for informing the non-SIA faculty member of the MACJ Master’s Paper Guidelines. In addition, the student must also identify a CRIMJ professor who will serve as a second reader. The CRIMJ faculty member will not serve as a co-adviser for the paper. Instead his/her role will be to:

- Ensure the student is meeting the Master’s paper guidelines and expectations
- Be informed of who the student will be working with as their primary paper adviser
- Review and approve the student’s prospectus (see above), outline, and list of sources before the student submits the Capstone Registration Form
- Read the final draft and potentially recommend changes
- Submit the final grade based on evaluations and assessment from the primary paper adviser

**Prospectus**
Once you have identified an appropriate paper advisor, you will draft a prospectus which will describe your topic, list keywords to the project, and state any deadlines agreed upon between you and your paper advisor. The paper should involve integrating and showing mastery of the subject matter of your curricular emphasis and should involve original research. You may not select a master’s paper topic/issue for which you previously earned Individual Study credits. Statements regarding research methodology, a preliminary bibliography or other specifics may also be included. The prospectus must be signed by you, your paper advisor and your assigned faculty advisor before the drop/add deadline. Please email a copy of your prospectus to the academic advisor by the drop/add deadline.

**Length/Format**
The length of the paper will depend on disciplinary expectations in its subject matter and will be determined by you and your paper advisor together. Generally, the length is similar to a journal article in the field. Usually, the format will be the
format recommended by the Graduate School for a master’s thesis, but you and your paper advisor may agree on alternative formats.

**Graduation/Final Submission**
Grades for the master’s paper must be submitted by the paper advisor within 48 hours of the last day of classes in order to ensure the grade will be recorded in time for graduation. It will be up to you and the paper advisor what deadline is required for final submission of the paper and whether preliminary drafts will be required.

~Adapted from the School of International Affairs, Pennsylvania State University

**Appendix 3 – Suggested Concentrations and Plan of Study**

**Concentration 1 – CRIMJ System Components**

9 credits selected from the following:

- CRIMJ 563 – Concepts and Practices in Police Administration
- CRIMJ 564 – Administrative and Legal Aspects of Corrections
- CRIMJ 565 – Courts in the Criminal Justice System
- CRIMJ 567 – Juvenile Justice: Issues and Practice

**Concentration 2 – Policy Analysis, Planning, and Evaluation**

Select three courses from the following:

- PL SC 490 — Policy Making and Evaluation
- P ADM 507 — Introduction to Public Policy Analysis
- P ADM 535 — Policy Analysis and Planning
- P ADM 550 — Policy and Program Evaluation

**Concentration 3 – Homeland Security**

Take:

- HLS (P ADM) 401 **(will become HLS 811 SU17)** — Introduction to Homeland Security

Select one course from the following:

- HLS (P ADM) 404 — Homeland Security and Defense in Practice
- CRIMJ 435 — Border Security
- CRIMJ 439 (PL SC 439) — The Politics of Terrorism
Select one course from the following:

HLS 802 (P ADM 802) --- Multifaceted Approaches to Homeland Security  
HLS 804 (P ADM 804) --- Strategic Planning and Organizational Imperatives in Homeland Defense and Security

**Proposed Plan of Study**

<table>
<thead>
<tr>
<th>Semester 1</th>
<th>Semester 2</th>
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<tbody>
<tr>
<td>CRIMJ 500</td>
<td>CRIMJ 503</td>
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<tr>
<td>CRIMJ 501</td>
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<td>Concentration course</td>
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<tr>
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<th>Semester 4</th>
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<tbody>
<tr>
<td>Concentration course</td>
<td>Concentration course</td>
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<tr>
<td>CRIMJ 600#</td>
<td>CRIMJ 600#</td>
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<tr>
<td>Elective^</td>
<td>CRIMJ 594^</td>
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# Thesis option  
^ Master's paper option
Graduate Council
Program, Option, or Minor Proposal Form

Submit 1 original, signed Graduate Council proposal form and 2 hardcopies of the graduate program proposal document, with a copy of the signed proposal form attached to each proposal copy, to the Curriculum Coordinator, University Faculty Senate, 101 Kern Graduate Building, University Park. The proposals will be transmitted to the Office of the Dean of the Graduate School for entry into the Graduate Council curricular review process; for more information about the process, see the Overview of the Graduate Council Curricular Review Process.

The Program Proposal Procedures provide guidance for the development of a graduate program proposal. If you have questions regarding the preparation of a graduate program proposal or how to complete this Graduate Council proposal form, contact the Office of the Dean of the Graduate School.

College/School: Penn State Harrisburg, School of Public Affairs
Department or Instructional Area: Intercollege Master of Professional Studies in Homeland Security

New Graduate Program, Option, or Minor: □ Add
Designation of new graduate program: __________________________
Classification of Instructional Programs (CIP) Code: ________________
Designation of new graduate option: __________________________
Designation of new graduate minor: __________________________

Indicate effective semester:
☐ First semester following approval
☐ Second semester following approval

Existing Graduate Program Option, or Minor: ✔ Change □ Drop
Current designation of graduate program: Intercollege Master of Professional Studies in Homeland Security
Current designation of graduate option: __________________________
Current designation of graduate minor: __________________________
New designation of existing graduate program (if changing): __________________________
New designation of existing graduate option (if changing): __________________________
New designation of existing graduate minor (if changing): __________________________

Brief description of the change (if not noted above): Limit degree completion time to 5 years; change 1 course; cross-list courses under HLS pre-fix

Indicate effective semester:
☐ First semester following approval
☐ Second semester following approval

Submitted by Graduate Program Head
Alexander Siedschlag
Printed name
Signature
Date: 05/03/2016

Noted by College/School Representative to Graduate Council Subcommittee on New and Revised Programs and Courses:
Janet Duck
Printed name
Signature
Date: 5/20/14

Approved by College/School Dean/Chancellor (or Designee):
PETER IDOWU
Printed name
Signature
Date: May 23, 2016
Recommended by Chair, Graduate Council Subcommittee on New and Revised Programs and Courses:

<table>
<thead>
<tr>
<th>On Behalf of C. Andrew Cole</th>
<th>Signature</th>
<th>Date: 11/9/2016</th>
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Recommended by Chair, Graduate Council Committee on Programs and Courses:

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<th>On Behalf of Regina Vasilatos-Younken</th>
<th>Signature</th>
<th>Date: 11/9/2016</th>
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Proposal for Revising the
Intercollege Master of Professional Studies Program
in Homeland Security
(iMPS-HLS)

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March 30, 2016
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A. Revised Version of Affected Areas

Description of Proposed Changes

It is being proposed to

- Limit the time for degree completion to 5 years
- List the prescribed courses for the iMPS-HLS Base Program under the HLS prefix (those courses were originally P ADM pre-fixed and have been cross-listed under the HLS prefix)
- Change one course in the iMPS-HLS Base Program: from P ADM 401 to HLS 811

Note: This processing and approval of this program change proposal needs to be coordinated with the following course change currently proposed through Curriculum:

- Proposal for a new course HLS 811 that expands on and replaces P ADM 401.
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<td><strong>Degree Requirements</strong></td>
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**Time Limitation**

All degree requirements for the Master of Professional Studies in Homeland Security must be met within five years of admission to degree status.

**Homeland Security (Base Program)**
**Homeland Security (Base Program)**

Director: Dr. Alexander Siedschlag, Ph.D. (Univ Munich, Germany) Professor of Homeland Security and Public Health Preparedness, School of Public Affairs; Program Chair, iMPS-Homeland Security, W160 Olmsted Building, Penn State Harrisburg; 717-948-4326; aus50@psu.edu

**Core Curriculum**
HLS ORIENTATION: Orientation course (non-credit)
HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/PL SC 805: Violence, Threats, Terror, and Insurgency (3)

**Prescribed Courses**
P ADM 401: Foundations of Homeland Security (3)
P ADM 404: Homeland Security and Defense in Practice (3)
P ADM 802: Collaboration and Integration: Multifaceted Approaches to Homeland Security (3)
P ADM 803: Strategic Planning and Organizational Imperatives in Homeland Security and Defense (3)

**Electives**
Choose 9 credits from an approved elective list in consultation with adviser. The list of electives is maintained by the Base Program Director and is provided to the students in the base program.

**Capstone Experience**
HLS 594: Research Topics (3)

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**Core Curriculum**
HLS ORIENTATION: Orientation course (non-credit)
HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/PL SC 805: Violence, Threats, Terror, and Insurgency (3)

**Prescribed Courses**
HLS 811: Fundamentals of Homeland Security (3)
HLS/P ADM 404: Homeland Security and Defense in Practice (3)
HLS/P ADM 802: Collaboration and Integration: Multifaceted Approaches to Homeland Security (3)
**HLS 804**: Strategic Planning and Organizational Imperatives in Homeland Security and Defense (3)

**Electives**
Choose 9 credits from an approved elective list in consultation with adviser. The list of electives is maintained by the Base Program Director and is provided to the students in the base program.

**Capstone Experience**
HLS 594: Research Topics (3)
Homeland Security

Program Home Page

ALEXANDER SIEDSCHLAG, Ph.D, Chair, Homeland Security Graduate Programs
Professor of Homeland Security and Public Health Preparedness
W160M Olmsted Building
Penn State Harrisburg
777 West Harrisburg Pike
Middletown, PA  17057
Phone: 717-948-4326; Fax: 717-948-6320
Email: aus50@psu.edu

Degree Conferred

M.P.S.

Graduate Faculty

Program Description

The intercollege Master of Professional Studies in Homeland Security (iMPS-HLS) degree program is designed to prepare professionals and develop leaders for the field of homeland security by providing exceptional graduate education that includes an integrated curriculum, expert faculty, and student interaction. The program is comprised of courses from several Penn State colleges and delivered via distance education through the Penn State World Campus to accommodate the needs and careers of professionals who are already active in homeland security and related fields of civil security, or those interested in transitioning into the field. The program provides select graduate students with an integrated, cross-disciplinary curriculum that is focused on a set of unified educational goals to help them understand and manage the complexities of homeland security in a global environment. Within the degree program and in addition to its common core curriculum, students choose the base program or one of four options: agricultural biosecurity and food defense; geospatial intelligence; public health preparedness; and information security and forensics. The participating academic units for this collaborative program are: Penn State Harrisburg; the College of Medicine (in collaboration with the Milton S. Hershey Medical Center); the College of the Liberal Arts; the College of Earth and Mineral Sciences; and the College of Agricultural Sciences.
General Admission Requirements

Admission requirements listed here are in addition to requirements stated in the GENERAL INFORMATION section of the Graduate Bulletin.

Core Application Packet

- Completed online Graduate School application and payment of nonrefundable application fee
- Statement of purpose
- Vita or résumé
- Three letters of recommendation
- official transcripts from all post-secondary institutions attended

Statement of Purpose and Curriculum Vitae

A statement of professional experience and goals (up to 500 words) and the candidate’s vita or résumé must accompany the application.

Letters of Recommendation

- The individuals writing letters should be familiar with you and comfortable discussing your professional and/or academic strengths and accomplishments.
- The Admissions Committee prefers that all letters be written within the last six months and reference the applicant’s current career goals and/or ability to perform graduate level study.
- A person choosing to submit a letter of reference will do this through the online application process and either select our pre-formatted template or upload his/her own letter.

GPA Requirements

Your grade-point average is interpreted by the Admissions Committee in the context of a completed application. Some options may require a minimum GPA.

GRE Requirements

The Graduate Record Examination may be required by some options.

Other Considerations

Special backgrounds, abilities, and interests related to homeland security are desirable.
Degree Requirements

Requirements listed here are in addition to requirements stated in the DEGREE REQUIREMENTS section of the Graduate Bulletin.

The Master of Professional Studies in Homeland Security program requires a minimum of 33 credits, 24 of which must be earned at Penn State. Up to 10 graduate credits may be transferred in from a regionally accredited institution (as is permissible by Graduate Council policy); if the full 10 credits are transferred, the minimum total number of credits in the degree program will be 34. At least 18 credits must be courses at the 500 or 800 level, of which 6 credits must be in 500-level courses. Students are expected to maintain a B (3.0) or better average in academic courses to be retained in the program. Graduate Council policy requires that student must have a GPA of 3.0 or above in order to graduate from the program. Each student will take a 9 credit core curriculum consisting of HLS/PDM 801, HLS/PHIL 803, and HLS/PL SC 805, as well as a non-credit Orientation Course. Students will also take 12 credits of prescribed courses for the specialized option. There are 9 elective credits that are chosen from an approved list in consultation with the student’s academic adviser. The list of electives is maintained by the Option Director and is provided to the students in the option. Finally, each degree candidate must complete a capstone project on a topic related to homeland security and defense, in association with HLS/AGBIO/GEOG/IST/PHP 594 - Research Topics.

Time Limitation

All degree requirements for the Master of Professional Studies in Homeland Security must be met within five years of admission to degree status.

Prescribed Courses

Homeland security refers to the unifying core for the vast global network of organizations and institutions that are involved in the efforts to secure society. Regardless of field of specialization, or chosen discipline for graduate study, all professionals in the program will participate in a Unifying Core Curriculum with the following educational goals and objectives:

- Understand major policies and legislation that shapes homeland security in a globalized society.
- Become familiar with organizations that play a key role in the implementation of homeland security policies and administration, and recognize the interactions among them.
- Understand the way in which a person or group responds to a set of conditions so as to prevent and respond to incidents and catastrophic events when needed.
- Recognize the impact that catastrophic events, both natural and man-made, have on society and the domestic and global economy.
- Identify and assess potential threats, vulnerabilities, and consequences.
- Apply leadership skills and principles that are necessary for producing and acting on information of value within a collaborative setting.
- Communicate effectively in the context of particular institutional cultures.
• Use, conduct, and interpret research and data effectively in decision-making.
• Practice ethics and integrity as a foundation for analytical debate and conclusion.
• Develop an appreciation of the cultural, social, psychological, political, and legal aspects of terrorism and counterterrorism.

The Core Curriculum consists of the following four courses:

**HLS ORIENTATION**: Orientation course (non-credit) Overview of program expectations, parts, academic specialization areas, and mechanics; as well as an essential overview of the field of homeland security and its community of practice. The Options may add content to aspects of homeland security that are specific to their academic specialization area.

**HLS/P ADM 801**: Homeland Security Administration: Policies and Programs (3). Foundation for understanding homeland security history, the development of homeland security policies and organizations, and current management approaches.

**HLS/PHIL 803**: Homeland Security: Social and Ethical Issues (3). This course examines the social, political, legal, and ethical issues that arise in the context of homeland security.

**HLS/PL SC 805**: Violence, Threats, Terror, and Insurgency (3). Provides an overview of the domestic and global issues related to homeland security.

Listed below are the courses required/suggested for the Base Program and for the Options:

**Homeland Security (Base Program)**

Director: Dr. Alexander Siedschlag, Ph.D. (Univ Munich, Germany) Professor of Homeland Security and Public Health Preparedness, School of Public Affairs; Program Chair, iMPS-Homeland Security, W160 Olmsted Building, Penn State Harrisburg; 717-948-4326; aus50@psu.edu

**Core Curriculum**
- HLS ORIENTATION: Orientation course (non-credit)
- HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
- HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
- HLS/PL SC 805: Violence, Threats, Terror, and Insurgency (3)

**Prescribed Courses**
- HLS/P ADM 404: Homeland Security and Defense in Practice (3)
- HLS/P ADM 802: Collaboration and Integration: Multifaceted Approaches to Homeland Security (3)
- HLS 804: Strategic Planning and Organizational Imperatives in Homeland Security and Defense (3)
Electives
Choose 9 credits from an approved elective list in consultation with adviser. The list of electives is maintained by the Base Program Director and is provided to the students in the base program.

Capstone Experience
HLS 594: Research Topics (3)

Agricultural Biosecurity and Food Defense Option

Director: Gretchen Kulda, Ph.D. (California) Associate Professor of Plant Pathology
0205 Buckout Laboratory, University Park; 814 863 7232; kulda@psu.edu

Core Curriculum
HLS ORIENTATION: Orientation course (non-credit)
HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/PL SC 805: Violence, Threats, Terror, and Insurgency (3)

Prescribed Courses
AGBIO 520: Agricultural Biosecurity: Protecting a Key Infrastructure (3)
AGBIO 521: Food Defense: Prevention Planning For Food Processors (3)
AGBIO 801: Veterinary Infectious Disease Diagnostic and Surveillance Systems (3)
AGBIO 802: Plant Protection: Responding to Introductions of Threatening Pest and Pathogens (3)

Electives
Choose 9 credits from an approved elective list in consultation with adviser. The list of electives is maintained by the Option Director and is provided to the students in the option.

Capstone Experience
AGBIO 594: Agricultural Biosecurity and Food Defense - Capstone Experience (3)

Geospatial Intelligence Option

Director: Gregory Thomas, Ph.D. (Indiana University of PA), Professor of Practice for Geospatial Intelligence, 2217 Earth and Engineering Sciences Building, University Park; (814) 867-1471; gat5@psu.edu

Core Curriculum
HLS ORIENTATION: Orientation course (non-credit)
HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/PL SC 805: Violence, Threats, Terror, and Insurgency (3)

Prescribed Courses
GEOG 882: Geographic Foundations of Geospatial Intelligence (3)
GEOG 483: Problem Solving with GIS (3)
GEOG 480: Exploring Imagery and Elevation Data in GIS Applications (3)
GEOG 885: Advanced Analytic Methods for Geospatial Intelligence (3)

**Electives**
Choose 9 credits from an approved elective list in consultation with adviser. The list of electives is maintained by the Option Director and is provided to the students in the option.

**Capstone Experience**
GEOG 594A: Research Topics: Analytic Experience in Geospatial Intelligence (1)
GEOG 594B: Research Topics: Geospatial Intelligence Capstone Experience (2)

**Information Security and Forensics Option**

Director: Peter Forster, Ph.D. (Penn State) Senior Lecturer of Information Sciences and Technology, and Management Science and Associate Dean
332P Information Sciences and Technology Building, University Park; 814-863-8304; pkf1@psu.edu

**Core Curriculum**
HLS ORIENTATION: Orientation course (non-credit)
HLS 801/P ADM: Homeland Security Administration: Policies and Programs (3)
HLS 803/PHIL: Homeland Security: Social and Ethical Issues (3)
HLS/PL SC 805: Violence, Threats, Terror, and Insurgency (3)

**Prescribed Courses**
IST 454: Computer and Cyber Forensics (3)
IST 456: Information Security Management (3)
IST 815: Information Security and Assurance (3)
IST 554: Network Management and Security (3)

**Electives**
Choose 9 credits from an approved elective list in consultation with adviser. The list of electives is maintained by the Option Director and is provided to the students in the option.

**Capstone Experience**
IST 594: Research Topics (3)

**Public Health Preparedness Option**

Director: Eugene J. Lengerich, V.M.D., M.S., Professor, Public Health Sciences, Penn State College of Medicine, MC H070; 500 University Drive; Hershey, Pennsylvania; 717-531-6066; PHP_Programs@psu.edu

**Core Curriculum**
HLS ORIENTATION: Orientation course (non-credit)
HLS/P ADM 801: Homeland Security Administration: Policies and Programs (3)
HLS/PHIL 803: Homeland Security: Social and Ethical Issues (3)
HLS/PL SC 805: Violence, Threats, Terror, and Insurgency (3)

**Prescribed Courses**
PHP 410: Public Health Preparedness for Disaster and Bioterrorism Emergencies I (3)
PHP 510: Public Health Preparedness for Disaster and Bioterrorism Emergencies II (3)
PHP 527: Public Health Evaluation of Disasters and Bioterrorism (3)
PHP 530: Critical Infrastructure Protection of Health Care Delivery Systems (3)

**Electives**
Choose 9 credits from an approved elective list in consultation with adviser. The list of electives is maintained by the Option Director and is provided to the students in the option.

**Capstone Experience**
PHP 594: Research Topics (3)

**Student Aid**

World Campus students in graduate degree programs may be eligible for financial aid. Refer to the [Tuition and Financial Aid section](#) of the World Campus website for more information.

**Courses**

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.
B. Justification

Limit the time for degree completion to 5 years

The Academic Steering Committee discussed the expectation of the Executive Committee to take structural measures to reduce the potential for inactive students in the program.

The Academic Steering Committee also discussed the reaching of educational objectives in the program, and the half-time value of state of the art education provided by required courses in the iMPS-HLS program.

For both reasons, the Committee concluded that the general time limitation of eight years was too long considering the character of the iMPS-HLS program. Since individual programs may set shorter time limits (see http://bulletins.psu.edu/graduate/degreerequirements/masters#mastersAdmission), the program agreed on a time limit of five years.

List the prescribed courses for the iMPS-HLS Base Program under the HLS prefix (those courses were originally P ADM pre-fixed and have been cross-listed under the HLS pre-fix)

The iMPS-HLS Base Program at Penn State School of Public Affairs, with the concurrence of the School, decided to align all homeland security courses under the HLS prefix, primarily by cross-listing them as HLS/P ADM. While that way courses will remain available as electives as listed in the M.P.A. and other programs, the homeland security program will be able to more consistently point out its own curriculum and educational offerings, and limit confusion among students. The pre-fix change follows already in place policy to pre-fix newly developed courses as HLS, e.g. HLS 594, HLS 540, HLS 575, or HLS 832.

The following cross-listings have been approved:

HLS/P ADM 401 (where it is proposed to replace with a new course HLS 811)
HLS/P ADM 404
HLS/P ADM 802

Note: In order to accomplish the cross-listing for P ADM 803, this course first has to be changed to P ADM 804 (this course change has been proposed). Then, it can be cross-listed as HLS 804. No “direct” cross-listing is possible because a course HLS 803 already exists.

Change one course in the iMPS-HLS Base Program: from P ADM 401 to HLS 811

Half of the prescribed courses in the iMPS-HLS Base Program are advanced undergraduate courses. However, historically, those courses were developed as graduate courses but then built into the Certificate program and offered as advanced undergraduate courses out of marketing considerations. It today seems not appropriate to assign course levels for marketing reasons, neither does it seem appropriate that the half of the set of prescribed courses in a graduate degree program consists of undergraduate courses. It is now time to correct this. The content and
objectives so far offered as P ADM 401 Foundations of Homeland Security are currently being redeveloped to become a graduate course. HLS 811 Fundamentals of Homeland Security has been proposed to that end.

(P ADM 404 will be addressed at a later point after completion of course review and planning for redevelopment).

*It is understood that it is possible to coordinate this program change proposal with the pending proposal for a new HLS 811 course.*
C. Consultation

*iMPS-HLS Graduate Lead Faculty (Option Directors) Consultation*

Peter Forster, College of Information and Security Technology,  
Information Security and Forensics Option Director  
Member of the iMPS-HLS Academic Steering Committee

Gretchen Kuldau, College of Agricultural Sciences,  
Agricultural Biosecurity and Food Defense Option Director  
Member of the iMPS-HLS Academic Steering Committee

Eugene J. Lengerich, Penn State College of Medicine,  
Public Health Preparedness Option Director  
Member of the iMPS-HLS Academic Steering Committee

Gregory Thomas, College of Earth and Mineral Sciences,  
Geospatial Intelligence Option Director  
Member of the iMPS-HLS Academic Steering Committee

**Additional Consultation**

Further iMPS-HLS Academic Steering Committee Members:

Avis Kunz, College of the Liberal Arts

David Sylvia, Director of Academic Affairs, Graduate Programs, The World Campus

Penn State Harrisburg (Academic Home for the iMPS-HLS Program)

Peter Idowu, Assistant Dean of Graduate Studies

Patria De Lancer Julnes, Director, School of Public Affairs
Hi Peter and Patria,

Thank you for your feedback and suggestions! I had a chance to run this by the iMPS-HLS Option Directors and Avis Kunz as the College of the Liberal Arts representative. The result is that the intention still is to limit degree completion time to 5 years. There is a lot of concern about long-term inactive students, and reaching of educational objectives in a consistent way in an evolving field and program.

David Sylvia informed that World Campus had no record of other programs introducing specific year limits, so there are no models for us to refer to at this time.

Also, program metrics indicate that current students on average take around 7 semesters, including summer, to complete the program. This is in the roughly same dimension of the Graduate School metrics that has 2.5 years as median time to degree. In addition, program tacking indicates that 95% percent of our students take summer classes. A lot of them are on financial aid and I have seen one single time limit extension request where financial aid reasons were involved, along with other reasons, within three years. The 5-years limit will not impact the student’s ability to request an extension from the Director of Graduate Enrollment Services.

Of course, the time limit will not be applied retroactively but only to those students who are admitted after the change has been approved and practiced.

Thank you for your timely feedback helping to move this program change proposal through at due pace.

With best regards,

Alexander
Hi Alexander,

Thank you for sharing the draft of changes proposed to the iMPS-HLS program. Establishing a five-year time limit for completing the iMPS program is quite reasonable and should help in achieving better program efficiency. I fully support the changes proposed.

Regards,

Peter

Peter Idowu, Ph.D., P.E.
Assistant Dean of Graduate Studies, Penn State Harrisburg
Professor of Electrical Engineering

Penn State Harrisburg
C-114 Olmsted Building

777 W. Harrisburg Pike, Middletown PA 17057
(717) 948-6315 - Phone
(717) 948-6737 - Fax
idowu@psu.edu
http://sites.psu.edu/microgridtestbedpsh/
http://harrisburg.psu.edu/graduate-studies
Lori and David,

At PSH as the academic and administrative home of the iMPS-HLS program, we are currently discussing my proposal, on behalf of the Academic Steering Committee, to limit the time to complete all degree requirements from eight to five years. It has been suggested to discuss limiting to six instead of eight years for a better match of 33 credits and proposed time frame, and in order to not to appear too restrictive.

I was asked for what typical time frames different than 8 years were, and had no answer.

If you have any information on what other professional studies programs at Penn State have as time frames, if different than eight years, and could let me know by tomorrow, that would be great!

I am trying to get the program change proposal in by this week’s deadline of the PSH AA committee.

Thank you!

Best regards,

Alexander

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From: PATRIA D DE LANCER JULNES [mailto:pdd10@psu.edu]
Sent: Tuesday, March 29, 2016 5:55 PM
To: ALEXANDER SIEDSCHLAG
Cc: idowu@psu.edu
Subject: Re: iMPS-HLS Program Change

Hi Alexander,

Thanks for talking with me this afternoon about the changes you are proposing. As I mentioned, might the group consider a time limit of six years instead of five? In my mind five years is too limiting for students, particularly considering that some students may not be able to take more than two classes a year. Also, it may be a good idea to look at what other programs across the university do.
I’m in complete agreement with the change in prefix and number for HLS/PA0M 401 to HLS 811.

Thanks again.

Patria

Dr. Patria Julnes

======================================================================
Patria de Lancer Julnes, Ph.D.
Director, School of Public Affairs
Penn State Harrisburg

Mailing Address:
777 W. Harrisburg Pike
Middletown, PA 17057

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153 W Olmsted

Phone: 717-948-6693
E-mail: pdd10@psu.edu or patriajulnes@psu.edu

From: "ALEXANDER SIEDSCHLAG" <aus50@psu.edu>
To: "PATRIA D DE LANCER JULNES" <pdd10@psu.edu>
Cc: idowu@psu.edu
Sent: Monday, March 28, 2016 7:01:24 PM
Subject: iMPS-HLS Program Change

Hello Patria,

As mentioned, since Liberal Arts is delayed with the proposal for the new iMPS-HLS Option, I am trying to move through with the other changes that we wanted to include with that proposal. I know it is kind of crazy since Stephanie’s deadline is March 30 for the last Academic Affairs Committee meeting before the summer break.

So what I did after Avis’ note was draft a program change proposal for the rest of the items that had been previously agreed on.
Program-wide change: The proposal is for the whole iMPS-HLS program to limit the time for earning the degree from the common 8 years to 5 years. The purpose is to limit the future potential for the large amount of inactive students that we currently have across the program; and to improve reaching of educational outcomes, considering the “half-time” value of knowledge in a field progressing as fast as HLS.

I was tasked the implement restrictions on potential for long-term inactive students by the Deans of the participating Colleges in April 2015 – so it does not make much sense to wait any longer now that the LA new Option proposal does not come together at this time.

Base Program change: As previously discussed, the proposal implements the listing of HLS courses actually under the HLS (not P ADM) pre-fix, as discussed before. It also replaces HLS/P ADM 401 with HLS 811.

Please let me know if you have any comments or questions.

Hello Peter,

Could you let me know if you are in agreement, and send me a short e-mail for the consultation record, including any comments and suggestions?

Thank you!

Best regards,

Alexander

From: Gregory Thomas [mailto:gat5@psu.edu]
Sent: Tuesday, March 29, 2016 9:25 PM
To: ALEXANDER SIEDSCHLAG
Subject: RE: Your response requested: iMPS-HLS Program Change Proposal -- 5-year time limitation

If students take 1 class each of the 3 terms (fall, spring, summer), they have sufficient time to complete the program. The summer term is included for purposes of issuing academic warning letters, even if the student is not enrolled a class, so it stands to reason that it should be included in time to completion.

Best,

Greg
From: ALEXANDER SIEDSCHLAG [mailto:aus50@psu.edu]
Sent: Tuesday, March 29, 2016 8:59 PM
To: Gregory Thomas <gat5@psu.edu>
Subject: RE: Your response requested: iMPS-HLS Program Change Proposal -- 5-year time limitation

Greg,

Thank you. For the purpose of the consultation record, could you add some brief argumentation to your e-mail? Just for everybody to understand why EMS is saying 5 years.

Thank you,

Alexander

From: Gregory Thomas [mailto:gat5@psu.edu]
Sent: Tuesday, March 29, 2016 8:58 PM
To: ALEXANDER SIEDSCHLAG; AVIS LYNN KUNZ; DAVID M SYLVIA; pkf1@psu.edu; Eugene J. Lengerich; kuldau@psu.edu
Cc: ALISON J SHULER
Subject: RE: Your response requested: iMPS-HLS Program Change Proposal -- 5-year time limitation

I say keep it at the proposed 5 years.

Thanks,

Greg

From: Gretchen Kuldau [mailto:gak10@psu.edu]
Sent: Tuesday, March 29, 2016 2:48 PM
To: ALISON J SHULER; ALEXANDER SIEDSCHLAG; AVIS LYNN KUNZ; DAVID M SYLVIA; pkf1@psu.edu; Eugene J. Lengerich; kuldau@psu.edu; GREGORY ALLEN THOMAS
Subject: Re: Your response requested: iMPS-HLS Program Change Proposal -- 5-year time limitation

I think Alison has some excellent points here and they are backed by actual data. Perhaps we should stick with the five year plan. It does seem more reasonable for a Master degree.

Gretchen
From: Avis Kunz [mailto:alm2@psu.edu]
Sent: Wednesday, March 30, 2016 11:11 AM
To: ALISON J SHULER
Cc: ALEXANDER SIEDSCHLAG; DAVID M SYLVIA; pkf1@psu.edu; Eugene J. Lengerich; kuldau@psu.edu; GREGORY ALLEN THOMAS
Subject: Re: Your response requested: iMPS-HLS Program Change Proposal -- 5-year time limitation

Alison,

I support the upper limit of 5 years with extensions if needed. A five-year limit may motivate students to maintain active status.

Avis

On 3/29/16 2:41 PM, ALISON J SHULER wrote:

Good afternoon,

Rob assumption is based on students not taking a class in the summer. In review of our graduates/alumni and program students, >95% (if not all) take a course in one or more summer sessions. I’ve been working on our student tracking spreadsheet and comparing it to reports generated from Data Warehouse/ISIS. I’m getting a sense that our primary inactive issues are getting students started, that is they don’t matriculate or withdraw their first semester, and after 3 or more semesters they don’t resume their studies.

So the time-to-complete in 5 years is reasonable. Again if there are a few students who needed additional years to complete the degree, they could request an extension.

Kindly,

Alison Shuler

iMPS-HLS | School of Public Affairs | 717-948-6388

From: ALEXANDER SIEDSCHLAG [mailto:aus50@psu.edu]
Sent: Tuesday, March 29, 2016 1:31 PM
To: AVIS LYNN KUNZ <alm2@psu.edu>; DAVID M SYLVIA <dms39@psu.edu>; pkf1@psu.edu; 'Eugene J. Lengerich' <elengeri@phs.psu.edu>; kuldau@psu.edu; 'Gregory Thomas' <gat5@psu.edu>
Subject: Your response requested: iMPS-HLS Program Change Proposal -- 5-year time limitation

Dear Colleagues,

I consulted with PSH administration and admission on the program change proposal, and the director of Enrollment Management proposed to consider changing from 8 to 6 instead of 8 to 5 years, so that a student on a one course per semester plan would not run out of time. Recently, our graduates have on average spent around 7 terms in the program. Even if we exclude summer, that would make it around 2.5 calendar years on average for time to degree, which is consistent with the Graduate School metrics for our program.

Could you please let me know by tomorrow if you would like to give the 6 years time-frame some consideration or remain at our decision to introduce a 5-year time limitation.

FYI, I ran the draft program change proposal for a pre-proposal check by Vicky Hewitt with only a few remarks and no suggestions to alter the content of what is proposed.

Thank you.

Best regards,

Alexander

From: Pete Forster [mailto:pforster@ist.psu.edu]
Sent: Monday, February 08, 2016 12:44 PM
To: ALISON J SHULER; Gretchen Kuldau; GREGORY ALLEN THOMAS; Eugene J. Lengerich; AVIS LYNN KUNZ; DAVID M SYLVIA
Cc: ALEXANDER SIEDSCHLAG
Subject: RE: iMPS-HLS -- TIME LIMITATION

I support this limitation as a strongly recommended guideline for students who are active in the program. I’m hesitant to back ourselves into a corner with students who are making continuous progress towards the degree. With regard to students who have been accepted to the masters but have not started the degree, I support this the five years as a limit after which the student must re-apply including an updated CV.

Thanks, pete
I support the five year limit. I think we should have it as a firm limit on the books, keeping in mind that students can apply to have it extended. Generally the graduate school accepts these requests if approved by the program. At least that is what I have observed for a few PhD students in my department whose completion went beyond the eight years.

Gretchen

I support revising this to a 5-year limit. I think we also discussed grandfathering those currently in the program, which I support.

The geospatial intelligence option supports the 5-year completion guideline, with the conditions previously outlined by other committee members.

Thanks,

Greg
From: Avis Kunz [mailto:alm2@psu.edu]
Sent: Monday, February 08, 2016 8:05 PM
To: ALISON J SHULER
Cc: Gretchen Kulda; GREGORY ALLEN THOMAS; Pete Forster; Eugene J. Lengerich; DAVID M SYLVIA; ALEXANDER SIEDSCHLAG
Subject: Re: iMPS-HLS -- TIME LIMITATION

Alison,

On behalf of the College of the Liberal Arts, I approve this change.

Best,

Avis

Sent from my iPad

From: ALISON J SHULER [mailto:ajs28@psu.edu]
Sent: Monday, February 08, 2016 10:53 AM
To: Gretchen Kulda <gak10@psu.edu>; GREGORY ALLEN THOMAS <gat5@psu.edu>; Pete Forster <pforster@ist.psu.edu>; Eugene J. Lengerich <elengeri@phs.psu.edu>; AVIS LYNN KUNZ <alm2@psu.edu>; DAVID M SYLVIA <dms39@psu.edu>
Cc: ALEXANDER SIEDSCHLAG <aus50@psu.edu>
Subject: Fwd: iMPS-HLS -- TIME LIMITATION

Dear ASC members,

RE: Imposing the 5-year limitation

Please send me an email confirming your agreement with the discussion and decision from last Friday to introduce a 5-year limitation for completing the iMPS-HLS degree.

Thank you,

Alison J Shuler

Penn State Harrisburg
Program  and Internship Coordinator
iMPS - Homeland Security
School of Public Affairs
Phone: 717-948-6388
ajs28@psu.edu
TIME LIMITATION

All requirements for a master’s degree (including acceptance of a thesis, paper, or project report as may be specified), whether satisfied on the University Park campus or elsewhere, must be met within eight years of admission to degree status. Individual programs may set shorter time limits. Extensions may be granted by the Director of Graduate Enrollment Services in appropriate circumstances.

http://bulletins.psu.edu/graduate/degreerequirements/masters

Consultation on Base Program Course Changes

From: Pete Forster [mailto:pforster@ist.psu.edu]
Sent: Sunday, March 27, 2016 3:38 PM
To: ALEXANDER SIEDSCHLAG
Cc: ALISON J SHULER; DAVID M SYLVIA; AVIS LYNN KUNZ; pkf1@psu.edu; kulda@psu.edu; Eugene J. Lengerich; Gregory Thomas; LESA IRENE STANFORD
Subject: Re: Improved draft: iMPS-HLS Program Change Proposal -- You consultation e-mail needed

Thanks Alexander I support the changes. Thx Pete

Sent from my iPhone

On Mar 27, 2016, at 2:23 PM, ALEXANDER SIEDSCHLAG <aus50@psu.edu> wrote:

Dear Colleagues,

Regarding my e-mail from Friday, I am attaching an improved draft for the iMPS-HLS Program Change Proposal (no changes altered but inconsistencies in the document addressed).

Please be sure to send me an e-mail for the consultation record – or let me know any questions or concerns.
From: Gretchen Kulda [mailto:gak10@psu.edu]
Sent: Saturday, March 26, 2016 10:25 AM
To: ALEXANDER SIEDSCHLAG; ALISON J SHULER; DAVID M SYLVIA; AVIS LYNN KUNZ; pkf1@psu.edu; kuldau@psu.edu; 'Eugene J. Lengerich'; 'Gregory Thomas'
Cc: 'LESA IRENE STANFORD'
Subject: Re: iMPS-HLS Program Change Propopal -- You consultation e-mail needed

Alexander,

I think all the proposed cross listings for courses shown below are fine, as are the other program changes you mention.

Best,

Gretchen

From: ALEXANDER SIEDSCHLAG [mailto:aus50@psu.edu]
Sent: Monday, March 28, 2016 2:29 PM
To: Gregory Thomas
Subject: RE: Improved draft: iMPS-HLS Program Change Proposal -- You consultation e-mail needed

Greg,

Thank you. We understand the program change proposal may be submitted as soon as the course-related proposals have been submitted and accepted for review (which is the case), and then the processing and approval is coordinated. We found out we could do that when discussing the now delayed new Option proposal, where the Option and required courses would basically be proposed at the same time to save time. I hope this is alright.

Best regards,
Alexander:

I am okay with the program change proposal as drafted, as long as the course changes outlined are approved (P ADM 803 to HLS/P ADM 804 and P ADM 401 to HLS 811).

Best,

Greg
Alexander

Alexander,

I approve the changes.

Best,

Avis

Avis Kunz, D.Ed.
Assistant Dean, Outreach and Online Education
Filippelli Institute for e-Education and Outreach
College of the Liberal Arts
Affiliate Assistant Professor of Organizational Leadership
Penn State University
13 Sparks Building
814-863-5965
http://www.la.psu.edu/online

From: ALEXANDER SIEDSCHLAG [mailto:aus50@psu.edu]
Sent: Friday, March 25, 2016 10:20 PM
To: ALISON J SHULER; DAVID M SYLVIA; AVIS LYNN KUNZ; pkf1@psu.edu; kuldau@psu.edu; 'Eugene J. Lengerich'; 'Gregory Thomas'
Cc: 'LESA IRENE STANFORD'
Subject: iMPS-HLS Program Change Proposal -- You consultation e-mail needed
Importance: High

Dear Colleagues,

LA advised that they need more time to finalize the CT Option proposal.
Therefore, trying to meet expectations 😊, I am trying to do the impossible and submit a program change proposal before the summer break.

As you know, this needs to be initiated at PSH and go through our Academic Affairs Committee.

What is proposed:

To limit the time for degree completion to five years

- To cross list the following iMPS-HLS Base Program courses under the HLS prefix
  - HLS/P ADM 404
  - HLS/P ADM 802
  - HLS/P ADM 803 → which needs to be first changed for this to work since HLS 803 already exists

- We understand that this is not the end state since in the next step, the resulting new HLS 802 and HLS 804 should be renumbered to HLS 813 and 814 so to keep the core curriculum courses clear. This however requires further course change proposals first and the listing of our courses under HLS is important to us, as discussed previously. So I hope this is alright for now.

- Replace P ADM 401 with HLS 811: The Base Program currently includes 2 advanced undergraduate (400-level) courses, and we want to make it more graduate. HLS 811 will remain available for your students as an elective, just like P ADM 401 was.

I think I already have your e-mails agreeing to the 5 year limit.

Also, please let me know if you are fine with the attached draft or have any changes or additions.

If you have any miscellaneous program changes, please let me know and I can still include them.

Please respond by March 29.

Thank you!

Best regards,

Alexander
Graduate Council  
Program, Option, or Minor Proposal Form

Submit 1 original, signed Graduate Council proposal form and 2 hardcopies of the graduate program proposal document, with a copy of the signed proposal form attached to each proposal copy, to the Curriculum Coordinator, University Faculty Senate, 101 Kern Graduate Building, University Park. The proposals will be transmitted to the Office of the Dean of the Graduate School for entry into the Graduate Council curricular review process; for more information about the process, see the Overview of the Graduate Council Curricular Review Process.

The Program Proposal Procedures provide guidance for the development of a graduate program proposal. If you have questions regarding the preparation of a graduate program proposal or how to complete this Graduate Council proposal form, contact the Office of the Dean of the Graduate School.

College/School: College of Earth and Mineral Sciences  
Department or Instructional Area: Department of Materials Science and Engineering

New Graduate Program, Option, or Minor: [ ] Add

Designation of new graduate program: MS in Intercollege Graduate Degree Program in Materials Science and Engineering

Classification of Instructional Programs (CIP) Code: 14.1801

Designation of new graduate option: 

Designation of new graduate minor: 

Indicate effective semester:

[ ] First semester following approval
[ ] Second semester following approval

Existing Graduate Program Option, or Minor: [X] Change  [ ] Drop

Current designation of graduate program: 

Current designation of graduate option: 

Current designation of graduate minor: 

New designation of existing graduate program (if changing): 

New designation of existing graduate option (if changing): 

New designation of existing graduate minor (if changing): 

Brief description of the change (if not noted above): 

Indicate effective semester:

[ ] First semester following approval
[ ] Second semester following approval

Submitted by Graduate Program Head

Susan Sinnott  
Printed name

Signature  
Date: 4/15/16

Noted by College/School Representative to Graduate Council Subcommittee on New and Revised Programs and Courses:

Luis Ayala  
Printed name

Signature  
Date: 5/9/16

Approved by College/School Dean/Chancellor (or Designee):

John Hellmann  
Printed name

Signature  
Date: 5/18/16
Recommended by Chair, Graduate Council Subcommittee on New and Revised Programs and Courses:

On Behalf of C. Andrew Cole
Printed name
Signature
Date: 11/9/2016

Recommended by Chair, Graduate Council Committee on Programs and Courses:

On Behalf of M. Kathleen Heid
Printed name
Signature
Date: 11/9/2016

Noted by Dean of the Graduate School:

On Behalf of Regina Vasilatos-Younken
Printed name
Signature
Date: 11/9/2016
Proposal to Add a One-Year Residence-Based Non-Thesis Master of Science Degree in Materials Science and Engineering

Submitted by:
Dr. Susan B. Sinnott
Professor and Department Head
Materials Science and Engineering
The Pennsylvania State University
121 Steidle Building
University Park, PA 16802
Email: sbs5563@psu.edu
Phone: 814-863-3117

October 6, 2016

College Affiliation:
College of Earth and Mineral Sciences
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7. Scholastic and Research Integrity (SARI)………………………………………9

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Proposal to Add a One-Year Residence-Based Non-Thesis Master of Science Degree in Materials Science and Engineering

A. Justification Statement

1. Program Goals

The Department of Materials Science and Engineering (MatSE) in the College of Earth and Mineral Sciences is proposing a one-year, residence-based, non-thesis Master of Science degree in Materials Science and Engineering (M.S. MatSE). The new rigorous, interdisciplinary program will require 30 credits for completion and will culminate in a residential research project, poster presentation, and a scholarly paper.

Materials Science and Engineering is an interdisciplinary field that draws from Chemistry, Biology, Physics, Mechanical Engineering, and Computer Science to investigate the properties of matter and explore applications of materials. The applications considered by the MatSE Department at Penn State include those that impact energy and the environment in the form of metal oxide filters designed to remove toxins from the air and water, electrochemistry with metal alloys to develop advanced batteries for transportation, polymers designed to absorb oil and chemical spills, and composites that can be used in lighter, more fuel efficient cars and airplanes. Another class of applications being considered are those that impact technology such as mobile devices, including the polymers, glass, and optical materials that make up touch screens; the composites used in lithium-ion batteries; and the semiconductors, metals, and dielectrics that allow computers to operate ever faster. Medical applications are also considered, including nanomaterials to deliver drugs directly to infected cells and alloys, ceramics, polymers, and composites for new generations of prosthetic devices. Students with a strong foundation in Materials Science and Engineering are able to apply their knowledge in a wide range of industries and in academia.

Currently, the Intercollege Graduate Degree Program in Materials Science and Engineering (iMatSE) at Penn State offers a Masters of Science degree with a thesis in Materials Science and Engineering (M.S. MatSE). The degree requires 30 credits including a minimum of 6 research credits, and culminates in a written thesis and an oral defense administered by a committee of 3 faculty members. This program typically requires four and a half to five semesters to complete.

The proposed M.S. MatSE program requires a minimum of 30 course credits, including one seminar credit, one credit of professional development, 4 credits of a residential research experience and a scholarly paper. The objective of the proposed program is to provide an advanced understanding of the core principles of the field in addition to an advanced understanding of specialized areas in three semesters over 12 months.
2. Needs Assessment

The M.S. in Materials Science and Engineering is a valued degree for many industrial positions, as many job ads specify “B.S. or M.S.” or “M.S. or Ph.D.” as requirements. Penn State is producing a below average number of M.S. students in MatSE through the Intercollege Graduate Degree Program relative to national figures from the American Society for Engineering Education. Specifically, about 15% of MatSE students at Penn State earn a M.S. degree compared to about 35% nationally. The proposed M.S. MatSE program will address this shortcoming. It is ideally suited to individuals with a B.S. in Chemistry, Physics, Mechanical Engineering, Chemical Engineering, and Industrial Engineering, among others, who seek an in-depth understanding of Materials Science and Engineering. These individuals may already be working in an industry, or may discover an interest, that requires this additional knowledge of fundamentals, applications, and research experience. The proposed program will also address unmet demand from Penn State undergraduate students for entrance to the M.S. program. Currently, about 5 students/year enquire about this possibility only to be told that they must go elsewhere. It will additionally attract high quality domestic and international students who seek a M.S. degree in Materials Science and Engineering before working towards a doctorate degree. Between 2011 and 2015, 467-607 students per year applied for admission to the MatSE graduate program and 19-45 per year were ultimately matriculated. There is clearly an unmet demand for graduate study in Materials Science and Engineering.

The Intercollege Ph.D. and thesis M.S. degrees are administered by the College of Earth and Mineral Sciences with an Executive Council composed of faculty from participating Colleges. The courses taken by the students in these programs are primarily from the Department of Materials Science and Engineering and they are advised on their research projects by faculty from the Colleges of Earth and Mineral Sciences, Engineering, Science, and Agriculture. In contrast, the students in the proposed program will be advised by the M.S. MatSE Graduate Adviser on course work and career options. This Adviser will be responsible for matching the students with faculty for their culminating research project. The supervising faculty will work with the students on the writing of the scholarly paper and will be responsible for advising the students on their scholarly work. A portion of program revenue to the Department of Materials Science and Engineering will be available for the students to use during their research experience on materials, supplies, and time in user facilities. Given the course-intensive nature of the proposed non-thesis degree, it will be administered by the Department of Materials Science and Engineering.

3. Proposed Course Offerings and Schedule

A total of 30 credits is required for the completion of the proposed M.S. MatSE degree.

The complete program is as follows.

<table>
<thead>
<tr>
<th>Course Abbreviation and Number</th>
<th>Course Title</th>
<th>Number of Credits</th>
<th>Semester Offered</th>
</tr>
</thead>
</table>

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Core classes:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATSE 501</td>
<td>Thermodynamics of Materials</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 590</td>
<td>Colloquium</td>
<td>1</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 512/</td>
<td>Principles of Crystal Chemistry</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>GEOSC 512</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATSE 582</td>
<td>Materials Science and Engineering Professional</td>
<td>1</td>
<td>Fall</td>
</tr>
<tr>
<td></td>
<td>Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATSE 596</td>
<td>Individual Studies</td>
<td>1</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 596</td>
<td>Individual Studies</td>
<td>1</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 596</td>
<td>Individual Studies</td>
<td>3</td>
<td>Summer</td>
</tr>
</tbody>
</table>

Students must choose one of the following two required electives:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATSE 542</td>
<td>Polymeric Materials: The Solid State</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 503</td>
<td>Kinetics of Materials Processes</td>
<td>3</td>
<td>Spring</td>
</tr>
</tbody>
</table>

Elective MatSE classes:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATSE 507/BIOE 517</td>
<td>Biomaterials Surface Science</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 508/BIOE 508</td>
<td>Biomedical Materials</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 510/CH E 510</td>
<td>Surface Characterization of Materials</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 514</td>
<td>Characterization of Materials</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 544</td>
<td>Computational Materials Science of Soft Materials</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 545/EE 545</td>
<td>Semiconductor Characterization</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 555/PHYS 555</td>
<td>Polymer Physics I</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 560/MN PR 507</td>
<td>Hydrometallurgical Processing</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 565</td>
<td>Metals in Electronics</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 570/EME 570</td>
<td>Catalytic Materials</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 575</td>
<td>Functional Polymeric Materials</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 403</td>
<td>Biomedical Materials</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 404</td>
<td>Surfaces and the Biological Response to Materials</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>NUC E 409/MATSE 409</td>
<td>Nuclear Materials</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 410</td>
<td>Phase Relations in Materials Systems</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>Course Code</td>
<td>Title</td>
<td>Credits</td>
<td>Term</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>MATSE 411</td>
<td>Processing of Ceramics</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 412</td>
<td>Thermal Properties of Materials</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 415</td>
<td>Introduction to Glass Science</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 417</td>
<td>Electrical and Magnetic Properties</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 421</td>
<td>Corrosion Engineering</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 422</td>
<td>Thermochemical Processing</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 425</td>
<td>Processing of Metals</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 426</td>
<td>Aqueous Processing</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 427</td>
<td>Microstructure Design of Structural Materials</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 435</td>
<td>Optical Properties of Materials</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 436</td>
<td>Mechanical Properties of Materials</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 440/</td>
<td>Nondestructive Evaluation of Flaws</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>E MCH 440</td>
<td>Polymeric Materials I</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 445</td>
<td>Thermodynamics, Microstructure, and Characterization of Polymers</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 446</td>
<td>Mechanical and Electrical Properties of Polymers and Composites</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 447</td>
<td>Rheology and Processing of Polymers</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>MATSE 450</td>
<td>Synthesis and Processing of Electronic and Photonic Materials</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>MATSE 455</td>
<td>Properties and Characterization of Electronic and Photonic Materials</td>
<td>3</td>
<td>Spring</td>
</tr>
</tbody>
</table>

**Elective Non-MATSE classes:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>BME 446</td>
<td>Polymers in Biomedical Engineering</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>CHEM 448</td>
<td>Surface Chemistry</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>CHEM 543</td>
<td>Polymer Chemistry</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>E MCH 403</td>
<td>Strength Design in Materials and Structures</td>
<td>4</td>
<td>Spring</td>
</tr>
<tr>
<td>E MCH 471</td>
<td>Engineering Composite Materials</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>E MCH 500</td>
<td>Solid Mechanics</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>E MCH 530</td>
<td>Mechanical Behavior of Materials</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>E MCH 535</td>
<td>Deformation Mechanisms in Materials</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>E SC 414M</td>
<td>Elements of Material Engineering</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>E SC 419</td>
<td>Electronic Properties and Applications of Materials</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>E SC 445</td>
<td>Semiconductor Optoelectronic Devices</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>E SC 450</td>
<td>Synthesis and Processing of Electronic and Photonic Materials</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>E SC 455</td>
<td>Electrochemical Methods in Corrosion Science and Engineering</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>E SC 483</td>
<td>Simulation and Design of</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
<td>Term</td>
</tr>
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<td>-------------</td>
<td>--------------------------------------------------</td>
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<tr>
<td>E SC 484</td>
<td>Biologically Inspired Nanomaterials</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>E SC 502</td>
<td>Semiconductor Heterojunctions and Applications</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>PHYS 412</td>
<td>Solid State Physics I</td>
<td>3</td>
<td>Fall</td>
</tr>
<tr>
<td>PHYS 514</td>
<td>Physics of Surfaces, Interfaces, and Thin Films</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>PHYS 524</td>
<td>Physics of Semiconductors and Devices</td>
<td>3</td>
<td>Spring</td>
</tr>
<tr>
<td>PHYS 555</td>
<td>Polymer Physics I</td>
<td>3</td>
<td>Spring</td>
</tr>
</tbody>
</table>

Of these, at least 18 credits must be in 500-level courses and the remaining credits may be at the 400 or 800 level. A professional development course on ethics in research is required in the fall, and a 1 credit course of individual study for the development of a research project is required in the fall, spring and summer. Altogether, 15 credits of formal coursework must be from MATSE courses, with the remaining credits coming from formal courses offered by either MatSE or other Departments at Penn State that are relevant to the student’s specialization.

**Fall (12 credits)**
- MATSE 501 (3)
- MATSE 582 (1)
- MATSE 590 (1)
- MATSE 596 (1)
- MATSE 542 (3) – or a 3-credit elective, if the student chooses to take MATSE 503 (3) instead
- Elective 1 (3)

**Spring (14 credits)**
- MATSE 512 (3)
- MATSE 596 (1)
- MATSE 590 (1)
- MATSE 503 (3) – or a 3-credit elective, if the student has taken MATSE 542 (3) instead
- Elective 2 (3)
- Elective 3 (3)

**Summer 2 (4 credits)**
- MATSE 596 (4)

The culminating research experience will be 4 credits of individual study taken in the summer with faculty within the Department of Materials Science and Engineering. These faculty will have the responsibility for technical oversight of the work performed by the students and will guide the students as they write the scholarly paper. To ensure that the students all have a high-quality research experience and may begin to prepare for their research project as soon as possible, a Graduate Adviser will meet with the students at the start of the fall semester, ensure that they find supervising faculty for their research
projects, and monitor their progress via weekly progress reports that will be submitted to both the Graduate Adviser and the supervising faculty. In addition, the students will meet with the Graduate Advisor in monthly in-person meetings.

At the end of the summer semester the students will present the results of their research projects in a poster session and submit the final drafts of their scholarly papers to both the supervising faculty and to the Graduate Adviser. The entire Department will be invited to the poster session to interact with the students and view the posters. Both the posters and papers will be evaluated by the Graduate Adviser and a committee of faculty who will grade their work on a pass/fail basis.

All the scholarly papers will be published on Scholars Sphere at Penn State and may additionally be submitted for publication to a peer-reviewed journal. Students who plan to publish their work in a journal will be able to delay access to their papers on Scholars Sphere until after publication. Students who need more time to complete their scholarly paper will be allowed to complete the paper, have it reviewed, and approved after the summer semester has ended. Students will not be required to remain in residence while they complete the scholarly paper. However, extensions granted to students in the program will comply with the Penn State Graduate Council policy on deferred grades.

4. Admission Requirements

Students will be admitted to the proposed M.S. MatSE program once a year in the fall semester.

The admission requirements are as follows:

The applicant must have received a baccalaureate degree from a regionally accredited institution. Applicants with degrees in the physical sciences and engineering with a Junior/Senior grade point average of 3.2/4.0 or higher will be considered for admission.

Scores from the Graduate Record Examination (GRE) are also required for admission. Applicants with verbal and quantitative GRE scores of 303 or higher will be considered. Applicants with GPA or GRE scores below these minimum values may be considered for admission on a case-by-case basis.

The language of instruction at Penn State is English. English proficiency test scores (TOEFL/IELTS) may be required for international applicants. Consult the English Proficiency section of the Graduate Bulletin Application and Admission Procedures page for more information.

5. Size of the Program and Duration

The proposed 12-month, non-thesis M.S. MatSE degree will be offered to full-time resident students. The quality of the program is paramount to its success. This will be ensured by starting with a relatively small number (about 10) students and increasing the number to about 50 students over a period of 5 years.
Initially, the impact of the students in the proposed program on course enrollments and teaching loads will be minimal. As the number of students increases, the Department will provide multiple sections of the core graduate classes that are most impacted by the additional enrollment. Additional instructors will be hired using revenue generated by the program to teach the additional sections of the core classes to ensure that quality and teaching capacity in the department is not negatively impacted as enrollment in the non-thesis M.S. program increases.

6. Impact on Existing Programs

The current, two-year M.S. MatSE degree will continue to be offered through the Intercollege Graduate Degree Program for students who seek knowledge of fundamentals, applications, and a research experience with a thesis. The proposed, one-year, non-thesis M.S. MatSE will be offered by the Department of Materials Science and Engineering for students who seek knowledge of fundamentals, applications, and a one semester research experience with a scholarly paper. For students not completing a full thesis, six additional credits of formal coursework are required compared to the thesis-based M.S. degree.

Offering both the thesis and the non-thesis Masters of Science options is the norm for highly ranked Materials Science and Engineering programs at peer institutions, including the University of Michigan, the University of Pennsylvania, the University of Illinois at Urbana-Champaign, and Northwestern University.

7. Scholastic and Research Integrity (SARI)

The SARI requirements for the proposed M.S. MatSE program include completion of an online Responsible Conduct of Research training program and a 1 credit Professional Development course (MATSE 582). Students will complete the SARI requirements by the end of their first two semesters of study.

B. Graduate Degree Programs Bulletin Listing

Materials Science and Engineering (MATSC)

Program Home Page
Susan B. Sinnott
Department Head
Professor of Materials Science and Engineering
111 Research Unit A
814-863-3117

Suzanne Mohney
Chair of the Intercollege Graduate Degree Program in Materials Science and Engineering
Professor of Materials Science and Engineering and Electrical Engineering
N-209 Millennium Science Complex
814-863-0744
Degrees Conferred

- Ph.D. in Materials Science and Engineering
- M.S. in Materials Science and Engineering

The Graduate Faculty

The Program

The Intercollege Graduate Degree Program in Materials Science and Engineering offers comprehensive graduate education in the fundamentals of materials science (synthesis-structure-property-performance relationships). Faculty have interests in many research areas including biomaterials, ceramics, composites and hybrids, computational materials science, electronic and photonic materials, materials chemistry and physics, metals, nanostructured and nanoscale materials, piezoelectrics and ferroelectrics, polymers and soft materials. Students may choose to study across the major themes of materials today including materials in energy applications, nanotechnology, materials in medicine, materials in communications, materials for sensor applications, structural materials, etc., by using a combination of MATSE courses and a myriad of materials-related courses offered in the science and engineering departments at Penn State.

Admission Requirements

Requirements listed here are in addition to requirements stated in the GENERAL INFORMATION section of the Graduate Bulletin. Applicants apply for admission to the program via the Graduate School application for admission.

Applicants with baccalaureate degrees in the physical sciences and engineering with a Junior/Senior grade point average of 3.2/4.0 or higher will be considered for admission.

Scores from the Graduate Record Examination (GRE) are required for admission. Applicants with verbal and quantitative GRE scores 303 or higher will be considered.

The language of instruction at Penn State is English. English proficiency test scores (TOEFL/IELTS) may be required for international applicants. Consult the English Proficiency section of the Graduate Bulletin Application and Admission Procedures page for more information.

Master's Degree Requirements

Requirements listed here are in addition to requirements stated in the DEGREE REQUIREMENTS section of the Graduate Bulletin.

A minimum of 30 credits is required for the completion of the M.S. degree. At least 18 credits must be at the 500 or 600 level, and the remaining credits may be at the 400 or 800 level. There are 12 credits required in the following core courses: MATSE 501 (3 cr.), MATSE 512 (3 cr.), either MATSE 542 or MATSE 503 (3 cr.), MATSE 582 (1 cr.), and MATSE 590 (2 cr.). Depending on the culminating experience chosen, either 6 credits of
thesis research or 6 credits of non-thesis research is required. The remaining elective credits may be chosen from a list of approved electives maintained by the program office.

As a culminating experience for the M.S. degree, students may choose to complete either a thesis or a scholarly paper. Students who choose to complete a thesis must take at least 6 credits of thesis research (MATSE 600). A thesis describing independent research performed by the student must be written and defended at an oral examination. Bound copies will be made available for the University Libraries and the thesis adviser. A thesis committee will administer the final oral examination of the thesis. The committee must consist of at least three Graduate Faculty members. The thesis must be accepted by the committee members, the head of the graduate program, and the Graduate School, and the student must pass the thesis defense.

The non-thesis track is designed to be completed in 3 semesters, or one calendar year (fall, spring, and summer). Students in this program will be required to begin in the fall semester and be registered continuously until the culminating research experience is completed at the end of the summer. A research adviser will be assigned to students in their first semester. Students in the non-thesis option must write a satisfactory scholarly paper while enrolled in MATSE 596 Individual Studies. A total of 6 credits of MATSE 596 will be taken, 1 credit each in the fall and spring, and 4 credits in the summer. It is expected that the scholarly paper will be submitted and approved at the end of the summer semester. Students who need more time to complete the final paper will be allowed to complete the paper, and have it reviewed and approved after the third semester has ended. Students are not required to remain in residence while they complete the final paper. However, extensions granted to students in this program must comply with the Graduate Council policy on deferred grades.

**Doctoral Degree Requirements**

Requirements listed here are in addition to requirements stated in the DEGREE REQUIREMENTS section of the Graduate Bulletin.

A doctoral program consists of a combination of courses, seminars, and research that fulfills the minimum requirements of Graduate Council and is approved by the doctoral committee for each individual student. A master's degree is not a prerequisite for the doctorate. However, the first year of graduate study leading to the Ph.D. may be the same as that provided for the M.S. degree. Acceptance into the Ph.D. program is based on the student's performance on the Ph.D. candidacy exam, which is administered by a graduate candidacy exam committee of the department.

A minimum of 18 credits of 500-level courses is required for completing a Ph.D. degree in Materials Science and Engineering, including 9 credits in required core courses: MATSE 501 Thermodynamics of Materials (3 cr.), MATSE 503 Kinetics of Materials Processes (3 cr.), and MATSE 512 Principles of Crystal Chemistry (3 cr.). Ph.D. students are also required to take 2 credits of MATSE 590 Colloquium each year, and complete MATSE 582 Materials Science and Engineering Professional Development (1 cr.); credits for MATSE 582 and MATSE 590 will not count towards the minimum 18 credits required. Additional specific course requirements are determined by the student and the adviser in consultation with the student's doctoral committee. A student with an M.S. degree from Penn State can use credits
earned during his or her M. S. study to fulfill the Ph.D. course requirements. Upon approval by the doctoral committee and the graduate program coordinator, some or all of the course requirements may be waived for students holding an M. S. degree from another institution.

Student Aid

Graduate assistantships available to students in this program and other forms of student aid are described in the Student Aid section of the Graduate Bulletin. Students on graduate assistantships must adhere to the course load limits set forth in the Graduate Bulletin. Graduate assistantships will not be available to students in the non-thesis MatSE M.S. track.

Courses

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

MATERIALS SCIENCE AND ENGINEERING (MATSE) course list

C. Consultation with Other Units Affected by the Program

Original written responses from Departments affected.
Graduate Council
Program, Option, or Minor Proposal Form

Submit 1 original, signed Graduate Council proposal form and 2 hardcopies of the graduate program proposal document, with a copy of the signed proposal form attached to each proposal copy, to the Curriculum Coordinator, University Faculty Senate, 101 Kern Graduate Building, University Park. The proposals will be transmitted to the Office of the Dean of the Graduate School for entry into the Graduate Council curricular review process; for more information about the process, see the Overview of the Graduate Council Curricular Review Process.

The Program Proposal Procedures provide guidance for the development of a graduate program proposal. If you have questions regarding the preparation of a graduate program proposal or how to complete this Graduate Council proposal form, contact the Office of the Dean of the Graduate School.

College/School: Nursing
Department or Instructional Area:

New Graduate Program, Option, or Minor: □ Add

Designation of new graduate program:
Classification of Instructional Programs (CIP) Code: 

Designation of new graduate option:
Designation of new graduate minor:

Indicate effective semester:
□ First semester following approval
□ Second semester following approval

Existing Graduate Program Option, or Minor: □ Change □ Drop Nursing

Current designation of graduate program:
Current designation of graduate option:
Current designation of graduate minor:

New designation of existing graduate program (if changing):
New designation of existing graduate option (if changing):
New designation of existing graduate minor (if changing):

Brief description of the change (if not noted above): Adopt the dual-title Ph.D. program in CTS

Indicate effective semester:
□ First semester following approval
□ Second semester following approval

Submitted by Graduate Program Head

Judith E. Happey Signature Date: 9-26-16

Noted by College/School Representative to Graduate Council Subcommittee on New and Revised Programs and Courses:

Susan J. Loeb Signature Date: 09/24/16

Approved by College/School Dean/Chancellor (or Designee):

Paula Milonec-Nuzzo Signature Date: 9/26/16
Recommended by Chair, Graduate Council Subcommittee on New and Revised Programs and Courses:

On Behalf of C. Andrew Cole
Printed name
Signature
Date: 11/9/2016

Recommended by Chair, Graduate Council Committee on Programs and Courses:

On Behalf of M. Kathleen Heid
Printed name
Signature
Date: 11/9/2016

Noted by Dean of the Graduate School:

On Behalf of Regina Vasilatos-Younken
Printed name
Signature
Date: 11/9/2016
Contents

1. Objectives of the Program Change ................................................................. 1
2. Justification for the Program Change ........................................................... 1
   A. Examples of possible dissertation topics in clinical translational science with nursing as a perspective .................................................................
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3. Proposed Bulletin Listing ............................................................................ 13

1. Objectives of Program Change

The objective of this document is to propose a Dual-Title Ph.D. Degree in Nursing (NURS) and Clinical and Translational Sciences (CTS). A dual-title Ph.D. in NURS and CTS will expand the educational experience of students studying in the Graduate Program in NURS to include training, via a unique curriculum and research focus, aimed at preparing students for career paths that involve clinical trials or clinical research programs. The NURS component of the dual-title provides pre-doctoral students curricular training with a focus on developing clinical scholars, faculty, and nurse scientists who can teach and provide leadership through scientific inquiry and innovative practice. Nursing science encompasses the body of knowledge related to the personal experience of health and illness in individuals, families, groups, and communities. As members of a practice discipline, nurse scientists are in a key position to assess health needs and design evidence-based interventions to improve the health of groups made vulnerable by complex life circumstances. Research emphases include health-related needs and responses of targeted populations, dynamics of the nurse-patient interface, evidence-based solutions for complex nursing problems, and the design and testing of innovative models of nursing care. The CTS component of the dual-title provides an emphasis on epidemiological, behavioral, outcomes, and health services research that translates scientific findings from the laboratory to the clinical setting to best practices in the community. Pairing of the two training experiences in the Dual-Title Ph.D. in NURS and CTS yields opportunities for interdisciplinary scholarship at the interface of basic science, clinical science, and human health. This new offering does not duplicate other degree programs within the College of Nursing or the University.

2. Justification for Program Change

The existing Graduate Certificate Program in Clinical Research offered through the Department of Public Health Sciences at the College of Medicine provides limited exposure to the field of CTS. It is an important adjunct for a limited pool of professionals, most of whom have completed their doctoral program. However, it cannot offer the same integrated training and research experiences offered by a dual-title Ph.D. degree. The Dual-Title Ph.D. in NURS and CTS is part
of a national effort, guided by the National Institutes of Health (NIH) Roadmap, to change the culture of health-related research by reducing program compartmentalization and encouraging interdisciplinary team-based science.

Interdisciplinary training in CTS prepares students for successful careers in academia and clinical venues (e.g., hospitals and clinical research sponsoring organizations), as well as in the community and departments of health.

The expected benefits of the Dual-Title Ph.D. in NURS and CTS include:

- Value-added training and scholarship for current and future Ph.D. students in the College of Nursing;
- Addition of novel course work and training not prescribed in an existing (major) graduate degree program;
- Integration of clinical/translational research training into dissertation work (i.e., Candidacy Exam, Comprehensive Exam, Final Oral Exam, and Dissertation);
- Enhanced methodological/analytical skills and training; and
- Expanded employment and career opportunities within the nursing and health sciences arenas.

The Dual-Title Ph.D. Degree in NURS and CTS will encourage interdisciplinary scholarly work at the interface between many domains by focusing on human health. Through both course work and research, the proposed program of study is designed to extend students’ knowledge beyond their primary area of study (i.e., nursing science) to foster a broader understanding and competence in clinical and health-related research. Ultimately, this approach should enable a new breed of scientists capable of targeting their research programs to address the unmet health promotion, disease prevention, and treatment needs of the future. If approved, Penn State would be a trailblazer with the proposed program since the only University to date with a program that approaches what we propose here is the University of Florida’s CTS Interdisciplinary Concentration of 18 credits, which is available to Nursing Ph.D. Students as well as a variety of students in other disciplines. See: [https://www.ctsi.ufl.edu/education/ph-d-students/cts-interdisciplinary-concentration/#requirements](https://www.ctsi.ufl.edu/education/ph-d-students/cts-interdisciplinary-concentration/#requirements)

Below is the proposed organization and integration of the Ph.D. program in NURS with the CTS Graduate Program.
In addition to mandatory Scholarship and Research Integrity (SARI) and Institutional Review Board (IRB) or Institutional Animal Care and Use Committee (IACUC) training (as appropriate), the Dual-Title Ph.D. Degree in NURS and CTS curriculum has five general features.

1. Basic and Clinical Science elective course work in each of the following areas:
   - Statistics (3 credits);
   - Epidemiology (3 credits);
   - Bioinformatics (3 credits);
   - Experimental design and interpretation (3 credits);
   - The regulatory environment (3 credits);
   - Scientific communication (3 credits).

At least half must be at the 500 level or above. Substitutions and additions will be considered by the CTS Pre-doctoral Program Co-Directors on a case-by-case basis, which allows for some flexibility as graduate course offerings evolve. The CTS program maintains a list of approved electives and plans biennial updates to its list of elective courses.
2. CTS 590 (1) Seminar in Clinical and Translational Sciences (two semesters = 2 credits) and 6 credits of clinical or translational internship, laboratory rotation, or practicum that is approved by the Directors of the CTS Graduate Program (CTS 595 A/B or BMS 571) complete the curriculum, which brings the total CTS credit requirement to 26 (18 credits of electives, 2 credits of seminar, 6 credits of internship).

3. Co-mentoring by basic and clinical scientists during students’ dissertation research.

4. Structured experiences in nursing/health care and clinical research

5. Exposure to opportunities afforded by focusing basic sciences, clinical sciences, and community engagement on both treatment and prevention to enhance human health.

The Ph.D. program in NURS requires a minimum of 42-45 credits (see Table 2) inclusive of a minimum of 2 thesis credits (although students may need to complete more than 2 credits to finish their dissertation). Twelve credits can be accrued toward requirements of both (i.e., NURS and CTS) programs. The minimum number of additional credits that would be added to the curricular experience of students in the Ph.D. program in NURS would be 14. Additional coursework would be reasonably achievable by the end of the third year of the Dual title Ph.D. program.

Table 1: Comparison of Ph.D. NURS Curriculum Requirements with Dual Title Ph. D. in NURS-CTS Curriculum Requirements

<table>
<thead>
<tr>
<th>NURS</th>
<th>NURS-CTS</th>
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<tbody>
<tr>
<td>Year 1</td>
<td>Year 1</td>
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<tr>
<td>Fall</td>
<td>Fall</td>
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<tr>
<td>NURS 580 Epistemology (3 cr.)</td>
<td>NURS 580 Epistemology (3 cr.)</td>
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<tr>
<td>NURS 585 Qualitative Research (3 cr.)</td>
<td>NURS 585 Qualitative Research (3 cr.)</td>
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<tr>
<td>NURS 590-1(1st year colloquium) (1 cr.)</td>
<td>NURS 590-1(1st year colloquium) (1 cr.)</td>
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<tr>
<td>NURS-590-2 (1 cr.)</td>
<td>NURS-590-2 (1 cr.)</td>
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<tr>
<td>STAT 500 Applied Statistics (3 cr.) or PHS 520 Principles of Biostatistics (4 cr.)</td>
<td>STAT 500 Applied Statistics (3 cr.) or PHS 520 Principles of Biostatistics (4 cr.) [fulfills CTS Statistics Elective]</td>
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<tr>
<td>Total: 11-12 credits</td>
<td>Total: 11-12 credits</td>
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<tr>
<td>Year 1</td>
<td>Year 1</td>
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<tr>
<td><strong>Spring</strong></td>
<td><strong>Spring</strong></td>
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<tr>
<td>NURS 581 Concepts (3cr.)</td>
<td>NURS 581 Concepts (3cr.)</td>
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<tr>
<td>NURS 586 Quantitative Research (3cr.)</td>
<td>NURS 586 Quantitative Research (3cr.)</td>
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<tr>
<td>NURS 587 Ethics (1 cr.)</td>
<td>NURS 587 Ethics (1 cr.)</td>
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<tr>
<td>STAT 501 or PHS 521 (3 cr.)</td>
<td>STAT 501 or PHS 521 (3 cr.)</td>
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<tr>
<td><strong>Total: 10 credits: Candidacy</strong></td>
<td><strong>Total: 11 credits:</strong></td>
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<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 1</th>
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<tbody>
<tr>
<td><strong>Summer</strong></td>
<td><strong>Summer</strong></td>
</tr>
<tr>
<td>CTS 595A Clinical Research Internship (3cr.)</td>
<td>CTS 595A Clinical Research Internship (3cr.)</td>
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<td><strong>Total 3 credits</strong></td>
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<table>
<thead>
<tr>
<th>Year 2</th>
<th>Year 2</th>
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<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Fall</strong></td>
</tr>
<tr>
<td>NURS 582 Scientific Basis for Nursing (3cr.)</td>
<td>NURS 582 Scientific Basis for Nursing (3cr.)</td>
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<tr>
<td>Stats/Research (3 cr.)</td>
<td>Stats/Research (3 cr.)</td>
</tr>
<tr>
<td>Individual specialty course (3 cr.)</td>
<td>Individual specialty course (e.g. STAT 507 (3cr.) or PHS 550 Principles of Epidemiology (3 cr.) [fulfills CTS Epidemiology Elective]</td>
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<tr>
<td>NURS 590-3 Colloquium (1 cr.)</td>
<td>NURS 590-3 Colloquium (1 cr.)</td>
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<tr>
<td><strong>Total: 10 credits</strong></td>
<td><strong>Total: 11 credits:</strong></td>
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<tr>
<td></td>
<td>Candidacy must be completed by end of Fall</td>
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<tr>
<td>Spring</td>
<td>Spring</td>
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<td>--------------------------------------------</td>
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<tr>
<td>NURS 583 Dissertation Seminar (3 cr.)</td>
<td>NURS 583 Dissertation Seminar (3 cr.)</td>
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<tr>
<td>Individual Specialty course (3 cr.)</td>
<td>Individual Specialty course (3 cr.) (e.g. CAS 567 Health Campaigns: Design and Evaluation (3 cr.) or PHS 537 Health Policy &amp; the Law [fulfills CTS The Regulatory Environment Elective]</td>
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<tr>
<td>NURS 596 Research w/Faculty (3 cr.)</td>
<td>NURS 596 Research w/Faculty (3 cr.)</td>
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<tr>
<td></td>
<td>KINES 588 Scientific Communication (3 cr.) or PHS 518 Scientific Communication (2 cr.) and BMS 801 Writing Grant Proposals for Biomedical Research (1 cr.) [fulfills CTS Scientific Writing Elective]</td>
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<td>Total: 9 credits</td>
<td>Total: 12 credits</td>
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<td>Year 2</td>
<td>Year 2</td>
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<tr>
<td>Summer</td>
<td>Summer</td>
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<td></td>
<td>CTS 595B Clinical Research Internship (3cr)</td>
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<td>Total 3 credits</td>
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<td>Year 3</td>
<td>Year 3</td>
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<tr>
<td>Fall</td>
<td>Fall</td>
</tr>
<tr>
<td>NURS 600 (1 cr.) or 601</td>
<td>NURS 600 (1 cr.) or 601</td>
</tr>
<tr>
<td>NURS 602 Supervised College Teaching</td>
<td>NURS 602 Supervised College Teaching</td>
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<td>Individual specialty course (3 cr.)</td>
<td>Individual specialty course (3 cr.) (e.g. HPA 528 Health Data Analysis (3 cr.) or PHS 516</td>
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<td>Year 4</td>
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<td>Spring</td>
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<td>NURS 600 (1 cr.) or NURS 601</td>
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<td>Total: 1 credit</td>
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Total: 4 credits + NURS 602
Comprehensive/Proposal Defense

<table>
<thead>
<tr>
<th>Year 3</th>
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<td>Spring</td>
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<td>NURS 600 (1 cr.) or NURS 601</td>
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<td>Total: 1 credit</td>
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</table>

Total 7: credits + NURS 602
Comprehensive/Proposal Defense

Statistical Genetics (3 cr.) [fulfills CTS Bioinformatics Elective]

Individual specialty course (3 cr.) (e.g., HDFS 506 Design & Evaluation of Prevention & Health Promotion Programs Across the Lifespan (3 cr.) or PHS 504 Behavioral Health Intervention Strategies (3 cr.) [fulfills CTS Experimental Design and Interpretation Elective]
<table>
<thead>
<tr>
<th>NURS 600 (1 cr.) or NURS 601</th>
<th>NURS 600 (1 cr.) or NURS 601</th>
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<tr>
<td>Total: 1 credit (Total credits 47-48)</td>
<td>Total: 1 credit (Total credits 61-62)</td>
</tr>
<tr>
<td>Graduate with Ph.D.</td>
<td>Graduate with Dual-title Ph.D.</td>
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</table>

Note: Shaded courses represent 12 credits of double counted courses for NURS and CTS

Fourteen additional credits would be added to the curricular experience of students in the Ph.D. program in nursing who are accepted to the dual-title program. The course requirements for the Dual Title Ph.D. in NURS and CTS would be reasonably achievable by the end of Year 3 for students who enter the program with an M.S./M.S.N. Students will select the 26 CTS credits through the following course work: Statistics (3 cr.—met through STAT 500 or PHS 520 as noted above), Epidemiology (3 cr.), Bioinformatics (3 cr.), Experimental Design and Interpretation (3 cr.), the Regulatory Environment (3 cr.), and Scientific Communication (3 cr.), as well as CTS Seminar (1 cr. each semester for 2 semesters), and 6 credits of CTS Clinical Rotation. The aforementioned course work will be selected from a list of pre-existing courses. No new courses in NURS are required to support the Dual-Title Ph.D. Degree in NURS and CTS.

Prospective dual-title trainees will express an interest in the program as early as during the recruitment process for the Ph.D. program in NURS and will apply to the dual-title program no later than the end of the spring semester of the first year of study in the Ph.D. program in NURS. Students interested in the Dual-Title Ph.D. will be considered for admission to the CTS Program by the CTS Program co-directors and admissions committee with recommendations from the NURS Ph.D. program. Typically, students in the NURS Ph.D. program complete the Candidacy Examination at the end of the first year of full time Ph.D. training. Graduate students in NURS Ph.D. program accepted to the Dual-Title Ph.D. Degree in NURS and CTS may take the Candidacy Examination at the end of the third semester of Ph.D. training to allow exposure to the CTS Curriculum and to assure commitment of an appropriate dissertation mentor.

There are several areas for development through experiential learning, internships, and mentorship that are aligned with the core competencies of the proposed Dual-Title Ph.D. Degree in NURS and CTS. They include “soft skills” such as leadership, diversity, and teamwork that are expected competencies for successful translational scientists but are not formally evaluated in the Candidacy Examination, Comprehensive Examination, or other required elements of the major or dual-title degree.

**Proposed Sequence of Study**
At present there is no accrediting body for the proposed program area. A proposed sequence of study for students seeking the Dual-Title Ph.D. in NURS and CTS is presented below.

Fall Semester Year One (11-12 cr.)
- NURS Course work:
  - NURS 580 [3 cr.]
  - NURS 585 [3 cr.]
  - NURS 590-001 [2 cr.]
- STAT 500 [3 cr.] or PHS 520 plus lab [5 cr.] either meets a CON requirement (both courses are on the list of acceptable CTS Statistics Electives)
- Complete Scholarship and Research Integrity (SARI) Training [1st semester]

Spring Semester Year One (11 cr.)
- NURS Course work:
  - NURS 581 [3 cr.]
  - NURS 586 [3 cr.]
  - NURS 587 [1 cr.]
  - CTS 590 [1 cr.]
  - STAT 501 or PHS 521 [3 cr.]
- If not already admitted to the Dual-Title program, the student must apply by end of this semester (i.e., Year 1, Semester 2)
- Establish CTS mentors
- Language Proficiency
- Residency Requirement Fulfilled

Summer Semester Year One (3 cr.)
- CTS Course work
  - CTS 595A Clinical Research Internship (3 cr.)

Fall Semester Year Two (11 cr.)
- NURS Course work:
  - NURS 582 [3 cr.]
  - NURS 590 [1 cr.]
  - Statistics/Research Course [3 cr.]
  - CTS Course work (the first class will fulfill 3 of the 9 credits of Individual Specialty Courses required by the CON):
    - Epidemiology Elective ([3 cr.] select from list)
    - CTS 590 [1 cr.]
- Complete Candidacy Examination end of fall semester (scheduled by the NURS and CTS program office) [1st semester Year 2]

Spring Semester Year Two (12 cr.)
- NURS Course work:
• NURS 583 [3 cr.]
  • NURS 596 Research with Faculty [3 cr.] (for those who have never worked as a Research Assistant on a Faculty Member's active research project)

- CTS Course work:
  • Regulatory Environment Elective ([3 cr.] select from list). Also serves as 3 cr. of NURS Individual Specialty Courses
  • Scientific Writing Elective ([3 cr.] select from list)
  • Identify Dissertation Topic & Form Doctoral Committee

**Summer Semester Year Two (3 cr.)**
- CTS Course work
  • CTS 595B Clinical Research Internship (3 cr.)

**Fall Semester Year Three (7 cr. + NURS 602)**
- NURS 600 [1 cr.]
- NURS 602
- CTS Course work:
  • Bioinformatics Elective ([3 cr.] select from list). Also serves as 3 cr. of NURS Individual Specialty Courses
  • Experimental Design and Interpretation ([3 cr.] select from list)
- Complete Comprehensive Examination (schedule with NURS and CTS program office) [at end of 1st semester of Year 3]

**Spring Semester Year Three (1 cr.)**
- NURS 600 [1 cr.]
- Present Proposal/referred to as Proposal Defense in CON
- Continue work on Dissertation Topic (e.g., IRB and collect data)

**Fall Semester and Spring Semester Year Four (1 cr.)**
- NURS 600 [1 credit]
- Write Dissertation
- Final Oral Defense and Graduate
Nursing (NURS)

Program Home Page

PAULA MILONE-NUZZO, Dean, College of Nursing
JUDITH E. HUPCEY, Associate Dean for Graduate Education and Research
201 Nursing Sciences Building
814-863-0245

Degrees Conferred:

Ph.D., D.N.P., M.S., M.S.N.
Dual-Title Ph.D. in Nursing and Bioethics (BIOET) Dual Title Ph.D. in Nursing and Clinical and Translational Sciences

The Graduate Faculty

The Programs

The graduate programs emphasize productive scholarship and research in the development of nursing knowledge and the translation of knowledge into practice. Advanced study is in human health and development throughout the life span, and in nursing’s role in providing health services to individuals, families, and communities.

The Ph.D. program, the dual-title Ph.D. program in nursing and bioethics, and the dual-title Ph.D. program in nursing and clinical and translational sciences prepare nurse scientists to provide leadership in nursing education, practice and research. Individualized curricula prepare nursing graduates to assume positions as faculty, researchers and leaders in educational, community, governmental, or institutional settings.

The D.N.P. degree program prepares nurse administrators and advanced practice nurses to assume leadership roles in practice settings in the community, governmental agencies, or healthcare institutions.

The M.S. degree program with a major in nursing prepares nurse scientists and clinical scholars who plan to complete a Ph.D. in nursing or dual-title Ph.D. in nursing and bioethics.

The M.S.N. degree in Nursing consists of a base program and six options. The options include: Clinical Nurse Specialist, Family Nurse Practitioner, Adult Gerontology Primary Care Nurse Practitioner, Adult Gerontology Acute Care Nurse Practitioner, Nurse Administrator, and Nurse Educator.

The M.S., M.S.N., and D.N.P. degree programs in Nursing are accredited by the Commission on Collegiate Nursing Education.
The Nurse Practitioner options are designed to help prepare the professional nurse to function in an expanded nursing role providing direct care to specific groups of clients in a variety of health care settings. Since that practice is inherently interdisciplinary in nature, advanced knowledge and research from nursing is combined with knowledge from science, medicine, and related disciplines. The Nurse Practitioner may also function in supervisory, consultative, education, and research roles.

The Clinical Nurse Specialist option prepares advanced practice nurses in Adult Gerontology or Community Health to plan, implement, and evaluate care in a variety of settings. They function in direct care, supervisory, consultative, education, and research roles serving individuals, families, and communities.

The Nurse Administrator option enables the student to acquire advanced knowledge of organizational leadership, health policy, and evidence-based health care delivery. The program is designed to prepare students for leadership and administrative roles in a variety of health care settings.

The Nurse Educator option enables the student to acquire advanced knowledge of evidence-based teaching and learning principles, curriculum development, and evaluative techniques. The program is designed to prepare students for educator roles in a variety of academic and health care settings.

**Admission Requirements for M.S., M.S.N., D.N.P., and Ph.D. Programs**

Requirements listed here are in addition to requirements stated in the GENERAL INFORMATION section of the Graduate Bulletin. Applicants must apply for admission to the program via the Graduate School application for admission.

1. For admission to the Nursing program, an applicant must hold either (1) a bachelor’s degree in Nursing from a U.S. regionally accredited institution or (2) a postsecondary degree in Nursing that is equivalent to a U.S. baccalaureate degree earned from an officially recognized degree-granting international institution. Students entering the doctoral program via the traditional post-master’s route must have earned a master’s degree with a major in nursing from a program accredited by a national accrediting agency for nursing. Well-qualified Ph.D. applicants with a baccalaureate degree in nursing and master’s degree in a related discipline (e.g., public health) will be evaluated individually to assess the need for prerequisite master’s-level coursework in nursing for doctoral program admission.

2. Applicants must submit official transcripts from all post-secondary institutions attended. For M.S.N. applicants, a cumulative grade-point average of 3.3 (on a 4.0 scale) for the baccalaureate degree is expected with a B or better in all science and nursing courses. For M.S. applicants, a cumulative grade-point average of 3.5 (on a 4.0 scale) for the baccalaureate degree is expected with a B or better in all science and nursing courses. College chemistry and statistics are also required (chemistry is not required for the nurse administrator option). B.S. to D.N.P. applicants are expected to have a cumulative undergraduate grade-point average of 3.5 (on a 4.0 scale).
For masters to Ph.D. or D.N.P. applicants, a cumulative grade-point average 3.5 (on a 4.0 scale) for master's and subsequent course work is expected.

3. Two letters of reference are required for the M.S.N. degree program and three letters of reference are required for the M.S., D.N.P., and Ph.D. degree programs. The letters should be solicited from professional colleagues and faculty who can attest to the applicant's ability.

4. All applicants must submit a statement of purpose. In addition, M.S., D.N.P., and Ph.D. degree applicants must also submit a published or unpublished scientific paper, thesis, or other scholarly writing sample and a complete curriculum vitae.

5. GRE scores are required for admission to the M.S. and Ph.D. programs. GRE scores are not required for the M.S.N. or D.N.P. applicants, but if the scores are submitted to Penn State they will be reviewed as part of the application.

6. The language of instruction at Penn State is English. English proficiency test scores (TOEFL/IELTS) may be required for international applicants. Consult the English Proficiency section of the Graduate Bulletin Application and Admission Procedures page for more information.

7. Applicants to the M.S.N. options and D.N.P. degree offered online via the World Campus must hold a current license to practice professional nursing in at least one U.S. state. All other applicants to the M.S. and M.S.N. degree programs must hold a current Pennsylvania license to practice professional nursing. Applicants to the Ph.D. degree program must be licensed to practice professional nursing in at least one state or in a foreign country.

8. Applicants to the Adult Gerontology Acute Care Nurse Practitioner Option are required to have two years of acute care hospital experience.

9. Applicants to the M.S.N. degree program are encouraged to discuss program options with the faculty; however, an interview is not required. Doctoral (B.S. - Ph.D., B.S.- D.N.P., D.N.P., and Ph.D.) applicants will be contacted by the College of Nursing to schedule a required interview (either in person or via internet-based video conferencing).

M.S. and M.S.N. Degree Requirements

Requirements listed here are in addition to requirements stated in the DEGREE REQUIREMENTS section of the Graduate Bulletin.

Candidates in the Master of Science (M.S.) degree program in nursing (B.S. (nursing)- Ph.D.) are required to complete a minimum of 30 credits, with at least 18 credits in the 500 and 600 series combined, to be awarded an M.S. degree. A minimum of 12 credits in course work (400, 500, and 800 series), as contrasted with research, must be completed in the major program. There are 9 core required courses, including NURS 501: Issues in Nursing and Health Care (3 credits); NURS 510 Theoretical and Scientific Foundations of Advanced Nursing Practice (3 Credits); and NURS 512: Nursing Research (3 credits). Additional courses that will count as electives towards this degree can be chosen from a list of approved elective courses maintained by the graduate program office.

If the M.S. student chooses to complete a thesis, at least 6 credits in thesis research (600 or 610) must be taken in conjunction with the thesis. The thesis must be accepted by the advisers and/or committee members, the head of the graduate program, and the Graduate School, and the student
must pass a thesis defense. If the student chooses the non-thesis track, the students must submit a satisfactory scholarly paper while enrolled in NURS 596 (3 credits). If no thesis is required, at least 18 credits of course work must be in 500-level courses.

The Master of Science in Nursing (M.S.N.) requires a minimum of 30 credits, with at least 12 credits at the 500 level, including 9 credits of Master’s Program Core courses, 18 credits of electives, and 3 credits in the Capstone Course, NURS 513. The Master’s Program Core Courses are: NURS 501: Issues in Nursing and Health Care (3 credits), NURS 510 Theoretical and Scientific Foundations of Advanced Nursing Practice (3 Credits), and NURS 512: Nursing Research (3 credits). Additional courses that will count as electives towards this degree can be chosen from a list of approved elective courses maintained by the graduate program office. Students in the M.S.N. degree program are required to complete a capstone project, which demonstrates the application of theory and research to a clinical problem based on review of the literature and research utilization for that problem. The capstone project is completed while enrolled in NURS 513 (3 credits).

The six advanced role options offered in the M.S.N. degree program include nurse educator, nurse administrator, family nurse practitioner (FNP), adult gerontology primary care nurse practitioner, adult gerontology acute care nurse practitioner, and clinical nurse specialist (CNS). Students in these options complete the 9 credits of Master’s Program Courses and 3 credits of the Capstone Course NURS 513, as described above. The option-specific course requirements described below replace the requirement for 18 credits of electives.

Students must earn a minimum of 41 credits for the M.S.N. with the Clinical Nurse Specialist option. The option-specific course requirements total 29 credits, including: NURS 802 (3), NURS 803 (3), NURS 804 (3), NURS 818 (4), NURS 819 (4), NURS 821 (8), and NURS 823 (4).

Students must earn a minimum of 45 credits for the M.S.N. with the Family Nurse Practitioner option. The option-specific course requirements total 33 credits, including: NURS 802 (3), NURS 802A (1), NURS 803 (3), NURS 804 (3), NURS 870 (3), NURS 871 (3), NURS 872 (3), NURS 873 (4); NURS 874 (6), NURS 875 (2), and NURS 876 (2).

Students must earn a minimum of 41 credits for the M.S.N. with the Adult Gerontology Primary Care Nurse Practitioner option. The option-specific course requirements total 29 credits, including: NURS 802 (3), NURS 803 (3), NURS 804 (3), NURS 870 (3), NURS 871 (3), NURS 872A (4), NURS 873A (4), and NURS 874A (6).

Students must earn a minimum of 43 credits for the M.S.N. with the Adult Gerontology Acute Care Nurse Practitioner option. The option-specific course requirements total 31 credits, including: NURS 802 (3), NURS 803 (3), NURS 804 (3), NURS 860 (3), NURS 861 (3), NURS 862 (4), NURS 863 (4), NURS 864 (6), NURS 865 (1), and NURS 866 (1).

Students must earn a minimum of 37 credits for the M.S.N. with the Nurse Administrator option. The option-specific course requirements total 13 credits, including: NURS 845 (3), NURS 846 (3), NURS 847 (3), and NURS 848 (4). Students in this option are required to take 12 additional
elective credits chosen from a list of approved elective courses maintained by the graduate program office.

Students must earn a minimum of 37 credits for the M.S.N. with the Nurse Educator option. The option-specific course requirements total 22 credits, including: NURS 802B (3), NURS 803 (3), NURS 804 (3), NURS 840 (3), NURS 841 (3), NURS 842 (3), and NURS 843 (4). Students in this option are required to take 3 additional elective credits chosen from a list of approved elective courses maintained by the graduate program office.

**D.N.P. Degree Requirements**

Requirements listed here are in addition to requirements stated in the DEGREE REQUIREMENTS section of the Graduate Bulletin.

Students may enter the program directly from a B.S. in nursing or following completion of a Master's degree in nursing.

For the B.S. in Nursing to the D.N.P. for nurse administrators, a core of master’s courses is required. A minimum of 61 credits, 1000 hours of practicum time, and a DNP project is required. The 61 credits include:

- 9 credits of Master's Core Courses: NURS 501(3), NURS 510(3), and NURS 512(3)
- 13 credits of Nurse Administrator Option Courses: NURS 845(3), NURS 846(3), NURS 847(3), and NURS 848A(4).
- 12 credits of D.N.P. Core Courses: NURS 830(3), NURS 831(3), NURS 832(3), and NURS 833(3).
- 8 credits of Other Required Courses: NURS 590(1), NURS 587(1), NURS 808(3), and NURS 836(3).
- 5 credits of Advanced Practice Clinical (needed to meet the 1000 hour practicum requirement): NURS 834(5)
- 6 credits of DNP Project: NURS 835(6)
- 8 credits of electives chosen from a list of approved elective courses maintained by the graduate program office.

The Master of Science in Nursing (M.S.N.) to D.N.P. program requires a minimum of 30 post-master’s degree credits completed at Penn State. The curriculum is individualized based on previous course work and number of practicum hours completed during the master’s program. A maximum of 550 practicum hours from the previous master’s program will be accepted to fulfill to 1000 hours of required practicum hours. The curriculum is composed of 5 components, for a minimum of 38 credits:

- 12 credits of D.N.P. Core Courses: NURS 830 (3), NURS 831 (3), NURS 832 (3), and NURS 833 (3).
- 14 credits of Other Required Courses: NURS 510 (3), NURS 590 (1), NURS 587 (1), NURS 845 (3), NURS 808 (3), and NURS 836 (3).
- 6 credits of DNP Project: NURS 835 (6)
- 6 credits of electives chosen from a list of approved elective courses maintained by the graduate program office.
In addition to the minimum 38 credits, up to 8 credits of NURS 834 may be required for M.S.N. to D.N.P. students, depending on the number of practicum hours completed in the student’s M.S.N. program.

For both entry options, students are required to participate in 3 intensives offered at the University Park or Hershey Medical Center campus. For full-time students, the first intensive is August of semester I for M.S.N. to D.N.P. and Semester III for B.S. to D.N.P. students. Intensive 2 is the beginning of the subsequent semester, Intensive 3 is at the end of semester II for M.S.N. to D.N.P. and semester IV for B.S. to D.N.P. students.

In addition to course work, all students are required to complete a series of three benchmarks, Candidacy Examination, Comprehensive Examination, and a Final Oral Presentation.

**D.N.P. Doctoral Committee Composition:** The doctoral committee will consist of the student’s academic adviser, the DNP project course (NURS 835) instructor, and a third member of the graduate faculty, all from the graduate program in Nursing. The academic adviser will be the chair of the committee.

**Candidacy Examination:** All students must satisfactorily complete the candidacy examination, which is designed to evaluate the student’s past performance and potential for successfully completing the program. Candidacy typically occurs prior to the 2nd intensive, which follows completion of one semester of full-time study for the M.S.N. to D.N.P. student and after three semesters of full-time study for the B.S. to D.N.P. student. Students who fail the examination on the first attempt may repeat it once.

**Comprehensive Examination:** The Comprehensive Examination marks the student’s progression into their D.N.P. project. This occurs during the 3rd intensive, when students present their D.N.P. project proposal. The Comprehensive Examination needs to be successfully completed prior to the submission of the proposal for human subjects’ review or carrying out the project (if it does not require a review). Students who fail the examination on the first attempt may repeat it once.

**Final Oral Presentation:** Upon completion of the project, the Final Oral Presentation is scheduled. Students are required to present the project for approval by their doctoral committee. The Associate Dean for Graduate Education will sign off on the final paper, following completion of the paper during NURS 835 and the student’s passing of the oral presentation. Students who fail the examination on the first attempt may repeat it once. The student’s final paper will be made publically available through ScholarSphere.

**Ph.D. Degree Requirements**

Requirements listed here are in addition to requirements stated in the DEGREE REQUIREMENTS section of the Graduate Bulletin.

Students may enter the program directly from a B.S. in nursing (receiving a M.S. degree en route to the Ph.D.) or following completion of a B.S. in nursing and a master's degree (either in
A dual-title Ph.D. degree in Nursing and Bioethics, a dual-title in Nursing and Clinical and Translational Sciences, and a graduate minor in Nursing are also available.

Students entering with a M.S. degree in Nursing will complete a minimum of 40 credits. The curriculum is composed of 3 components:

1. Nursing Science Core: minimum of 16 credits, consisting of NURS 580 (3), NURS 581 (3), NURS 582 (3), NURS 583 (3), NURS 587 (1), NURS 590 (3). NURS 596 (3) will also be required of students who are not research assistants on an active faculty research study.

2. Research Methodology and Statistics: minimum of 15 credits approved by the student’s adviser and/or doctoral committee.

3. Courses for Individual Specialty: minimum of 9 credits; minimum of 15 credits for a minor.

In addition to course work, all students are required to complete a series of examinations: the Candidacy Examination, the Comprehensive Examination (written and oral components), the Dissertation Proposal Defense, and Final Oral Examination. Students also are required to fulfill a residency requirement. This entails being registered as a full-time student (9 credits minimum) engaged in academic work over the courses of two semesters within a twelve-month period (summer sessions are not included).

**Candidacy Examination:** All students must satisfactorily complete the candidacy examination, which is designed to confirm the student's mastery of basic nursing theory and research methods. For students entering the doctoral program with a master's degree, the candidacy examination must be taken at the end of the first year of full-time study or the equivalent. Students who fail the examination on the first attempt may repeat it once. Students who fail the examination the second time are terminated from the program.

**Comprehensive Examination:** The comprehensive examination is designed to test the student's mastery of and ability to synthesize and integrate the theoretical basis for nursing science, advanced research methods, and the chosen specialty area. This examination is taken upon completion of all course work. Students who fail the examination on the first attempt may repeat it once. Students who fail the examination the second time are terminated from the program.

**Dissertation:** Each student is required to conduct an original and independent research project which, adds to nursing's body of knowledge, and to communicate the research report in a written dissertation. A written dissertation proposal is required and must be approved at a proposal hearing by a majority vote of the student's dissertation committee. A majority vote is also required for approval of the completed written dissertation at the Final Oral Examination (the dissertation defense). The dissertation must be accepted by the doctoral committee, the head of the graduate program, and the Graduate School.

**Dual-Title Ph.D. in Bioethics Degree Requirements**

Nursing Ph.D. students may pursue additional training in bioethics through the dual-title Ph.D. program in Bioethics. Students must apply and be admitted to the graduate program in Nursing.
and the Graduate School before they can apply for admission to the dual-title degree program. Admission to the dual-title is determined upon review of all application materials (forwarded from the College of Nursing) by the admissions committee in Bioethics. Students must apply and be admitted to the dual-title degree program in Bioethics prior to taking the candidacy exam.

To qualify for the dual-title degree, students must satisfy the requirements of the Nursing Ph.D. program. In addition, they must satisfy the requirements described below, as established by the Bioethics program committee. Within this framework, final course selection is determined by the student, their Nursing adviser, and their Bioethics program adviser.

The dual-title Ph.D. in Nursing and Bioethics requires a minimum of 2 credits of course work beyond the requirements for the Ph.D. in Nursing (16 credits of the 18 Bioethics credits are part of the current degree requirements in Nursing), as follows:

- **10 credits:** 7 required credits (BIOET 501 (3), BIOET 502 (3), and BIOET 590 (1)), plus at least 3 additional BIOET credits at the 500 level. These credits can be applied to the 9 credits of specialty coursework for the Nursing Ph.D.
- **8 additional credits** from a list of approved electives at the 400 or 500 level, at least two of which must be at the 500 level. Many of the available electives that students may wish to take are 3-credit courses, so 9 additional credits may be a more typical number for most students. The list of elective courses will be maintained by the Director of the Bioethics Graduate Program in consultation with the Bioethics Program Committee. The Nursing Science core constitutes 7 of these elective credits.

**Candidacy.** In order to be admitted to Ph.D. candidacy in the dual-title degree program, students must meet the Ph.D. candidacy requirements specified by Nursing; a single candidacy examination will be administered that includes assessment of both Nursing and Bioethics. At least one member of the candidacy committee must have a graduate faculty appointment in Bioethics. Because students must first be admitted to a graduate major program of study before they may apply to and be considered for admission into a dual-title graduate degree program, dual-title graduate degree students may require an additional semester to fulfill requirements for both areas of study and, therefore, the candidacy examination may be delayed one semester beyond the normal period allowable.

**Comprehensive exam.** The doctoral committee of a Nursing and Bioethics dual-title Ph.D. student must include at least one member of the Bioethics Graduate Faculty. Graduate faculty members who hold appointments in both programs may serve in a combined role. If the chair of the committee representing Nursing is not also a member of the Graduate Faculty in Bioethics, the member of the committee representing Bioethics must be appointed as co-chair. The faculty member (or members) affiliated with the Bioethics Program will be responsible for administering a portion of the comprehensive exam that will require the student to demonstrate an understanding of various theoretical and methodological approaches to bioethics, and an ability to apply them to issues and problems (including, where appropriate, practical problems) in their nursing.

**Dissertation and Final Oral Examination (the Dissertation Defense).** Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense)
to earn the Ph.D. degree. Students enrolled in the dual-title program are required to write and orally defend a dissertation on a topic that is approved in advance by their doctoral committee and reflects their original research and expertise in Nursing and Bioethics. The dissertation must be accepted by the doctoral committee, the head of the graduate program, and the Graduate School.

**Dual-Title Ph.D. in Clinical and Translational Science**

Nursing Ph.D. students may pursue additional training in CTS through the dual-title Ph.D. program in CTS. Students must apply and be admitted to the graduate program in Nursing and the Graduate School before they can apply for admission to the dual-title degree program. Admission to the dual-title is determined upon review of all application materials (forwarded from the College of Nursing) by the admissions committee in CTS. Students must apply and be admitted to the dual-title degree program in CTS prior to taking the candidacy exam.

To qualify for the dual-title degree, students must satisfy the requirements of the Nursing Ph.D. program. In addition, they must satisfy the requirements described below, as established by the CTS program committee. Within this framework, final course selection is determined by the student, their Nursing adviser, and their CTS program adviser.

The CTS dual-title requires 26 credits: 18 credits from a list of approved electives in each of the following areas (at least half of which must be at the 500 or 800 level): Statistics (3 cr.), Epidemiology (3 cr.), Bioinformatics (3 cr.), Experimental Design and Interpretation (3 cr.), The Regulatory Environment (3 cr.), and Scientific Communication (3 cr.); 2 credits of CTS 590; and 6 credits of CTS 595 or BMS 571. Of the 18 elective credits required, 12 credits can be double-counted from the required courses for the Ph.D. in Nursing: STAT 500/PHS 520 meets the 3-credit requirement for Statistics, and an additional 9 credits of Individual Specialization Coursework required for Nursing can be selected from the list of CTS approved electives to meet the 3-credit requirements in Epidemiology, Bioinformatics, and The Regulatory Environment. Therefore, dual-title Ph.D. students in Nursing and CTS may require a minimum of 14 credits of additional course work, consisting of approved electives in Experimental Design and Interpretation (3 cr.) and Scientific Communication (3 cr.), 2 credits of CTS 590; and 6 credits of CTS 595 or BMS 571.

Candidacy Examination. In order to be admitted to Ph.D. candidacy in the dual-title degree program, students must meet the Ph.D. candidacy requirements specified by Nursing; a single candidacy examination will be administered that includes assessment of both Nursing and CTS. At least one member of the candidacy committee must have a graduate faculty appointment in CTS. Because students must first be admitted to a graduate major program of study before they may apply to and be considered for admission into a dual-title graduate degree program, dual-title graduate degree students may require an additional semester to fulfill requirements for both areas of study and, therefore, the candidacy examination may be delayed one semester beyond the normal period allowable.
Comprehensive Examination. The doctoral committee of a Nursing and CTS dual-title Ph.D. student must include at least one member of the CTS Graduate Faculty. Graduate faculty members who hold appointments in both programs may serve in a combined role. If the chair of the committee representing Nursing is not also a member of the Graduate Faculty in CTS, the member of the committee representing CTS must be appointed as co-chair. The faculty member (or members) affiliated with the CTS Program will be responsible for administering a portion of the comprehensive exam that will require the student to demonstrate an understanding of various theoretical and methodological approaches to CTS, and an ability to apply them to issues and problems (including, where appropriate, practical problems) in their nursing.

Dissertation and Final Oral Examination (the Dissertation Defense). Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense) to earn the Ph.D. degree. Students enrolled in the dual-title program are required to write and orally defend a dissertation on a topic that is approved in advance by their doctoral committee and reflects their dissertation research and expertise in Nursing and CTS. The dissertation must be accepted by the doctoral committee, the head of the graduate program, and the Graduate School.

**Student Aid**

Graduate assistantships available to students in this program and other forms of student aid are described in the Student Aid section of the Graduate Bulletin. Students on graduate assistantships must adhere to the course load limits set forth in the Graduate Bulletin.

In addition to the STUDENT AID section of the Graduate Bulletin, the following awards typically have been available to graduate students in this program:

U.S. PUBLIC HEALTH SERVICE TRAINEESHIPS IN NURSING
Open to selected registered nurse, full-time students in nursing; stipend may be available plus tuition. Apply to Associate Dean for Graduate Education & Research, College of Nursing.

**Courses**

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students but courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

**NURSING (NURS) course list**
Clinical and Translational Sciences (CTS)

Heads:

GAIL D. THOMAS, Ph.D.
H047 Medicine, Hershey Medical Center
717-531-0003 x287087

JAMES PAWELCZYK, Ph.D.
107 Noll Lab, University Park
814-865-3453

Degree conferred:

Students electing to pursue this program through participating departments will earn a degree with a dual-title at the Ph.D. level, i.e., Ph.D. in [major program name] and Clinical and Translational Sciences.

The Graduate Faculty

The Program

The College of Medicine provides academic leadership of the CTS dual-title graduate degree program. It is administered jointly on the University Park and Hershey campuses through the College of Health and Human Development and the College of Medicine, respectively, in conjunction with Penn State’s Clinical and Translational Science Institute (CTSI) and in coordination with the student’s primary graduate program. The CTSI Education and Training Internal Advisory Committee, which includes representatives from colleges and departments participating in the CTSI, maintains the program’s definition and goals, identifies faculty and courses relevant to the CTS dual-title graduate degree program, and recommends policies and procedures for the program’s operation.

The dual-title graduate degree program in CTS is designed to provide students with the aptitudes and skills necessary to expand research in their major field of study to impact clinical medicine
and public health. The dual-title graduate degree program will provide opportunities to synthesize expertise across disciplinary boundaries and to evaluate the effectiveness of research to create improved clinical and/or health outcomes. This program enhances the training in the major field of study by providing value-added skill sets in patient-oriented, epidemiological, behavioral outcomes and health services research that transitions scientific findings from the laboratory to the clinical setting to best practices in the community. Clinical and translational sciences are expanding, with career paths in academic, medical and industrial settings.

Because the dual-title Ph.D. complements the primary program of study, CTS program representation must be included at all phases of graduate study, including the candidacy exam, comprehensive exam, and dissertation defense.

**Admission Requirements**

Students must apply and be admitted to their primary graduate program and The Graduate School before they can apply for admission to the CTS dual-title degree program. After admission to their primary program, students must apply for admission to and meet the admissions requirements of the CTS dual-title program. Doctoral students must be admitted into the dual-title degree program in CTS prior to obtaining candidacy in their primary graduate program.

An admissions committee comprised of faculty affiliated with the CTS dual-title graduate degree program will evaluate students. Applicants must have a graduate GPA of at least 3.5 in an area that relates to clinical and translational sciences. Applicants will be required to provide a statement of purpose that addresses the ways their research and professional goals will be enhanced by interdisciplinary research.

**Degree Requirements**

To qualify for a dual-title degree, students must satisfy the requirements of the primary graduate program in which they are enrolled. In addition, they must satisfy the degree requirements for the dual-title in CTS listed below.

General requirements for the dual-title Ph.D. in [major program name] and Clinical and Translational Sciences are listed below:

- CTS 590 (1) Seminar in Clinical and Translational Sciences (two semesters)
- CTS 595 (1-6) Clinical Research Internship or BMS 571 (1-3) Graduate Clinical Rotation (6 credits)
- 18 additional credits from a list of approved electives in the following areas:
  - Statistics (3 credits)
  - Epidemiology (3 credits)
  - Bioinformatics (3 credits)
  - Experimental design and interpretation (3 credits)
  - The regulatory environment (3 credits)
Scientific communication (3 credits)
The choice of CTS electives may be proposed by the student, subject to approval by the student’s academic advisers from the primary and CTS programs. They should complement the student's work in the primary program. A list of approved electives is available on the CTS program home page.

- Successful completion of candidacy and comprehensive examinations in clinical and translational sciences and the related field. The specific format and content is determined in consultation with the primary program.
- Successful defense of a dissertation in the major field with a substantial component that is clinical or translational in nature.
- Scholarship and Research Integrity (SARI) training (required of all Penn State graduate students)
- Institutional Review Board and/or Institutional Animal Care and Use Committee training (as appropriate)

Candidacy Requirement

Typically, candidates to the program will be accepted during their first year of study. In some circumstances candidates may be considered during the second year. To be admitted to the CTS dual-title graduate degree program students must meet the Ph.D. candidacy requirements in both their major area of study and the dual-title area. The candidacy exam will include both elements. Dual-title graduate degree students may require an additional semester to fulfill requirements for both areas of study and, therefore, the candidacy examination may be delayed one semester beyond the normal period allowable.

The candidacy examination committee for the dual-title Ph.D. degree must include at least one Graduate Faculty member from the CTS program. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role.

Doctoral Committee Composition

In addition to the general Graduate Council requirements for doctoral committees, the doctoral committee of a CTS dual-title doctoral degree student must include at least one member of the CTS Graduate Faculty. Faculty members who hold appointments in both programs’ Graduate Faculty may serve in a combined role. If the chair of the doctoral committee is not also a member of the Graduate Faculty in CTS, the member of the committee representing CTS must be appointed as co-chair.

Comprehensive Exam

The CTS representative on the student’s doctoral committee will develop questions for and participate in the evaluation of the comprehensive examination. The comprehensive exam will require the student to demonstrate an understanding of the methods of translational sciences and an ability to apply them to problems in the student’s major field of study. When appropriate, the
student will be expected to demonstrate a working knowledge of methods to evaluate and compare the outcomes of his/her research to related approaches already in existence.

**Dissertation**

Students in the dual-title program are required to write and orally defend a dissertation on a topic that is approved in advance by their doctoral committee and reflects their original research and education in both their primary graduate program and CTS. Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense) to earn the Ph.D. degree. The dissertation must be accepted by the doctoral committee, the head of the graduate program, and the Graduate School.

**Student Aid**

Graduate assistantships available to students in this program and other forms of student aid are described in the **Student Aid** section of the Graduate Bulletin. Students on graduate assistantships must adhere to the course load limits set forth in the Graduate Bulletin.

**Courses**

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

Last Revised by the Department: Fall Semester 2013

Review Date: 11/19/2013

Faculty linked: 8/14/14